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<th>AUTHOR, TITLE, SOURCE, AUTHOR AFFILIATION, ABSTRACT</th>
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| 1.   | Aaron, S., Mani, S., Prabhakar, A. T., Babu, P. S., Kumar, S., Benjamin, R. N., Sivadasan, A., Muthusamy, K., Patil, A. K., Mathew, V. and Alexander, M.  
Sonothrombolysis for acute ischemic stroke - Break on through to the other side  
Neurol India; 2017, 65 (1): 52-57  
Address: Department of Neurological Sciences, Neurology Unit, Christian Medical College, Vellore, Tamil Nadu, India. Department of Radiology, Christian Medical College and Hospital, Vellore, Tamil Nadu, India.  
BACKGROUND: Intravenous (IV) tissue plasminogen activator (tPA) infusion combined with transcranial low-frequency ultrasound waves targeted on the occluded arterial segment (sonothrombolysis) can increase recanalization in large artery-acute ischemic stroke (LA-AIS).  
AIMS: To evaluate the benefits of sonothrombolysis in LA-AIS.  
SETTINGS AND DESIGNS: An open-labeled observational study done in a quaternary care teaching hospital.  
METHODOLOGY: Patients with LA-AIS within the window period (<4.5 h) with no contraindications for IV-recombinant tPA were sonothrombolysed. Recanalization was monitored and graded using the transcranial Doppler thrombolysis in brain ischemia (TIBI) flow criteria and also by time of flight magnetic resonance angiography using a modified thrombolysis in myocardial infarction score. Parenchymal changes were assessed using computed tomography (CT) or diffusion-weighted imaging-Alberta Stroke Programme Early CT Score. National Institutes of Health Stroke Scale (NIHSS) and modified Rankin Scale (mRS) were used to assess the outcome.  
RESULTS: Eighteen patients underwent sonothrombolysis and the mean onset to needle time was 138 min (range 65-256). TIBI residual flow grade of >/=2 was seen in 15 of 18 patients (83%). Immediate dramatic improvement (NIHSS score </=3 points or improvement by >/=10 points) was seen in 6 of 18 patients (30%) and in 9 of 18 patients (50%) within the next 24 h. Two patients (one with TIBI 0, another with re-occlusion) underwent mechanical thrombectomy post-sonothrombolysis. Symptomatic hemorrhage occurred in 5.5% of the patients. At 6 months, 2 of 18 patients (11%) died and 10 of 16 patients (63%) achieved mRS </=2.  
CONCLUSIONS: Sonothrombolysis appears to be a safe way to augment the effect of tPA without increasing the door to needle time with the added advantage of observing flow through the occluded artery in real time. | NAT | JAN TO JUN | PMID:28084238 |
Malignant Peripheral Nerve Sheath Tumour of the Small Bowel Presenting with Intussusception and Perforation: a Double Jeopardy?  
Indian J Surg Oncol; 2017, 8 (2): 206-209  
Address: Department of General Surgery, Christian Medical College, Vellore, Tamil Nadu India. Department of Pathology, Christian Medical College, Vellore, Tamil Nadu India.  
Malignant peripheral nerve sheath tumours (MPNST) are rare soft tissue sarcomas which largely occur in the extremities and the head and neck region. The tumours are aggressive with a high rate of recurrence. | NAT | JAN TO JUN | PMID:28546722 |
Radical surgical resection remains the treatment of choice with adjuvant radiation therapy and chemotherapy still failing to demonstrate a clear benefit. The gastrointestinal tract is an exceedingly rare site for these tumours. We report an unusual case of a young male with an MPNST of the small bowel who presented with an ileocolic intussusception and sigmoid perforation.

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<th>3.</th>
<th>Agarwal, I. and Al-Ghitany, A.</th>
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<td><strong>Anti-glomerular basement membrane: A rare cause of renal failure in children</strong></td>
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<tr>
<td><strong>Address:</strong> Department of Pediatric Nephrology, Christian Medical College, Vellore, Tamil Nadu, India. Department of Internal Medicine, Nephrology Unit, Ain Shams University, Cairo, Egypt.</td>
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<td>Anti-glomerular basement membrane (GBM) disease is a rare cause of acute renal failure and known to have bad prognosis regarding renal functions recovery and patient survival specially when diagnosed late and presents with severe renal failure that requires dialysis. We report a case of 11-year-old child with acute renal failure secondary to anti-GBM disease and associated with antineutrophil cytoplasmic antibody-positive vasculitis. He was treated with plasmapheresis, steroids, and cyclophosphamide with recovery of his kidney functions.</td>
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<th>4.</th>
<th>Aithala, R., Alex, A. G. and Danda, D.</th>
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<td><strong>Pulmonary hypertension in connective tissue diseases: an update</strong></td>
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<td><strong>Address:</strong> Department of Clinical Immunology &amp; Rheumatology, Christian Medical College, Vellore, Tamil Nadu, India. Department of Cardiology, Christian Medical College, Vellore, Tamil Nadu, India.</td>
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<td>Pulmonary hypertension (PH) is a relatively commoner complication of systemic sclerosis (SSc) with estimated prevalence ranging between 8% and 12% as compared to much lower figures in other connective tissue diseases (CTD). It is a major cause of morbidity and mortality in CTDs. PH is classified into five major groups. CTD-associated PH belongs to group 1 PH, also known as pulmonary arterial hypertension (PAH). Around 30% of scleroderma-related deaths are due to PAH. Underlying pathogenesis is related to pulmonary vasculopathy involving small vessels. The Evidence-based Detection of Pulmonary Arterial Hypertension in Systemic sclerosis (DETECT) algorithm outperforms the current European Society of Cardiology/European Respiratory Society guidelines as a screening tool in SSc-PAH; it can, therefore, suggest when to refer a patient for right heart catheterization. CTD-PAH patients constitute at least 20% of patients included in all major trials of PH-specific therapy and the results are comparable to those of idiopathic PAH. The role of anticoagulation in CTD-PAH is associated with a high risk-benefit ratio with the caveat of its potential role in those with severe disease. There appears to be no role of immunosuppression in scleroderma-PAH; however, immunosuppressive agents, namely the combination of glucocorticoids and pulse cyclophosphamide / possibly mycophenolate, may result in clinical improvement in a subset of patients with systemic lupus erythematosus and mixed connective tissue disorders.</td>
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disease-related PAH.


Quantifying tap-to-household water quality deterioration in urban communities in Vellore, India: The impact of spatial assumptions


Address: Department of Civil & Environmental Engineering, Tufts University, Medford, MA, USA. Department of Community Health, Christian Medical College, Vellore, Tamil Nadu, India. Division of Gastrointestinal Sciences, Christian Medical College, Vellore, Tamil Nadu, India. Division of Gastrointestinal Sciences, Christian Medical College, Vellore, Tamil Nadu, India; Department of Geographic Medicine, Tufts Medical Center, Boston, MA, USA. Department of Civil & Environmental Engineering, Tufts University, Medford, MA, USA; Division of Gastrointestinal Sciences, Christian Medical College, Vellore, Tamil Nadu, India; Friedman School of Nutrition Science & Policy, Tufts University, Boston, MA, USA. Electronic Address: elena.naumova@tufts.edu.

Municipal water sources in India have been found to be highly contaminated, with further water quality deterioration occurring during household storage. Quantifying water quality deterioration requires knowledge about the exact source tap and length of water storage at the household, which is not usually known. This study presents a methodology to link source and household stored water, and explores the effects of spatial assumptions on the association between tap-to-household water quality deterioration and enteric infections in two semi-urban slums of Vellore, India. To determine a possible water source for each household sample, we paired household and tap samples collected on the same day using three spatial approaches implemented in GIS: minimum Euclidean distance; minimum network distance; and inverse network-distance weighted average. Logistic and Poisson regression models were used to determine associations between water quality deterioration and household-level characteristics, and between diarrheal cases and water quality deterioration. On average, 60% of households had higher fecal coliform concentrations in household samples than at source taps. Only the weighted average approach detected a higher risk of water quality deterioration for households that do not purify water and that have animals in the home (RR=1.50 [1.03, 2.18], p=0.033); and showed that households with water quality deterioration were more likely to report diarrheal cases (OR=3.08 [1.21, 8.18], p=0.02). Studies to assess contamination between source and household are rare due to methodological challenges and high costs associated with collecting paired samples. Our study demonstrated it is possible to derive useful spatial links between samples post hoc; and that the pairing approach affects the conclusions related to associations between enteric infections and water quality deterioration.


A System of Care for Patients With ST-Segment Elevation Myocardial Infarction in India: The Tamil Nadu-ST-Segment Elevation Myocardial Infarction Program

INT – INTERNATIONAL; NAT – NATIONAL; PMID: PUBMED ID; PMCID: PUBMED CENTRAL ID
IMPORTANCE: Challenges to improving ST-segment elevation myocardial infarction (STEMI) care are formidable in low- to middle-income countries because of several system-level factors. OBJECTIVE: To examine access to reperfusion and percutaneous coronary intervention (PCI) during STEMI using a hub-and-spoke model. Design, Setting, and Participants: This multicenter, prospective, observational study of a quality improvement program studied 2420 patients 20 years or older with symptoms or signs consistent with STEMI at primary care clinics, small hospitals, and PCI hospitals in the southern state of Tamil Nadu in India. Data were collected from the 4 clusters before implementation of the program (preimplementation data). We required a minimum of 12 weeks for the preimplementation data with the period extending from August 7, 2012, through January 5, 2013. The program was then implemented in a sequential manner across the 4 clusters, and data were collected in the same manner (postimplementation data) from June 12, 2013, through June 24, 2014, for a mean 32-week period. Exposures: Creation of an integrated, regional quality improvement program that linked the 35 spoke health care centers to the 4 large PCI hub hospitals and leveraged recent developments in public health insurance schemes, emergency medical services, and health information technology. Main Outcomes and Measures: Primary outcomes focused on the proportion of patients undergoing reperfusion, timely reperfusion, and postfibrinolysis angiography and PCI. Secondary outcomes were in-hospital and 1-year mortality. RESULTS: A total of 2420 patients with STEMI (2034 men [84.0%] and 386 women [16.0%]; mean [SD] age, 54.7 [12.2] years) (898 in the preimplementation phase and 1522 in the postimplementation phase) were enrolled, with 1053 patients (43.5%) from the spoke health care centers. Missing data were common for systolic blood pressure (213 [8.8%]), heart rate (223 [9.2%]), and anterior MI location (279 [11.5%]). Overall reperfusion use and times to reperfusion were similar (795 [88.5%] vs 1372 [90.1%; P = .21). Coronary angiography (314 [35.0%] vs 925 [60.8%; P < .001] and PCI (265 [29.5%] vs 707 [46.5%; P < .001) were more commonly performed during the postimplementation phase. In-hospital mortality was not different (52 [5.8%] vs 85 [5.6%; P = .83), but 1-year mortality was lower in the postimplementation phase (134 [17.6%] vs 179 [14.2%; P = .04), and this difference remained consistent after multivariable adjustment (adjusted odds ratio, 0.76; 95% CI, 0.58-0.98; P = .04). Conclusions and Relevance: A hub-and-spoke model in South India improved STEMI care through greater use of PCI and may improve 1-year mortality. This model may serve as an example for developing STEMI systems of care in other low- to middle-income countries.

### Cirrhosis Induced by Thioacetamide

Cardiovasc Toxicol; 2017, 17 (2): 175-184

**Address:** The Wellcome Trust Research Laboratory, Division of Gastrointestinal Sciences, Christian Medical College, Ida Scudder Road, Vellore, 632004, India. Center for Stem Cell Research, Christian Medical College, Ida Scudder Road, Vellore, 632004, India. The Wellcome Trust Research Laboratory, Division of Gastrointestinal Sciences, Christian Medical College, Ida Scudder Road, Vellore, 632004, India. wellcome@cmcvellore.ac.in.

Thioacetamide (TAA) administration is widely used for induction of liver cirrhosis in rats, where reactive oxygen radicals (ROS) and nitric oxide (NO) participate in development of liver damage. Cardiac dysfunction is an important complication of liver cirrhosis, but the role of ROS or NO in cardiac abnormalities during liver cirrhosis is not well understood. This was investigated in animals after TAA-induced liver cirrhosis and temporal changes in oxidative stress, NO and mitochondrial function in the heart evaluated. TAA induced elevation in cardiac levels of nitrate before development of frank liver cirrhosis, without gross histological alterations. This was accompanied by an early induction of P38 MAP kinase, which is influenced by ROS and plays an important signaling role for induction of iNOS. Increased nitrotyrosine, protein oxidation and lipid peroxidation in the heart and cardiac mitochondria, suggestive of oxidative stress, also preceded frank liver cirrhosis. However, compromised cardiac mitochondrial function with a decrease in respiratory control ratio and increased mitochondrial swelling was seen later, when cirrhosis was evident. In conclusion, TAA induces elevations in ROS and NO in the heart in parallel to early liver damage. This leads to later development of functional deficits in cardiac mitochondria after development of liver cirrhosis.


   The t(8;14)(q24.1;q32) and its variant translocations: A study of 34 cases

   Hematol Oncol Stem Cell Ther; 2017,

   **Address:** Cytogenetics Unit, Christian Medical College & Hospital, Vellore, Tamil Nadu 632004, India. Department of Hematology, Christian Medical College & Hospital, Vellore, Tamil Nadu, India. Department of Transfusion Medicine and Immunohematology, Christian Medical College & Hospital, Vellore, Tamil Nadu, India. Department of Pathology, Christian Medical College & Hospital, Vellore, Tamil Nadu, India. Cytogenetics Unit, Christian Medical College & Hospital, Vellore, Tamil Nadu 632004, India. Electronic Address: cytogen@cmcvellore.ac.in

   **BACKGROUND:** The t(8;14)(q24.1;q32) and its variants - the t(2;8)(p12;q24.1) and t(8;22)(q24.1;q11.2) - are associated with B-cell neoplasia and result in MYC/immunoglobulin (IG) gene rearrangement. PATIENTS AND METHODS: We correlated the cytogenetic, molecular and clinico-pathological findings of patients with 8q24 translocations seen in the Department of Haematology, Christian Medical College, Vellore, from January 2003 to December 2015. RESULTS: There were 34
patients with 8q24 translocations (31, ALL and three myeloma). The t(8;14) was seen in 25 patients, t(8;22) in seven and t(2;8) in two. The salient findings were as follows: 85% males; 79% adults, median age 37 years; L3 morphology in 61%; mature B immunophenotype in 77%; extra-medullary disease in 41%; additional abnormalities in 28 (85%), notably, structural abnormalities of chromosome 1q (41%) and 13q (9%) and monosomy 13 (15%); complex karyotypes in 68%. There were two double-hit lymphoma/leukemia, one with a t(14;18)(q32;q21) and the other with a t(3;14)(q27;q11.2), associated with nodal high grade B cell lymphoma and dermal leukemic infiltrates respectively. Only 13 samples were processed for DNA PCR and all these samples were positive for MYC-IgH (c-gamma type) rearrangement. Only in one patient, in addition to c-gamma, c-alpha rearrangement was also detected.

**CONCLUSION:** The frequency (1.7%) and distribution of these translocations in our series and the association with 1q and 13q abnormalities is similar to the literature. Trisomies 7 and 12 were seen in less than 10% of our patients.

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<tr>
<td><strong>Weight Gain and Height Growth during Infancy, Childhood, and Adolescence as Predictors of Adult Cardiovascular Risk</strong></td>
<td>J Pediatr; 2017, 180 53-61 e3</td>
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**Address:** Department of Biostatistics, Christian Medical College, Vellore, India. Oxford Center for Diabetes, Endocrinology, and Metabolism, University of Oxford, Oxford, United Kingdom. Electronic Address: senthil.vasan@ocdem.ox.ac.uk Department of Clinical Biochemistry, Christian Medical College, Vellore, India. Department of Child Health, Christian Medical College, Vellore, India. Oxford Center for Diabetes, Endocrinology, and Metabolism, University of Oxford, Oxford, United Kingdom; National Institute for Health Research Oxford Biomedical Research Centre, Oxford University Hospital, Oxford, United Kingdom. Medical Research Council Lifecourse Epidemiology Unit, University of Southampton, Southampton, United Kingdom.

**OBJECTIVES:** To investigate independent relationships of childhood linear growth (height gain) and relative weight gain to adult cardiovascular disease (CVD) risk traits in Asian Indians. **STUDY DESIGN:** Data from 2218 adults from the Vellore Birth Cohort were examined for associations of cross-sectional height and body mass index (BMI) and longitudinal growth (independent conditional measures of height and weight gain) in infancy, childhood, adolescence, and adulthood with adult waist circumference (WC), blood pressure (BP), insulin resistance (homeostatic model assessment-insulin resistance [HOMA-IR]), and plasma glucose and lipid concentrations. **RESULTS:** Higher BMI/greater conditional relative weight gain at all ages was associated with higher adult WC, after 3 months with higher adult BP, HOMA-IR, and lipids, and after 15 years with higher glucose concentrations. Taller adult height was associated with higher WC (men beta = 2.32 cm per SD, women beta = 1.63, both P < .001), BP (men beta = 2.10 mm Hg per SD, women beta = 1.21, both P < .001), and HOMA-IR (men beta = 0.08 log units per SD, women beta = 0.12, both P </.05) but lower glucose concentrations (women beta = -0.03 log mmol/L per SD P = .003). Greater height or height gain at all earlier ages were associated with higher adult CVD risk traits. These positive associations were attenuated when adjusted for adult BMI and height. Shorter length and
lower BMI at birth were associated with higher glucose concentration in women. **CONCLUSIONS:** Greater height or weight gain relative to height during childhood or adolescence was associated with a more adverse adult CVD risk marker profile, and this was mostly attributable to larger adult size.

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<th>10.</th>
<th>Antony, G., Dasgupta, R., Chacko, G. and Thomas, N.</th>
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<td>Pituitary tuberculoma with subsequent drug-resistant tuberculous lymphadenopathy: an uncommon presentation of a common disease</td>
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<td><strong>BMJ Case Rep; 2017, 2017</strong></td>
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<td><strong>Address:</strong> Christian Medical College and Hospital Vellore, Vellore, Tamil Nadu, India. Department of Endocrinology, Diabetes and Metabolism, Christian Medical College, Vellore, Tamil Nadu, India.</td>
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<td>We report a case of pituitary tuberculosis which presented as a non-functioning pituitary macroadenoma, and subsequently developed multidrug-resistant tuberculous lymphadenopathy. Pituitary tuberculosis continues to be a rare presentation of tuberculosis, but incidence and prevalence are expected to grow with increasing numbers of multidrug-resistant tuberculosis. Isolated pituitary tuberculosis is rare. Tuberculosis should be considered in the differential diagnosis in evaluation of a sellar mass.</td>
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<th>11.</th>
<th>Ar, D. Cunha and Jehangir, S.</th>
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<td>Gastrocolic fistula in a child following corrosive acid ingestion</td>
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<td><strong>BMJ Case Rep; 2017, 2017</strong></td>
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<td><strong>Address:</strong> Paediatric Surgery, Christian Medical College and Hospital Vellore, Vellore, India.</td>
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<td>Gastrocolic fistulas in children are most commonly seen after placement of a percutaneous endoscopic gastrostomy. We present a 14-year-old girl who developed a gastrocolic fistula following accidental corrosive acid ingestion. On evaluation of her symptoms, a barium swallow identified the gastrocolic fistula. It healed spontaneously in 3 months. This was both unexpected and remarkable. To the best of our knowledge this is the first case of a gastrocolic fistula occurring following corrosive ingestion.</td>
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<td>The role of Xpert MTB/RIF assay in the diagnosis of tubercular spondylodiscitis</td>
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<td><strong>Eur Spine J; 2017,</strong></td>
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<td><strong>Address:</strong> Department of Orthopaedics, Spinal Disorders Surgery, Christian Medical College, Ida Scudder Road, Vellore, Tamil Nadu, 632004, India. <a href="mailto:svjustin.arockiaraj@gmail.com">svjustin.arockiaraj@gmail.com</a> Department of Microbiology, Christian Medical College, Ida Scudder Road, Vellore, 632004, India. Department of Orthopaedics, Spinal Disorders Surgery, Christian Medical College, Ida Scudder Road, Vellore, Tamil Nadu, 632004, India.</td>
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<td><strong>PURPOSE:</strong> This study aims to assess the accuracy of the Xpert MTB/RIF assay in the diagnosis of tubercular spondylodiscitis and to identify its role in detecting Rifampicin resistance in patients with infective spondylodiscitis.</td>
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**INT – INTERNATIONAL; NAT – NATIONAL; PMID: PUBMED ID; PMCID: PUBMED CENTRAL ID**
### METHODS:
A retrospective study including 348 patients suspected to have infective spondylodiscitis was done. Tissue/pus samples obtained were sent for culture, histopathology and Xpert MTB/RIF assay. All patients who were confirmed to have tubercular spondylodiscitis and those patients who were suspected on clinico-radiological basis were also treated with anti-tuberculous chemotherapy for a period of 9 months. The efficacy of the Xpert MTB/RIF assay was assessed in terms of sensitivity and specificity when compared to culture, histopathology, and Composite reference standard (CRS).

### RESULTS:
During this study period of 24 months, a total of 348 patients were treated for infective spondylodiscitis. 254 patients were treated for tuberculosis following a smear positivity, culture positivity, and histopathology report or empirically based on clinico-radiological findings. The sensitivity and specificity of the Xpert MTB/RIF assay when compared to culture were 88.4 and 63.7%, respectively. When compared to both culture and histopathology reports it was 80.9 and 80.6%. The sensitivity and specificity of the Xpert MTB/RIF assay when compared to composite reference standard were 71.2 and 100%, respectively. The sensitivity of the assay to detect Rifampicin resistance was 100%. The prevalence of Rifampicin resistance was 5.1%.

### CONCLUSION:
This study recommends Xpert MTB/RIF assay for early detection of Mycobacterium tubercular spondylodiscitis and Rifampicin resistance.

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Carcinoma prostate masquerading as a hemorrhagic pelvic cyst
Int Braz J Urol; 2017, 43 (2): 371-372

**Address:** Department of Urology, Christian Medical College, Vellore, Tamil Nadu, India. Department of Radiology, Christian Medical College, Vellore, Tamil Nadu, India.

Frequency of rare BCR-ABL1 fusion transcripts in chronic myeloid leukemia patients
Int J Lab Hematol; 2017, 39 (3): 235-242

**Address:** Department of Haematology, Christian Medical College, Vellore, India. Cytogenetics Unit, Christian Medical College, Vellore, India.

**INTRODUCTION:** The hallmark of chronic myeloid leukemia (CML) is the presence of Philadelphia chromosome, its resultant fusion transcript (BCR-ABL1), and fusion protein (p210). Alternate breakpoints in BCR (m-bcr, mu-bcr, and others) or ABL1 result in the expression of few rare fusion transcripts (e19a2, e1a2, e13a3, e14a3) and fusion proteins (p190, p200, p225) whose exact clinical significance remains to be determined. **METHODS:** Our study was designed to determine the type and frequency of BCR-ABL1 fusion transcripts in 1260 CML patients and to analyze the prognosis and treatment response in patients harboring rare BCR-ABL1 fusion transcripts. **RESULTS:** The frequency of various BCR-ABL1 fusion transcripts was as follows: e14a2 (60%), e13a2 (34.3%), e1a2 (1.2%), e1a2 + e13a2 (2.0%), e1a2 + e14a2 (1.8%), e19a2 (0.3%), and e14a3 (0.3%). CML patients with e1a2 transcripts had higher rates of
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<td>disease progression, resistance, or suboptimal response to imatinib and failed to achieve major molecular response. CONCLUSION: Characterization of the specific fusion transcript in CML patients is important owing to the difference in prognosis and response to therapy in addition to the conventional need for monitoring treatment response. CML patients with e1a2 transcripts have to be closely monitored due to the high incidence of disease progression and treatment resistance/failure.</td>
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<td>In vitro efficacy and in-silico analysis of cefixime-ofloxacin combination for Salmonella Typhi from bloodstream infection</td>
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<td>Address: Department of Clinical Microbiology, Christian Medical College, Vellore, 632004, India. Department of Integrative Biology, School of Biosciences and Technology, VIT University, Vellore, Tamil Nadu, India. Faculty of Computing and Information Technology, King Abdulaziz University, Rabigh, 21911, Saudi Arabia.</td>
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<td>AIMS: Recently, the cefixime-ofloxacin combination is approved by drug controller general of India (DCGI) to treat typhoid fever. We sought to evaluate the antimicrobial activity of cefixime-ofloxacin combination against S. Typhi.</td>
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<td>METHODS AND RESULTS: 283 non-duplicate S. Typhi isolates collected during 2012 to 2014 were included in this study. Minimum inhibitory concentration (MIC) of cefixime and ofloxacin was determined by using broth microdilution method. Combinational testing was performed by using checkerboard assay. In checkerboard assay, synergistic activity was seen in 11% of isolates, while the majority of the isolate showed indifference and none of them showed antagonism. An in silico strategy, an alternative to the animal model, was carried out to understand drug interaction and toxicity. Molecular docking results elucidated that cefixime and ofloxacin are capable of inhibiting the cell wall synthesis and DNA replication respectively. Computational ADMET analysis showed no toxicity and no drug-drug interaction between cefixime and ofloxacin. CONCLUSION: Cefixime-ofloxacin combination could be effective against moderately susceptible fluoroquinolone S. Typhi but not fluoroquinolone-resistant isolates. SIGNIFICANCE AND IMPACT OF STUDY: Cefixime-ofloxacin combination with no drug-drug interaction and non-toxic predicted through computational analysis didn't show antagonism against S. Typhi in in-vitro. Though the present study showed no adverse effects with the cefixime-ofloxacin combination, further studies on pharmacokinetic and pharmacodynamic (PK-PD) parameters of cefixime and ofloxacin combination are warranted. This article is protected by copyright. All rights reserved.</td>
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<td>16.</td>
<td>Bakthavatchalam, Y. D., Nabarro, L. E. and Veeraraghavan, B.</td>
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<td>Evolving Rapid Methicillin-resistant Staphylococcus aureus Detection: Cover All the Bases</td>
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<td>J Glob Infect Dis; 2017, 9 (1): 18-22</td>
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<td>PMID:28250621</td>
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INT – INTERNATIONAL; NAT – NATIONAL; PMID: PUBMED ID; PMCID: PUBMED CENTRAL ID
### Address: Department of Clinical Microbiology, Christian Medical College, Vellore, Tamil Nadu, India.
Department of Clinical Microbiology, Christian Medical College, Vellore, Tamil Nadu, India; Department of Infectious Disease, Public Health England, London, UK.

The dissemination of methicillin-resistant (MR) Staphylococcus aureus (SA) in community and health-care settings is of great concern and associated with high mortality and morbidity. Rapid detection of MRSA with short turnaround time can minimize the time to initiate appropriate therapy and further promote infection control. Early detection of MRSA directly from clinical samples is complicated by the frequent association of MRSA with methicillin-susceptible SA (MSSA) and coagulase-negative Staphylococcus (CoNS) species. Infection associated with true MRSA or MSSA is differentiated from CoNS, requires target specific primers for the presence of SA and mecA or nuc or femA gene for confirmation of MR. Recently, livestock-associated MRSA carrying mecC variant complicates the epidemiology of MRSA further. Several commercial rapid molecular kits are available with a different combination of these targets for the detection of MRSA or MSSA. The claimed sensitivity and specificity of the currently available commercial kits is varying, because of the different target combination used for detection of SA and MR.

#### 17. Bakthavatchalam, Y. D., Veeraraghavan, B., Devanga Ragupathi, N. K., Babu, P., Munuswamy, E. and David, T.

Draft genome sequence of reduced teicoplanin-susceptible and vancomycin-heteroresistant methicillin-resistant Staphylococcus aureus from sepsis cases

**Address:** Department of Clinical Microbiology, Christian Medical College, Vellore 632004, Tamil Nadu, India. Department of Medicine (Unit II), Christian Medical College, Vellore 632004, India.

Here we report the whole-genome shotgun sequence of six methicillin-resistant Staphylococcus aureus (MRSA) showing reduced susceptibility to both vancomycin and teicoplanin. The typical Indian community-acquired MRSA (CA-MRSA) clone ST772-MRSA-V-t657 was the most common genotype (3/6; 50%), followed by ST672-MRSA-IV (2/6; 33%) and ST22-MRSA-IV (1/6; 17%). All strains harboured a mutation in the tcaRAB operon, vraSR, graSR and/or rpoB genes, which are frequently mutated determinants in a heteroresistant vancomycin-intermediate S. aureus (hVISA) phenotype.


Urogenital Management in Cloaca: An Alternative Approach

**Address:** Department of Pediatric Surgery, Christian Medical College, Vellore, Tamil Nadu, India. Department of Pediatric Surgery, PSG IMS and R Centre, Coimbatore, Tamil Nadu, India. Department of
**INTRODUCTION:** In the management of cloaca, there is concern that dissection of the urogenital sinus in early childhood with the aim of total anatomical correction is hazardous. Avoiding such mobilization and providing mitrofanoff channel, when needed, till peripubertal period reduces complications and is technically easier. **MATERIALS AND METHODS:** Forty-three cases of cloaca were managed in the period 2004-2016. Case records and radiology were reviewed retrospectively. The follow-up evaluation was done by looking into voiding history, bowel movements, and menstruation history. **RESULTS:** There were three groups of children, namely, those with no reconstruction done elsewhere except a diverting fecal stoma (Group I, n = 25), those who had undergone anorectal correction elsewhere with no attempt at urogenital reconstruction (Group IIA, n = 13), and those with attempted bowel and genitourinary reconstruction elsewhere (Group IIB, n = 5). The Group I children (one still awaiting reconstruction) underwent early rectal reconstruction followed by expectant management of the urogenital apparatus. The 18 referred cases had multiple problems, chiefly urogenital, of congenital or iatrogenic origin. While urinary reconstruction included bladder augmentation, ileal neobladder, bladder neck closure, and ureteric reimplantation, the foundation of urinary management was intermittent catheterization through mitrofanoff stoma and the avoidance of any dissection of the cloacal common channel. Surgery on the genital tracts included drainage of hydrocolpos, perineal surgery for low vaginæ and abdominoperineal vaginoplasty for high vaginæ in the peripubertal period with or without bowel supplementation. Spontaneous voiding was maintained in 17 of 25 (68%) Group I girls (including one death later from intestinal complications), 7 of 13 (54%), Group IIA girls, and 1 of 5 (20%) Group IIB girls. Painless menstruation was noted in eight postpubertal girls, three through the cloacal channel (awaiting reconstruction) and five through the reconstructed vagina. Most of the children are on a bowel management program for fecal cleanliness with washouts through the neoanus or Malone's stoma. **CONCLUSION:** We report a nonconventional approach to cloaca based on avoiding dissection of or around the common channel for urethrovaginal reconstruction, opting for mitrofanoff stoma for intermittent catheterization, when needed, and late vaginal reconstruction. We believe this approach has reduced the overall need for intermittent catheterization.

Cost effective, technically simpler, and aesthetically promising cranioplasty in developing countries  
Neurol India; 2017, 65 (3): 660-663  
Address: Department of Neurosurgery, Christian Medical College and Hospital, Vellore, Tamil Nadu, India. Department of Dental Surgery, Christian Medical College and Hospital, Vellore, Tamil Nadu, India.

20. **Barnwal, P., Das, S., Mondal, S., Ramasamy, A., Maiti, T. and Saha, A.**  
Probuphine(R) (buprenorphine implant): a promising candidate in opioid dependence  
Ther Adv Psychopharmacol; 2017, 7 (3): 119-134
Opioid dependence leads to physical dependence and addiction which finally results in profound medical, psychological and social dysfunction. One of the useful medications for opioid dependence is buprenorphine, the partial opioid agonist, which is used alone or in combination with naloxone. However, buprenorphine is the victim of its own success due to its illicit use and accidental poisoning in children. Also, buprenorphine typically requires daily self-administration and its effectiveness heavily depends on patient adherence. So, poor treatment adherence results in ineffective treatment manifesting as craving and withdrawal symptoms. Short-term use of buprenorphine in opioid dependence is also often followed by relapse. Buprenorphine when used sublingually often results in inadequate or fluctuating blood concentrations and poorer treatment retention compared with methadone. All of these led to the development of Probuphine(R), a polymeric matrix composed of ethylene vinyl acetate and buprenorphine in the form of implants, that are implanted subdermally in office practice and deliver the active drug over 6 months. Buprenorphine release from such implant is fairly consistent, avoiding plasma peaks and troughs, and the implant is also reported to be safe. In this review article, we have highlighted these aspects of treatment of opioid addiction, stressing on the pharmacology of buprenorphine and Probuphine(R), and relevant clinical trials addressing the efficacy and safety of Probuphine(R). This sustained-release implantable formulation of buprenorphine has the potential to be a suitable alternative to daily or alternate day sublingual buprenorphine which can thereby eliminate the need for daily supervision, minimizing fluctuations in plasma concentrations, and allowing these patients to reduce clinic or pharmacy visits.


Household sanitation is associated with lower risk of bacterial and protozoal enteric infections, but not viral infections and diarrhea, in a cohort study in a low-income urban neighborhood in Vellore, India

Trop Med Int Health; 2017,
neighborhood. **METHODS:** As part of the MAL-ED study, 230 children in a low-income, urban, Indian neighborhood provided stool specimens at 14-17 scheduled time points and during diarrheal episodes in the first two years of life that were analyzed for bacterial, parasitic (protozoa and helminths), and viral pathogens. From interviews with caregivers in 100 households, the relationship between the presence (and discharge) of household sanitation facilities and any, pathogen-specific, and diarrhea-specific enteric infection was tested through mixed-effects Poisson regression models. **RESULTS:** Few study households (33%) reported having toilets, most of which (82%) discharged into open drains. Controlling for season and household socioeconomic status, the presence of a household toilet was associated with lower risks of enteric infection (RR: 0.91, 95% CI: 0.79-1.06), bacterial infection (RR: 0.87, 95% CI: 0.75-1.02), and protozoal infection (RR: 0.64, 95% CI: 0.39-1.04), though not statistically significant, but had no association with diarrhea (RR: 1.00, 95% CI: 0.68-1.45) or viral infections (RR: 1.12, 95% CI: 0.79-1.60). Models also suggested that the relationship between household toilets discharging to drains and enteric infection risk may vary by season. **CONCLUSIONS:** The presence of a household toilet was associated with lower risk of bacterial and protozoal enteric infections, but not diarrhea or viral infections, suggesting the health effects of sanitation may be more accurately estimated using outcome measures that account for etiologic agents. This article is protected by copyright. All rights reserved.

Systematic evaluation of markers used for the identification of human induced pluripotent stem cells  
Biol Open; 2017, 6 (1): 100-108  
**Address:** Department of Haematology, Christian Medical College, Vellore, Tamil Nadu, India. Centre for Stem Cell Research (Unit of InStem, Bengaluru), Christian Medical College Campus, Vellore, Tamil Nadu, India. Department of Haematology, Christian Medical College, Vellore, Tamil Nadu, India  
rvshaji@cmcvellore.ac.in

Low efficiency of somatic cell reprogramming and heterogeneity among human induced pluripotent stem cells (hiPSCs) demand extensive characterization of isolated clones before their use in downstream applications. By monitoring human fibroblasts undergoing reprogramming for their morphological changes and expression of fibroblast (CD13), pluripotency markers (SSEA-4 and TRA-1-60) and a retrovirally expressed red fluorescent protein (RV-RFP), we compared the efficiency of these features to identify bona fide hiPSC colonies. The co-expression kinetics of fibroblast and pluripotency markers in the cells being reprogrammed and the emerging colonies revealed the heterogeneity within SSEA-4+ and TRA-1-60+ cells, and the inadequacy of these commonly used pluripotency markers for the identification of bona fide hiPSC colonies. The characteristic morphological changes in the emerging hiPSC colonies derived from fibroblasts expressing RV-RFP showed a good correlation between hiPSC morphology acquisition and silencing of RV-RFP and facilitated the easy identification of hiPSCs. The kinetics of retroviral silencing and pluripotency marker expression in emerging colonies suggested that combining both these markers could demarcate the stages of reprogramming with better precision than with pluripotency markers alone. Our results clearly demonstrate that the pluripotency markers that are routinely analyzed for the characterization of established iPSC colonies are not suitable for the isolation of pluripotent cells in the

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|   | Generation of an induced pluripotent stem cell line that mimics the disease phenotypes from a patient with Fanconi anemia by conditional complementation |
|   | Stem Cell Res; 2017, 20 54-57 |
|   | **Address:** Haematology Department, Christian Medical College, Vellore, Tamil Nadu, India; Centre for Stem Cell Research, Christian Medical College, Vellore, Tamil Nadu, India. Haematology Department, Christian Medical College, Vellore, Tamil Nadu, India. Haematology Department, Christian Medical College, Vellore, Tamil Nadu, India; Centre for Stem Cell Research, Christian Medical College, Vellore, Tamil Nadu, India. Electronic **Address:** rvshaji@cmcvellore.ac.in |
|   | Generation of Fanconi anemia (FA) patient-specific induced pluripotent stem cells (iPSCs) has been reported to be technically challenging due to the defects in the FA-pathway in the patients' somatic cells. By inducible complementation of FA-pathway, we successfully reprogrammed the fibroblasts of an FA patient to iPSCs. CSCR19i-indCFANCA, one of the iPSC lines generated by the inducible complementation of FA-pathway, was extensively characterized for its pluripotency and karyotype. In the absence of doxycycline (DOX) and FANCA expression, this line showed the cellular phenotypes of FA, suggesting it is an excellent tool for FA disease modeling and drug screening. |
| 24. | Birendra, R., John, N. T., Duhl, N., Devasia, A., Kekre, N. and Manojkumar, R. |
|   | Histopathological analysis of the non-tumour parenchyma following radical nephrectomy: can it predict renal functional outcome? |
|   | Int Braz J Urol; 2017, 43 |
|   | **Address:** Department of Urology, Christian Medical College, Vellore. Department of Pathology, Christian Medical College, Vellore. |
|   | **INTRODUCTION:** Radical nephrectomy (RN), a recommended treatment option for patients with Renal cell carcinoma (RCC) leads to an inevitable decline in global renal function. Pathological changes in the non-tumour parenchyma of the kidney may help predict the function of the remaining kidney. **MATERIALS AND METHODS:** Aim of this prospective, observational study was to find histopathological factors in the non-tumor renal parenchyma that could predict the decline in global renal function postoperatively and its association with co-morbidities like diabetes (DM). Data of consecutive patients undergoing RN from December-2013 to January-2015 was collected. Non-tumor parenchyma of the
A dedicated histopathologist reported the specimen. eGFR was calculated using the Cockcroft-Gault formula before surgery and at least 12 months follow-up. **RESULTS:** 73 RN specimens were analyzed. Mean follow-up was 12.3 months. The mean decrease in eGFR was 22% (p=0.0001). Percent decrease in eGFR did not show association with any of the histopathological parameters studied. DM was significantly associated with decrease in percent eGFR (p<0.05) and increase in arteriolar hyalinosis (p=0.004), Glomerulosclerosis (p=0.03) and Interstitial fibrosis/Tubular atrophy (p=0.0001). Maximum size of the tumor showed a negative correlation with percentage change in eGFR (p=0.028). **CONCLUSION:** Histological parameters in the non-tumour portion of the RN specimen may not be able to predict renal function outcome over a short follow-up. However, presence of DM was associated with adverse pathological changes and significant decrease in renal function postoperatively.


Influence of geolocation and ethnicity on the phenotypic expression of primary Sjogren’s syndrome at diagnosis in 8310 patients: a cross-sectional study from the Big Data Sjogren Project Consortium

Ann Rheum Dis; 2017, 76 (6): 1042-1050

**Address:** Autoimmune Diseases Unit, Department of Medicine, Hospital CIMA- Sanitas, Barcelona, Spain. Sjogren Syndrome Research Group (AGAUR), Laboratory of Autoimmune Diseases Josep Font, IDIBAPS-CELLEX, Department of Autoimmune Diseases, ICMID, University of Barcelona, Hospital Clinic, Barcelona, Spain. Department of Statistics, Faculty of Science and Letters, Mimar Sinan Fine Arts University, Istanbul, Turkey. Division of Clinical Immunology, Faculty of Medicine, University of Debrecen, Debrecen, Hungary. Arthritis and Clinical Immunology Research Program, Oklahoma Medical Research Foundation, Oklahoma City, Oklahoma, USA. Center for Immunology of Viral Infections and Autoimmune Diseases, Assistance Publique-Hopitaux de Paris, Hopitaux Universitaires Paris-Sud, Le Kremlin-Bicetre, Universite Paris Sud, INSERM U1184, Paris, France. Department of Rheumatology, Malmo University Hospital, Lund University, Lund, Sweden. Department of Rheumatology and Immunology, Anhui Provincial Hospital, Hefei, China. Rheumatology Unit, University of Pisa, Pisa, Italy. Department of Rheumatology, Strasbourg University Hospital, Universite de Strasbourg, CNRS, Strasbourg, France. Department of Clinical Immunology & Rheumatology, Christian Medical College & Hospital, Vellore, India. Clinic of Rheumatology, Department of Medical and Biological Sciences, University Hospital “Santa Maria della Misericordia”, Udine, Italy. Department of Internal Medicine and Medical Specialties, Rheumatology Clinic, Sapienza University of Rome, Rome, Italy. Immunology and Rheumatology Department, Instituto Nacional de Ciencias Medicas y Nutricion Salvador Zubiran, Mexico City, Mexico. Department of Rheumatology and Clinical Immunology, University Medical Center Utrecht, Utrecht, The Netherlands. Department of Medicine, Federal University of Espirito Santo, Vitoria, Brazil. Department of Medicine, Solna, Unit of Experimental Rheumatology, Karolinska Institutet, and Karolinska University Hospital, Stockholm, Sweden. Departement de Medicine
### OBJECTIVES:
To analyse the influence of geolocation and ethnicity on the clinical presentation of primary Sjogren's syndrome (SjS) at diagnosis.

### METHODS:
The Big Data Sjogren Project Consortium is an international, multicentre registry designed in 2014. By January 2016, 20 centres from five continents were participating. Multivariable logistic regression analyses were performed.

### RESULTS:
We included 7748 women (93%) and 562 men (7%), with a mean age at diagnosis of primary SjS of 53 years. Ethnicity data were available for 7884 patients (95%): 6174 patients (78%) were white, 1066 patients (14%) were Asian, 393 patients (5%) were Hispanic, 104 patients (1%) were black/African-American and 147 patients (2%) were of other ethnicities. SjS was diagnosed a mean of 7 years earlier in black/African-American compared with white patients; the female-to-male ratio was highest in Asian patients (27:1) and lowest in black/African-American patients (7:1); the prevalence of sicca symptoms was lowest in Asian patients; a higher frequency of positive salivary biopsy was found in Hispanic and white patients. A north-south gradient was found with respect to a lower frequency of ocular involvement in northern countries for dry eyes and abnormal ocular tests in Europe (OR 0.46 and 0.44, respectively) and Asia (OR 0.18 and 0.49, respectively) compared with southern countries. Higher frequencies of antinuclear antibodies (ANAs) were reported in northern countries in America (OR=1.48) and Asia (OR=3.80) while, in Europe, northern countries had lowest frequencies of ANAs (OR=0.67) and Ro/La (OR=0.69).

### CONCLUSIONS:
This study provides the first evidence of a strong influence of geolocation and ethnicity on the phenotype of primary SjS at diagnosis.
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<td>28.</td>
<td>Chacko, B. R., Chiramel, G. K., Vimala, L. R., Manuel, D. A., Joseph, E. and Reka, K.</td>
<td>Varicella Zoster Virus Infection of the Central Nervous System - 10 Year Experience from a Tertiary Hospital in South India</td>
<td>Ann Indian Acad Neurol; 2017, 20 (2): 149-152</td>
<td>Address: Department of Medicine, Christian Medical College, Vellore, Tamil Nadu, India. Department of Radiology, Christian Medical College, Vellore, Tamil Nadu, India. Department of Biostatistics, Christian Medical College, Vellore, Tamil Nadu, India. Department of Clinical Virology, Christian Medical College, Vellore, Tamil Nadu, India.</td>
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<td>INTRODUCTION: Varicella zoster virus is an exclusively human neurotrophic virus. The primary infection with the virus causes varicella. The virus remains latent in nervous tissue and upon secondary activation causes a variety of syndromes involving the central nervous system (CNS) including meningoencephalitis and cerebellitis. MATERIALS AND METHODS: In this study, we looked at the epidemiology, clinical and laboratory features, and outcomes of patients who were admitted with varicella zoster of the CNS from 2005 to 2014. RESULTS: There were 17 patients. Fever was present in 13 patients, seizures in 9 patients and headache and vomiting in 4 patients each. A generalized varicella rash was present in 8 out of 17 patients. A single dermatomal herpes zoster was present in seven patients. Two patients had no rash. Varicella zoster polymerase chain reaction (PCR) in cerebrospinal fluid (CSF) was done in 5 patients of which 4 were positive and 1 was negative. Nine patients had diabetes with an average glycated hemoglobin of 8.6%. Total number of deaths was five. CONCLUSIONS: Patients with diabetes who develop varicella or herpes zoster may be at risk for CNS complications. The diagnosis of varicella encephalitis has to rest on a combination of clinical findings and CSF PCR, as neither the rash nor the PCR is sensitive enough to diagnose all the cases with varicella encephalitis.</td>
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BACKGROUND: Tetralogy of Fallot (TOF) is a complex congenital heart disease with anatomic variations. Although the pulmonary valve in TOF is abnormal, it has not been studied well, especially on newer imaging modalities such as multidetector computed tomography (CT), which gives excellent anatomic detail. 

AIMS: The aim of this study was to assess the morphology of pulmonary valve in TOF on CT and evaluate its association with the degree of hypoplasia of infundibulum and pulmonary trunk. 

MATERIALS AND METHODS: The cardiac CT scans of 30 patients with TOF were reviewed to evaluate the morphology of the pulmonary valve, infundibulum, and pulmonary arteries. Fisher's exact test was performed to examine the association between pulmonary valve morphology and degree of hypoplasia of the infundibulum and pulmonary trunk.

RESULTS: 16.7% of patients with TOF had pulmonary atresia. The prevalence of tricuspid, bicuspid, and absent valves were 10%, 53.3% and 6.7%, respectively. In another 13.3% of patients, although valve tissue was present, exact morphology could not be determined on CT. The commissures of 62.5% of the bicuspid valves were at 12 o'clock and 6 o'clock or slightly off the midline. There was statistically significant association between valve morphology and degree of infundibular hypoplasia (P < 0.001) and calibre of pulmonary trunk (P < 0.001).

CONCLUSION: Morphological abnormality of the pulmonary valve is common in TOF. The most common type of pulmonary valve in TOF patients is bicuspid valve with commissures at 12 o'clock and 6 o'clock or slightly off the midline. Fewer cusps of the pulmonary valve are associated with a more severe degree of pulmonary artery hypoplasia.

29. Chacko, B., Thomas, K., David, T., Paul, H., Jeyaseelan, L. and Peter, J. V.

Attributable cost of a nosocomial infection in the intensive care unit: A prospective cohort study

World J Crit Care Med; 2017, 6 (1): 79-84

Address: Binila Chacko, John Victor Peter, Medical ICU, Division of Critical Care, Christian Medical College, Vellore 632004, Tamil Nadu, India.

AIM: To study the impact of hospital-acquired infections (HAIs) on cost and outcome from intensive care units (ICU) in India. 

METHODS: Adult patients (> 18 years) admitted over 1-year, to a 24-bed medical critical care unit in India, were enrolled prospectively. Treatment cost and outcome data were collected. This cost data was merged with HAI data collected prospectively by the Hospital Infection Control Committee. Only infections occurring during ICU stay were included. The impact of HAI on treatment cost and mortality was assessed. 

RESULTS: The mean (+/- SD) age of the cohort (n = 499) was 42.3 +/- 16.5 years. Acute physiology and chronic health evaluation-II score was 13.9 (95%CI: 13.3-14.5); 86% were ventilated. ICU and hospital length of stay were 7.8 +/- 5.5 and 13.9 +/- 10 d respectively. Hospital mortality was 27.9%. During ICU stay, 76 (15.3%) patients developed an infection (ventilator-associated pneumonia 50; bloodstream infection 35; urinary tract infections 3), translating to 19.7 infections/1000 ICU days. When compared with those who did not develop an infection, an infection occurring during ICU stay was associated with significantly higher treatment cost [median (inter-quartile range, IQR) INR 92893 (USD 1523) (IQR 57168-140286) vs INR 180469 (USD 2958) (IQR 140030-237525); P < 0.001 and longer duration of ICU (6.7 +/- 4.5 d vs 13.4 +/- 7.0 d; P < 0.01) and hospital stay (12.4 +/- 8.2 d vs 21.8 +/- 13.9 d; P < 0.001)]. However ICU acquired infections did not impact hospital mortality.
### 30. Chacko, R., Rajan, A., Lionel, P., Thilagavathi, M., Yadav, B. and Premkumar, J.

Oral decontamination techniques and ventilator-associated pneumonia


**Address:** Nurse Manager, Medical ICU, and Lecturer, College of Nursing, Christian Medical College, Vellore, India. Professor, College of Nursing, Christian Medical College, Vellore, India. (at the time of study) Charge Nurse, Medical Intensive Care Unit, Christian Medical College, Vellore, India. Charge Nurse, Medical High Dependency Unit, Christian Medical College, Vellore, India. Senior Demonstrator, Department of Biostatistics, Christian Medical College, Vellore, India. (at the time of study) Professor, College of Nursing, Christian Medical College, Vellore, India.

Ventilator-associated pneumonia (VAP) is one of the major nosocomial infections in the intensive care unit (ICU), contributing to increased mortality and morbidity. Studies have shown that oral decontamination through the use of mechanical and pharmacological agents significantly reduces the incidence of VAP, but oral care practices in ICUs are not consistent. A double-blind randomised controlled trial was undertaken in the medical ICU of a tertiary care centre in India, to assess the efficacy of a toothbrush-based oral care technique in reducing incidence of VAP. Tooth-brushing with concurrent suctioning technique was not proved to be superior to mouth-swabbing. The greatest risk factor for developing VAP was the number of ventilator days (length of time on a ventilator). There was a statistical association between gender and presence of antibiotics with VAP.

### 31. Chandramohan, A., Therese, M., Abhraraham, D., Paul, T. V. and Mazhuvanchary, P. J.

Can ARFI elastography be used to differentiate parathyroid from thyroid lesions?

J Endocrinol Invest; 2017,

**Address:** Christian Medical College and Hospital Vellore, Vellore, Tamil Nadu, India. anuradha.chandramohan@gmail.com. Christian Medical College and Hospital Vellore, Vellore, Tamil Nadu, India.

**OBJECTIVES:** To assess if elasticity score (ES) and shear wave velocity (SWV) measurement obtained using ARFI elastography can differentiate between parathyroid lesions and thyroid nodules. **MATERIALS AND METHODS:** ARFI elastography was performed on patients with primary hyperparathyroidism or solid thyroid nodules who were being considered for surgery using virtual touch quantification and virtual touch imaging (VTI) software. Only patients with surgical histopathology (47 parathyroid lesions, 38 benign thyroid nodules and 55 malignant thyroid nodules) were included for final analysis. SWV and ES of the parathyroid and thyroid nodules were compared and their ability to differentiate between parathyroid and thyroid was analyzed using receiver operating characteristic curve analysis. **RESULTS:** There were 39 solitary adenomas, 2 double adenomas and 4 parathyroid hyperplasias with...
mean size of 19.6 +/- 9.7 mm in 44 patients (21 male, 23 females) with primary hyperparathyroidism. The mean SWV of the parathyroid lesion (1.6 +/- 0.78 m/s) was significantly different from benign (2.11 +/- 0.8 m/s) and malignant (4.3 +/- 2.71 m/s) thyroid nodules, p < 0.05; so was the ES, Chi square = 51.6, p < 0.001. The majority of parathyroid lesions (n = 37, 78.7%) had ES of 2 with speckled (n = 42, 89.3%) appearance, and none showed ES of 4. The diagnostic performance of speckled appearance on VTI, elasticity score and SWV measurements was 0.901, 0.724 and 0.797, respectively, to differentiate between parathyroid and thyroid lesions.

**CONCLUSIONS:** Parathyroid lesions are softer than thyroid nodules. A shear wave velocity of 1.72 m/s can differentiate between parathyroid lesions and thyroid nodules.

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Int J Antimicrob Agents; 2017, 49 (6): 734-739

**Address:** Division of Infectious Diseases, Department of Internal Medicine, Kaohsiung Medical University Hospital, Kaohsiung, Taiwan; School of Medicine, Graduate Institute of Medicine, Sepsis Research Center, College of Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan. Royal Perth Hospital, Perth, WA, Australia. Prince of Wales Hospital, Shatin, New Territories, Hong Kong, China. Christian Medical College, Vellore, India. P.D. Hinduja National Hospital & Medical Research Centre, Mumbai, India. Aichi Medical University Hospital, Nagakute, Japan. Korea University Anam Hospital, Seoul, South Korea. Hospital Sultanah Aminah Johin Bahru, Johor Bahru, Malaysia. Philippine General Hospital, Manila, Philippines. Changi General Hospital, Singapore. Siriraj Hospital, Bangkok-Noi, Thailand. Ruijin Hospital, Shanghai, China. Merck Sharp & Dohme, Kenilworth, NJ, USA. Peking Union Medical College Hospital, Beijing, China. Division of Infectious Diseases, Department of Internal Medicine, Kaohsiung Medical University Hospital, Kaohsiung, Taiwan; School of Medicine, Graduate Institute of Medicine, Sepsis Research Center, College of Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan; Department of Biological Science and Technology, College of Biological Science and Technology, National Chiao Tung University, Hsinchu, Taiwan. Electronic **Address:** infchen@gmail.com. Departments of Laboratory Medicine and Internal Medicine, National Taiwan University Hospital, National Taiwan University College of Medicine, Taipei, Taiwan. Electronic **Address:** hsporen@ntu.edu.tw.

This study was conducted to investigate the epidemiology and antimicrobial susceptibility patterns of Gram-negative bacilli (GNB) isolated from intra-abdominal infections (IAIs) in the Asia-Pacific region (APR) from 2010-2013. A total of 17350 isolates were collected from 54 centres in 13 countries in the APR. The three most commonly isolated GNB were Escherichia coli (46.1%), Klebsiella pneumoniae (19.3%) and Pseudomonas aeruginosa (9.8%). Overall, the rates of extended-spectrum beta-lactamase (ESBL)-producing E. coli and K. pneumoniae were 38.2% and 24.3%, respectively, and they were highest in China (66.6% and 38.7%, respectively), Thailand (49.8% and 36.5%, respectively) and Vietnam (47.9% and 30.4%, respectively). During 2010-2013, the rates of ESBL-producing E. coli and K. pneumoniae isolates causing community-associated (CA) IAIs (collected <48 h after admission) were 26.0% and 13.5%,
respectively, and those causing hospital-associated (HA) IAIIs were 48.0% and 30.6%, respectively. Amikacin, ertapenem and imipenem were the most effective agents against ESBL-producing isolates. Piperacillin/tazobactam displayed good in vitro activity (91.4%) against CA ESBL-producing E. coli. For other commonly isolated Enterobacteriaceae, fluoroquinolones, cefepime and carbapenems exhibited better in vitro activities than third-generation cephalosporins. Amikacin possessed high in vitro activity against all GNB isolates (>80%) causing IAIIs, except for Acinetobacter calcoaceticus-baumannii (AB) complex (30.9% for HA-IAI isolates). All of the antimicrobial agents tested exhibited <45% in vitro activity against AB complex. Antimicrobial resistance is a persistent threat in the APR and continuous monitoring of evolutionary trends in the susceptibility patterns of GNB causing IAIIs in this region is mandatory.

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<td>The novel EDAR p.L397H missense mutation causes autosomal dominant hypohidrotic ectodermal dysplasia</td>
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**Address:** Laboratory of Molecular Oncology, Hyderabad, India. Laboratory of Computational biology, Hyderabad, India. Diagnostics Division, Centre for DNA Fingerprinting and Diagnostics, Hyderabad, India. Nizam’s Institute of Medical Sciences, Hyderabad, India. Christian Medical College, Vellore, India. Department of Medical Genetics, Kasturba Medical College, Manipal University, Manipal, India.

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<th>34.</th>
<th>Chavan, H., Christudoss, P., Mickey, K., Tessman, R., Ni, H. M., Swerdlow, R. and Krishnamurthy, P.</th>
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<td>Arsenite Effects on Mitochondrial Bioenergetics in Human and Mouse Primary Hepatocytes Follow a Nonlinear Dose Response</td>
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<td>Oxid Med Cell Longev; 2017, 2017 9251303</td>
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**Address:** Department of Pharmacology, Toxicology and Therapeutics, University of Kansas Medical Center, Kansas City, KS 66160, USA. Department of Pharmacology, Toxicology and Therapeutics, University of Kansas Medical Center, Kansas City, KS 66160, USA; Department of Clinical Biochemistry, Christian Medical College, Vellore 632004, India. Department of Anatomy and Cell Biology, University of Kansas Medical Center, Kansas City, KS 66160, USA.

Arsenite is a known carcinogen and its exposure has been implicated in a variety of noncancerogenic health concerns. Increased oxidative stress is thought to be the primary cause of arsenite toxicity and the toxic effect is thought to be linear with detrimental effects reported at all concentrations of arsenite. But the paradigm of linear dose response in arsenite toxicity is shifting. In the present study we demonstrate that arsenite effects on mitochondrial respiration in primary hepatocytes follow a nonlinear dose response. In vitro exposure of primary hepatocytes to an environmentally relevant, moderate level of arsenite results in increased oxidant production that appears to arise from changes in the expression and activity of respiratory Complex I of the mitochondrial proton circuit. In primary hepatocytes the excess oxidant

INT – INTERNATIONAL; NAT – NATIONAL; PMID: PUBMED ID; PMCID: PUBMED CENTRAL ID
production appears to elicit adaptive responses that promote resistance to oxidative stress and a propensity to increased proliferation. Taken together, these results suggest a nonlinear dose-response characteristic of arsenite with low-dose arsenite promoting adaptive responses in a process known as mitohormesis, with transient increase in ROS levels acting as transducers of arsenite-induced mitohormesis.

35. Cherian, K. E., Kapoor, N., Mathews, S. S. and Paul, T. V.

**Endocrine Glands and Hearing: Auditory Manifestations of Various Endocrine and Metabolic Conditions**

*Indian J Endocrinol Metab; 2017, 21 (3): 464-469*

**Address:** Department of Endocrinology, Diabetes and Metabolism, Christian Medical College, Vellore, Tamil Nadu, India. Department of ENT, Christian Medical College, Vellore, Tamil Nadu, India.

The aetiology of hearing loss in humans is multifactorial. Besides genetic, environmental and infectious causes, several endocrine and metabolic abnormalities are associated with varying degrees of hearing impairment. The pattern of hearing loss may be conductive, sensori-neural or mixed. The neurophysiology of hearing as well as the anatomical structure of the auditory system may be influenced by changes in the hormonal and metabolic milieu. Optimal management of these conditions requires the integrated efforts of the otorlaryngologist and the endocrinologist. The presence of hearing loss especially in the young age group should prompt the clinician to explore the possibility of an associated endocrine or metabolic disorder for timely referral and early initiation of treatment.


**Unusual sites of metastases of carcinoma cervix**

*BMJ Case Rep; 2017, 2017*

**Address:** Department of Radiotherapy, Christian Medical College and Hospital, Vellore, Tamil Nadu, India. Department of Pathology, Christian Medical College and Hospital, Vellore, Tamil Nadu, India.

We present a case of metastatic squamous cell carcinoma cervix with solitary bone metastases to the right tibia and multiple cutaneous metastases. A woman aged 52 years with cancer of the cervix and lung metastases, after 21 months of initial diagnosis and palliative chemotherapy presented with pain in the right knee and multiple nodular skin lesions. Bone scintigraphy revealed intense increased tracer activity in the proximal and mid shaft of the right tibia. Biopsy from the tibial lesion confirmed metastatic squamous cell carcinoma. The presentation, diagnosis and management of this rare case are discussed.

Systemic Inflammatory Response Syndrome in Acute on Chronic Liver Failure- Relevance of 'Golden Window'- a Prospective Study

J Gastroenterol Hepatol; 2017,

**Address:** Department of Hepatology and Transplant, Institute of Liver and Biliary Sciences, New Delhi, India.
Department of Hepatobiliary Surgery and liver transplantation, Institute of Liver and Biliary Sciences, New Delhi, India. Inserm, U1149, Centre de recherche sur l'Inflammation (CRI), Paris; UMR_S 1149, Labex INFLAMEX, Universite Paris Diderot Paris 7, Paris, France. Department of Hepatology, Post Graduate Institute of Medical Education and Research, Chandigarh, India. Department of Hepatology, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh. Department of Medicine, Aga Khan University Hospital, Karachi, Pakistan. Department of Gastroenterology and Hepatology, Selayang Hospital, Kepong, Malaysia. Department of Gastroenterology and Hepatology, St John Medical College, Bangalore, India. Department of Gastroenterology and Hepatology, Bombay Hospital and Medical Research Centre, Mumbai, India. Department of Infectious Disease, Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China. Department of Gastrointestinal Sciences, Christian Medical College, Vellore, India. Center for Liver and Digestive Diseases, Hallym University Chuncheon Sacred Heart Hospital, Chuncheon, Gangwon-Do, Republic of Korea. Department of Hepatology, Nork Clinical Hospital of Infectious Diseases, Yerevan, Armenia. Department of Internal Medicine, Egyptian Liver Research Institute and Hospital, Cairo, Egypt. Department of Gastroenterology and Hepatology, National University Health System, Singapore, Singapore. Department of Hepatogastroenterology, Sindh Institute of Urology and Transplantation, Karachi, Pakistan. Department of Hepatology, Cardinal Santos Medical Center, Manila, Philippines. Department of Gastroenterology, Ankara University School of Medicine, Ankara, Turkey. Department of Medicine, The University of Hong Kong, Hong Kong, China. Division of Hepatology, University of Indonesia, Jakarta, Indonesia. Department of Gastroenterology, Dayanand Medical College, Ludhiana, India. Division of Hepatobiliary and Pancreatic Surgery, and Liver Transplantation, Department of Surgery, The University of Hong Kong, Hong Kong, China. The Institute of Translational Hepatology, Beijing, China. Liver Research Center, Beijing Friendship Hospital, Capital Medical University, Beijing, China. Beijing Youan Hospital, Capital Medical University, Beijing, China. Department of Gastroenterology and Nephrology, Graduate School of Medicine, Chiba University, Chiba, Japan.

**BACKGROUND:** SIRS is an early marker of sepsis and ongoing inflammation and has been reported in large proportion of ACLF patients. Whether sepsis is the cause or the result of liver failure is unclear and is vital to know. To address this, we investigated the course and outcome of ACLF patients without SIRS/sepsis.

**METHODS:** Consecutive ACLF patients were monitored for the development of SIRS/sepsis and associated complications and followed till 90 days, liver transplant or death.

**RESULTS:** Of 561 patients, 201(35.8%) had no SIRS and 360(64.2%) had SIRS with or without infection. New onset SIRS and sepsis developed in 74.6% and 8% respectively in a median 7(range 4-15) days; at a rate of 11% per day. The cumulative incidence of new SIRS was 29%, 92.8% and 100% by day 4,7 and 15. Liver failure i.e., bilirubin >12 mg/dl, [(OR = 2.5(95%CI = 1.05-6.19), p = 0.04] at day 0 and 4, renal failure at day 4 [(OR = 6.74(95%CI = 1.50-13.29), p = 0.01] independently predicted new onset
SIRS. Absence of SIRS in first week was associated with reduced incidence of organ failure (20% vs. 39.4%, p = 0.003), as was the 28 day (17.6% vs. 36%, p = 0.02) and 90 day (27.5% vs. 51%, p = 0.002) mortality. The 90 day mortality was 61.6% in the total cohort, and that for those having no SIRS and SIRS at presentation were 42.8% and 65% respectively (p < 0.001). **CONCLUSIONS:** Liver failure predicts the development of SIRS. New onset SIRS in first week is an important determinant of early sepsis, organ failure and survival. Prompt interventions in this 'Golden window' prior to development of sepsis, may improve outcome of ACLF.


Comparison and validation of two mathematical models for the impact of mass drug administration on Ascaris lumbricoides and hookworm infection

**Epidemics; 2017,** 18 38-47

**Address:** Department of Public Health, Erasmus MC, University Medical Center Rotterdam, Rotterdam, The Netherlands. Electronic **Address:** l.coffeng@erasmusmc.nl. London Centre for Neglected Tropical Disease Research, Department of Infectious Disease Epidemiology, St. Mary’s Campus, Imperial College London, London WC2 1 PG, United Kingdom. Division of Gastrointestinal Sciences, Christian Medical College, Vellore 632004, Tamil Nadu, India. Department of Public Health, Erasmus MC, University Medical Center Rotterdam, Rotterdam, The Netherlands.

The predictions of two mathematical models of the transmission dynamics of Ascaris lumbricoides and hookworm infection and the impact of mass drug administration (MDA) are compared, using data from India. One model has an age structured partial differential equation (PDE) deterministic framework for the distribution of parasite numbers per host and sexual mating. The second model is an individual-based stochastic model. Baseline data acquired prior to treatment are used to estimate key transmission parameters, and forward projections are made, given the known MDA population coverage. Predictions are compared with observed post-treatment epidemiological patterns. The two models could equally well predict the short-term impact of deworming on A. lumbricoides and hookworm infection levels, despite being fitted to different subsets and/or summary statistics of the data. As such, the outcomes give confidence in their use as aids to policy formulation for the use of PCT to control A. lumbricoides and hookworm infection. The models further largely agree in a qualitative sense on the added benefit of semi-annual vs. annual deworming and targeting of the entire population vs. only children, as well as the potential for interruption of transmission. Further, this study also illustrates that long-term predictions are sensitive to modelling assumptions about which age groups contribute most to transmission, which depends on human demography and age-patterns in exposure and contribution to the environmental reservoir of infection, the latter being notoriously difficult to empirically quantify.


**NAT** **JAN TO JUN** **PMID:**28303820

**Address:** Department of Microbiology, All India Institute of Medical Sciences, New Delhi, India. Department of Microbiology, Christian Medical College, Vellore, Tamil Nadu, India. Department of Microbiology, Postgraduate Institute of Medical Education and Research, Chandigarh, India. Department of Microbiology, Jawaharlal Institute of Postgraduate Medical Education and Research, Puducherry, India. ICMR, New Delhi, India.

**PURPOSE:** The main purpose of this study was to establish 'Antimicrobial Resistance Surveillance Network' in India and to monitor the antimicrobial susceptibility profile of clinical isolates to establish a national network across the country for monitoring antimicrobial resistance in Salmonella. **MATERIALS AND METHODS:** This study was conducted at All India Institute of Medical Sciences, nodal centre with clinical isolates of Salmonellae collected from four centres across India, which included Christian Medical College, Vellore; Postgraduate Institute of Medical Education and Research, Chandigarh and Jawaharlal Institute of Postgraduate Medical Education and Research, Puducherry. Total 20% of the selected strains from each centre were characterised for molecular studies which included molecular mechanism of fluoroquinolones resistance and multiple locus sequence type.

**RESULTS:** A total of 622 Salmonellae were received from all centres during January 2014 to December 2015. Out of these 622 isolates, 380 were Salmonella Typhi, 162 were Salmonella Paratyphi A and 7 were S. Paratyphi B isolated from blood and 7 were other Salmonella serotypes. Multiple drug resistance (resistant to ampicillin, chloramphenicol and co-trimoxazole) was less than 3% in S. Typhi. In S. Paratyphi A, chloramphenicol and co-trimoxazole susceptibility was 100% and 99%, respectively, whereas ampicillin susceptibility was 86% (139/161). Ciprofloxacin and nalidixic acid susceptibility was 15% (24/162) and 1% (2/162) from all centres. S. Paratyphi B was isolated from 7 patients. All isolates were third-generation cephalosporin sensitive. The most common mutations found were at codon 83 and at codon 87. We did not find any mutation in acrR gene. Efflux pump and qnr genes were not found in any isolate tested. All 86 S. Typhi isolates clustered into two sequence types - ST1 and ST2. Out of these 86 isolates, 70 S. Typhi were ST1 and 16 were ST2. All S. Paratyphi A was clustered in ST85 and ST129 on the basis of mutation in sucA gene. Out of 27 S. Paratyphi A, 13 were grouped into ST85 and 14 were grouped into ST129.

**CONCLUSIONS:** Enteric fever is one such infection which poses challenges in antimicrobial resistance. Hence, continuous surveillance is important to track bacterial resistance and to treat infections in a cost-effective manner.

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Interleukin-17F and interleukin-6 gene polymorphisms in Asian Indian patients with Takayasu arteritis

Hum Immunol; 2017,

**Address:** Dept of Rheumatology, Christian Medical College, Vellore, India. Electronic **Address:** debashisdandacmc@hotmail.com. Dept of Rheumatology, Christian Medical College, Vellore, India. Electronic **Address:** drruchika_agro@yahoo.co.in. Dept of Clinical Genetics, Christian Medical College,
### OBJECTIVES:
To assess genetic association between single nucleotide polymorphisms (SNPs) in genes encoding T-helper cytokines and Takayasu Arteritis (TA) susceptibility in Asian Indian population.

### METHODS:
In Phase-1, the genomic DNA of 120 TA patients and 119 healthy controls were genotyped for SNPs rs1800795 (interleukin (IL)-6), rs763780 (IL-17F), rs1800871, rs1800872, rs1800896 (IL-10) and rs1800468, rs1800469, rs1800470 (transforming growth factor-beta). Allele frequencies between cases and controls were compared using chi-squared test and also reassessed empirically (pe) by 10,000 permutations. In Phase-2, additional 98 TA patients and 101 controls were genotyped for replicating the significant associations noted in Phase-1 of the study. **RESULTS:** All 8 SNPs in Phase 1 were in Hardy-Weinberg proportions. The G allele at rs763780 (IL-17F) was significantly associated with TA (p=0.014). We also found that rs1800795 (IL-6) was associated with tuberculosis (p=0.001) under a dominant model. In Phase-2 replication part of the study, the rs763780 showed a trend towards association with TA (p=0.08), and the magnitude and direction of the odds ratio (OR) also were consistent with results of Phase-1. In the combined analysis, protective association of the G allele of rs763780 with TA was again significant [OR (95% CI)=0.44 (0.25 -0.77); p=0.0029]. The G allele was also significantly associated (p<0.05) with underlying tuberculosis (TB) and occurrence of syncope in TA. **CONCLUSION:** G allele of rs763780 in IL-17F gene was protectively associated against susceptibility to TA. GG genotypes of rs1800795 in IL-6 was also associated with occurrence of tuberculosis in our patients with TA.

### 41. Comparison of Three Different Hepatitis C Virus Genotyping METHODS:

**METHODS:** 5'NCR PCR-RFLP, Core Type-Specific PCR, and NS5b Sequencing in a Tertiary Care Hospital in South India

**RESULTS:** Of the 100 samples genotyped using 5'NCR PCR-RFLP and HCV core type-specific PCR with NS5b sequencing. **RESULTS:** Of the 100 samples genotyped using 5'NCR PCR-RFLP and HCV core type-specific PCR with NS5b sequencing.

**CONCLUSION:** Based on genetic heterogeneity, hepatitis C virus (HCV) is classified into seven major genotypes and 64 subtypes. In spite of the sequence heterogeneity, all genotypes share an identical complement of colinear genes within the large open reading frame. The genetic interrelationships between these genes are consistent among genotypes. Due to this property, complete sequencing of the HCV genome is not required. HCV genotypes along with subtypes are critical for planning antiviral therapy. Certain genotypes are also associated with higher progression to liver cirrhosis. **METHODS:** In this study, 100 blood samples were collected from individuals who came for routine HCV genotype identification. These samples were used for the comparison of two different genotyping methods (5'NCR PCR-RFLP and HCV core type-specific PCR) with NS5b sequencing.
specific PCR, 90% (kappa = 0.913, P < 0.00) and 96% (kappa = 0.794, P < 0.00) correlated with NS5b sequencing, respectively. Sixty percent and 75% of discordant samples by 5'NCR PCR-RFLP and HCV core type-specific PCR, respectively, belonged to genotype 6. All the HCV genotype 1 subtypes were classified accurately by both the methods. **CONCLUSION:** This study shows that the 5'NCR-based PCR-RFLP and the HCV core type-specific PCR-based assays correctly identified HCV genotypes except genotype 6 from this region. Direct sequencing of the HCV core region was able to identify all the genotype 6 from this region and serves as an alternative to NS5b sequencing.

**CONCLUSION:** This study shows that the 5'NCR-based PCR-RFLP and the HCV core type-specific PCR-based assays correctly identified HCV genotypes except genotype 6 from this region. Direct sequencing of the HCV core region was able to identify all the genotype 6 from this region and serves as an alternative to NS5b sequencing.


**AIMS:** To evaluate the efficacy of the deep inspirational breath-hold (DIBH) technique and its dosimetric advantages over the free breathing (FB) technique in cardiac (heart and left anterior descending artery [LAD]) and ipsilateral lung sparing in left-sided post-mastectomy field-in-field conformal radiotherapy. DIBH is highly reproducible, and this study aims to find out its dosimetric benefits over FB. **MATERIALS AND METHODS:** Nineteen left-sided mastectomy patients were immobilized using breast boards with both arms positioned above the head. All patients had 2 sets of planning CT images (one in FB and another in DIBH) with a Biograph TruePoint HD CT scanner in the same setup. DIBH was performed by tracking the respiratory cycles using a Varian Real-Time Position Management system. The target (chest wall and supraclavicular region), organs at risk (OARs; ipsilateral lung, contralateral lung, heart, LAD, and contralateral breast), and other organs of interests were delineated as per the RTOG (Radiation Therapy Oncology Group) contouring guidelines. The single-isocenter conformal fields in the field treatment plans were generated with the Eclipse Treatment Planning System (Varian Medical Systems) for both FB and DIBH images, and the doses to the target and OARs were compared. The standard fractionation regimen of 50 Gy in 25 fractions over a period of 5 weeks was used for all patients in this study. **RESULTS AND DISCUSSION:** The target coverage parameters (V95, V105, V107, and D<Sub>mean</Sub>) were found to be 97.8 +/- 0.9, 6.1 +/- 3.4, 0.2 +/- 0.3, and 101.9 +/- 0.5% in the FB plans and 98.1 +/- 0.8, 6.1 +/- 3.2, 0.2 +/- 0.3, and 101.9 +/- 0.4% in the DIBH plans, respectively. The plan quality indices (conformity index and homogeneity index) also showed 1.3 +/- 0.2 and 0.1 for the FB plans and 1.2 +/- 0.3 and 0.1 for the DIBH plans, respectively. There was a significant reduction in dose to the heart in the DIBH plans compared to the FB plans, with p values of nearly 0 for the V5, V10, V20, V30, and D<Sub>mean</Sub> dosimetric parameters. The difference in ipsilateral lung doses between FB and DIBH showed statistically significant p values, and the differences in mean doses were found to be 7, 15.7, 11.8, and 10.7% for V5, V20, V30, and D<Sub>mean</Sub>, respectively. There was a significant reduction in dose to the LAD in the DIBH compared to the FB plans. **CONCLUSIONS:** DIBH resulted in significant reductions in doses to the heart, LAD, and lungs, since with this technique there was an increase in the distance between the target and the OARs. With appropriate
patient selection and adequate training, the DIBH technique is acceptable and achievable for radiotherapy to the chest, and therefore should be considered for all suitable patients, as this could result in fewer radiotherapy-related complications. However, this technique is time-consuming, since the setup is complex, results in an increased time for treatment delivery, and needs patient cooperation and technical expertise.


A retrospective study on non-drug related poisoning in the community among children from south India

*Hosp Pract (1995); 2017, 45 (2): 39-45*

**Address:**
- a Paediatric Emergency, Department of Paediatrics, Christian Medical College, Vellore, Tamil Nadu, India.
- b Department of Pharmacology and Clinical Pharmacology, Christian Medical College, Vellore, Tamil Nadu, India.
- c Child Health 2, Department of Paediatrics, Christian Medical College, Vellore, Tamil Nadu, India.

**OBJECTIVES:** This retrospective study was performed to determine the incidence, demographic distribution, types and outcomes across various non-drug related poisonings among children attending a tertiary care center in south India.  

**METHODS:** All children from 0-16 years who presented to the Paediatric Emergency Department, Christian Medical College, Vellore with non-drug related poisoning from October 2004 to September 2013 were included.

**RESULTS:** Out of the total 997 cases of poisoning, 629 (63.1%) cases were contributed by chemicals and plants: mainly hydrocarbons (kerosene) 309 (49.1%); organophosphates 72 (11.5%); corrosive acids and alcalis 57 (9.1%); insecticides 51 (8.1%); and plant poisons 20 (3.2%). Males (62.79%) and children < 5 years (77.42%) were mostly affected. Although many children developed complications requiring intensive care unit admissions, the total mortality was only 9 (1.4%). The incidence of poisoning showed a decreasing trend over the last 4 years.

**CONCLUSION:** This study for the first time gives an elaborative insight on non-drug related pediatric poisoning from a tertiary care center in south India for almost a decade.

### 44. Das, S., Barnwal, P., Maiti, T., Ramasamy, A., Mondal, S. and Babu, D.

Addiction to Snake Venom

*Subst Use Misuse; 2017, 52 (8): 1104-1109*

**Address:**
- a Department of Pharmacology and Clinical Pharmacology, Christian Medical College, Vellore, India.
- b Department of Medical Elementology and Toxicology, Jamia Hamdard (Hamdard University), New Delhi, India.
- c Department of Psychiatry, Christian Medical College, Vellore, India.
- d Department of Pharmacology, Swamy Vivekanandha College of Pharmacy, Namakkal, India.
- e Department of Clinical and Experimental Pharmacology, Calcutta School of Tropical Medicine, Kolkata,
India.

Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta, Edmonton, Canada.

The nature of addiction depends on various factors. The tendency to have already used several addictive substances and to seek high sensation experiences as a result of specific personality traits may lead to extreme and peculiar forms of addictions. Even belonging to specific social and cultural background may lead to such forms of addiction such as intentional snake bite and willful envenomation. In this article, we have discussed the peculiarities and practical insight of such addiction to snake venom. The possible molecular mechanism behind such venom-mediated reinforcement has also been highlighted. Finally, we have stressed upon the treatment and de-addiction measures.

### 45. Das, S., Dey, J. K., Sen, S. and Mukherjee, R.

**Efficacy and Safety of Patiromer in Hyperkalemia**

*J Pharm Pract; 2017, 897190017692921*

**Address:** 1 Department of Pharmacology and Clinical Pharmacology, Christian Medical College, Vellore, Tamil Nadu, India. 2 Department of Biostatistics, Christian Medical College, Vellore, Tamil Nadu, India.

**BACKGROUND:** Patients at the highest risk of hyperkalemia are those with chronic kidney disease (CKD) stages 3 and 4.

**OBJECTIVE:** To evaluate the efficacy and safety of patiromer in hyperkalemia in patients with heart failure or CKD.

**METHODS:** The Cochrane Renal Group's Specialized Register was searched through contact with the Trials' Search Coordinator. We aimed at including randomized controlled trials with patiromer in patients with developed or risks of developing hyperkalemia, comparing against an active comparator or placebo. Three studies matched our inclusion and exclusion criteria, which we included in the meta-analysis. All-cause mortality, reduction in hospitalization, episodes of hypokalemia or hyperkalemia, and cardiovascular and gastrointestinal adverse events during the treatment period were our primary outcomes. Serial change in serum potassium (K+) until end of treatment or follow-up during the trial period and all other reported adverse reactions during the treatment period were our secondary outcomes. Meta-analysis (RevMan version 5.3.5) and descriptive statistics were used.

**RESULTS:** There was a non-significant improvement in all-cause mortality and serious cardiovascular events with patiromer than placebo. Hospitalization data were unavailable. Although serious gastrointestinal events were more common with placebo, there was a significant reduction (P = .02) in the risk of non-serious gastrointestinal events with placebo. Patiromer lowered serum K+ more than placebo, and there were more patients developing hyperkalemia with placebo. High-dose patiromer was associated with better efficacy in some parameters but with more adverse events.

**CONCLUSION:** Although patiromer seems promising, more trials with active comparator are essential to finalize its indication and use in hyperkalemia.


**Determination of serum carbamazepine concentration using dried blood spot specimens for resource-**

**INT** | **JAN TO JUN** | **PMID:**28353375
### OBJECTIVES:
Carbamazepine (CBZ) is a commonly used anti-epileptic in rural hospitals in India. These hospitals lack the facilities to measure CBZ concentration; however, in larger hospitals this is performed using high performance liquid chromatography (HPLC). Dried blood spot (DBS) represents a feasible matrix for safe transportation by post/courier. This study was to determine whether the concentration of CBZ in serum can be predicted from that measured in DBS using an inexpensive HPLC method and inexpensive standard filter paper. **METHODS:** CBZ in serum and DBS from 80 epileptic patients were measured using a validated HPLC assay. The data was then randomly divided into two groups; simple Deming regression was performed with the first group and validation was performed using the second. **RESULTS:** There was a good correlation between the serum and DBS concentrations ($r = 0.932$) in the first group. The regression equation obtained was: predicted serum concentration = DBS concentration $\times 0.83 + 1.09$. In the validation group, the correlation between the predicted and actual serum concentrations was also good ($r = 0.958$), and the mean difference between them was only 0.28 mug/ml ($p = 0.8062$). The imprecision and bias in both the groups were acceptable. **CONCLUSION:** Using inexpensive materials, serum CBZ concentrations can be accurately predicted from DBS specimens. This method can be recommended for the therapeutic drug monitoring of CBZ in resource-limited settings.

### BACKGROUND:
Plantar heel pain, commonly resulting from plantar fasciitis, often results in significant morbidity. Treatment options include nonsteroidal anti-inflammatory drugs (NSAIDs), orthoses, physical therapy, physical agents (e.g. extracorporeal shock wave therapy (ESWT), laser) and invasive procedures including steroid injections. **OBJECTIVES:** To assess the effects (benefits and harms) of injected corticosteroids for treating plantar heel pain in adults. **SEARCH METHODS:** We searched the Cochrane Bone, Joint and Muscle Trauma Group Specialised Register, the Cochrane Central Register of Controlled Trials (the Cochrane Library), MEDLINE, Embase, CINAHL, clinical trials registries and conference proceedings. Latest search: 27 March 2017. **SELECTION CRITERIA:** Randomised and quasi-randomised trials of corticosteroid injections in the treatment of plantar heel pain in adults were eligible for inclusion. **DATA COLLECTION AND ANALYSIS:** At least two review authors independently selected studies, assessed risk of bias and...
extracted data. We calculated risk ratios (RRs) for dichotomous outcomes and mean differences (MDs) for continuous outcome measures. We used a fixed-effect model unless heterogeneity was significant, when a random-effects model was considered. We assessed the overall quality of evidence for individual outcomes using the GRADE approach. **MAIN RESULTS:** We included a total of 39 studies (36 randomised controlled trials (RCTs) and 3 quasi-RCTs) that involved a total of 2492 adults. Most studies were small (median = 59 participants). Participants’ mean ages ranged from 34 years to 59 years. When reported, most participants had heel pain for several months. The trials were usually conducted in outpatient specialty clinics of tertiary care hospitals in 17 countries. Steroid injection was given with a local anaesthetic agent in 34 trials. Follow-up was from one month to over two years. With one exception, trials were assessed at high risk of bias in one or more domains, mostly relating to lack of blinding, including lack of confirmation of allocation concealment. With two exceptions, we rated the available evidence as very low quality, implying in each case that we are ‘very uncertain about the estimate’. The 39 trials covered 18 comparisons, with six of the seven trials with three or four groups providing evidence towards two comparisons. Eight trials (724 participants) compared steroid injection versus placebo or no treatment. Steroid injection may lead to lower heel pain visual analogue scores (VAS) (0 to 100; higher scores = worse pain) in the short-term (< 1 month) (MD -6.38, 95% CI -11.13 to -1.64; 350 participants; 5 studies; I(2) = 65%; low quality evidence). Based on a minimal clinically significant difference of 8 for average heel pain, the 95% CI includes a marginal clinical benefit. This potential benefit was diminished when data were restricted to three placebo-controlled trials. Steroid injection made no difference to average heel pain in the medium-term (1 to 6 months follow-up) (MD -3.47, 95% CI -8.43 to 1.48; 382 participants; 6 studies; I(2) = 40%; low quality evidence). There was very low quality evidence for no effect on function in the medium-term and for an absence of serious adverse events (219 participants, 4 studies). No studies reported on other adverse events, such as post-injection pain, and on return to previous activity. There was very low quality evidence for fewer treatment failures (defined variously as persistent heel pain at 8 weeks, steroid injection at 12 weeks, and unrelieved pain at 6 months) after steroid injection. The available evidence for other comparisons was rated as very low quality. We are therefore very uncertain of the estimates for the relative effects on people with heel pain of steroids compared with other interventions in:1. Tibial nerve block with anaesthetic (2 trials); orthoses (4 trials); oral NSAIDs (2 trials); and intensive physiotherapy (1 trial).2. Physical modalities: ESWT (5 trials); laser (2 trials); and radiation therapy (1 trial).3. Other invasive procedures: locally injectable NSAID (1 trial); platelet-rich plasma injections (5 trials); autologous blood injections (2 trials); botulinum toxin injections (2 trials); cryopreserved human amniotic membrane injection (1 trial); localised peppering with a needle (1 trial); dry needling (1 trial); and mini scalp needle release (1 trial). We are also uncertain about the estimates from trials testing different techniques of local steroid injection: ultrasonography-guided versus palpation-guided (3 trials); and scintigraphy-guided versus palpation-guided (1 trial). An exploratory analysis involving pooling data from 21 trials reporting on adverse events revealed two ruptures of plantar fascia (reported in 1 trial) and three injection site infections (reported in 2 trials) in 699 participants allocated to steroid injection study arms. Five trials reported a total of 27 participants with less serious short-term adverse events in the 699 participants allocated steroid injection study arms. Reported treatments were analgesia, ice or both. Given the high risk of selective reporting for these outcomes and imprecision, this evidence was rated at very low quality. **AUTHORS’ CONCLUSIONS:** We found low quality evidence that local steroid injections compared with placebo or no treatment may slightly reduce heel pain up to one month but not subsequently. The available evidence for other
outcomes of this comparison was very low quality. Where available, the evidence from comparisons of steroid injections with other interventions used to treat heel pain and of different methods of guiding the injection was also very low quality. Although serious adverse events relating to steroid injection were rare, these were under-reported and a higher risk cannot be ruled out. Further research should focus on establishing the effects (benefits and harms) of injected steroids compared with placebo in typical clinical settings, subsequent to a course of unsuccessful conservative therapy. Ideally, this should be preceded by research, including patient involvement, aimed to obtain consensus on the priority questions for treating plantar heel pain.

### 48. David, T. and Tharyan, P.

Systematic reviews of diagnostic tests: A primer

*Indian J Med Microbiol; 2017, 35 (1): 8-9*

**Address:** Department of Medicine - Unit II, Christian Medical College, Vellore, Tamil Nadu, India. Department of Psychiatry - Unit II, South Asian Cochrane Network, Christian Medical College, Vellore, Tamil Nadu, India.


Revised diagnostic criteria for neurocysticercosis

*J Neurol Sci; 2017, 372 202-210*

**Address:** School of Medicine, Universidad Espiritu Santo - Ecuador, Guayaquil, Ecuador. Laboratory of Parasitic Diseases, National Institute of Allergy and Infectious Diseases, National Institute of Health, Bethesda, MD, United States. Infectious Disease Division, Department of Internal Medicine, University of Texas Medical Branch, Galveston, TX, United States. Department of Neurological Sciences, Christian Medical College Hospital, Vellore, India. Parasitology Services, Marathon, FL, United States. Department of Neurology, Dayanand Medical College, Ludhiana, India. Department of Neurosurgery, Instituto Nacional de Ciencias Neurologicas, Lima, Peru. Neuroimaging Unit, National Institute of Neurology and Neurosurgery Manuel Velasco Suarez, Mexico City, Mexico. Department of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, United States. Center for Global Health, Tumbes, Peru; Department of Microbiology, School of Sciences, Universidad Peruana Cayetano Heredia, Peru; Cysticercosis Unit, Instituto Nacional de Ciencias Neurologicas, Lima, Peru. Electronic **Address:** hgarcia@jhsph.edu.

**BACKGROUND:** A unified set of criteria for neurocysticercosis (NCC) has helped to standardize its diagnosis in different settings. **METHODS:** Cysticercosis experts were convened to update current diagnostic criteria for NCC according to two principles: neuroimaging studies are essential for diagnosis, and all other information provides indirect evidence favoring the diagnosis. Recent diagnostic advances were incorporated to this revised set. **RESULTS:** This revised set is structured in absolute, neuroimaging and clinical/exposure criteria. Absolute
criteria include: histological confirmation of parasites, evidence of subretinal cysts, and demonstration of the scolex within a cyst. Neuroimaging criteria are categorized as major (cystic lesions without scolex, enhancing lesions, multilobulated cysts, and calcifications), confirmative (resolution of cysts after cisticidal drug therapy, spontaneous resolution of single enhancing lesions, and migrating ventricular cysts on sequential neuroimaging studies) and minor (hydrocephalus and leptomeningeal enhancement). Clinical/exposure criteria include: detection of anticysticercal antibodies or cysticercal antigens by well-standardized tests, systemic cysticercosis, evidence of a household Taenia carrier, suggestive clinical manifestations, and residency in endemic areas. Besides patients having absolute criteria, definitive diagnosis can be made in those having two major neuroimaging criteria (or one major plus one confirmative criteria) plus exposure. For patients presenting with one major and one minor neuroimaging criteria plus exposure, definitive diagnosis of NCC requires the exclusion of confounding pathologies. Probable diagnosis is reserved for individuals presenting with one neuroimaging criteria plus strong evidence of exposure.

CONCLUSIONS: This revised set of diagnostic criteria provides simpler definitions and may facilitate its more uniform and widespread applicability in different scenarios.


Revised set of diagnostic criteria for neurocysticercosis (in reply to Garg and Malhotra)

J Neurol Sci; 2017, 373 350-351

Address: School of Medicine, Universidad Espiritu Santo - Ecuador, Guayaquil, Ecuador. Electronic Address: oscardelbrutto@hotmail.com. Laboratory of Parasitic Diseases, National Institute of Allergy and Infectious Diseases, National Institute of Health, Bethesda, MD, United States. Infectious Disease Division, Department of Internal Medicine, University of Texas Medical Branch, Galveston, TX, United States. Department of Neurological Sciences, Christian Medical College Hospital, Vellore, India. Parasitology Services, Marathon, FL, United States. Department of Neurology, Dayanand Medical College, Ludhiana, India. Department of Neurosurgery, Instituto Nacional de Ciencias Neurologicas, Lima, Peru. Department of Neuroimaging Unit, National Institute of Neurology and Neurosurgery Manuel Velasco Suarez, Mexico City, Mexico. Department of International Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, United States. Center for Global Health, Tumbes and the Department of Microbiology, School of Sciences, Universidad Peruana Cayetano Heredia, Peru; Cysticercosis Unit, Instituto Nacional de Ciencias Neurologicas, Lima, Peru.


First Indian report of IncX3 plasmid carrying blaNDM-7 in Escherichia coli from bloodstream infection: potential for rapid dissemination

New Microbes New Infect; 2017, 17 65-68

Address: Department of Clinical Microbiology, Christian Medical College, Vellore, India. Division of
Enterobacteriaceae with blaNDM-7 is only infrequently observed. Self-transmissible plasmids carrying the blaNDM gene increase the dissemination of carbapenem resistance in developing countries. This study investigates the whole genome sequence of a blaNDM-7-positive Escherichia coli. The isolate was an extended-spectrum beta-lactamase producer by combined disc diffusion test and carbapenemase producer by CarbaNP method. Sequencing results revealed the isolate as E. coli ST-167 with IncX3 plasmid carrying blaNDM-7 in addition to blaTEM-1 and blaCMY-42 genes. The identification of IncX3-blaNDM-7 combination is the first report in India where blaNDM-7 is known to cause higher resistance to carbapenems compared to its variants.


An anti-oxidant, alpha-lipoic acid conjugated oleoyl-sn-phosphatidylcholine as a helper lipid in cationic liposomal formulations

Colloids Surf B Biointerfaces; 2017, 152 133-142

Address: Centre for Stem Cell Research (CSCR), (A Unit of inStem, Bengaluru), Christian Medical College Campus, Bagayam, Vellore 632002, India. Centre for Lipid Research, CSIR-Indian Institute of Chemical Technology, Hyderabad 500 007, India; Academy of Scientific and Innovative Research, CSIR-Indian Institute of Chemical Technology, Tarnaka, Hyderabad 500007, India. BioSatva Technologies, Gollaka, Hyderabad 500013, India. Centre for Stem Cell Research (CSCR), (A Unit of inStem, Bengaluru), Christian Medical College Campus, Bagayam, Vellore 632002, India; Department of Haematology, Christian Medical College Hospital, Vellore 632002, Tamilnadu, India. Centre for Lipid Research, CSIR-Indian Institute of Chemical Technology, Hyderabad 500 007, India. Electronic Address: Shivashanker.kaki@iict.res.in.

Development of safe non-viral carrier systems for efficient intra-cellular delivery of drugs and genes hold promise in the area of translational research. Liposome based delivery systems have emerged as one of the attractive strategies for efficient delivery of drugs and nucleic acids. To this end, number of investigations was carried on liposomal formulations using lipids for achieving higher efficiency in transfection with lower cytotoxicities. In our efforts to develop safer and efficient liposomal delivery systems, we synthesized a novel anti-oxidant lipid, alpha-lipoic, oleyl-sn-phosphatidylcholine (LOPC) and used as a helper lipid in combination with a cationic amphiphile, Di-Stearyl Dihydroxy Ethyl Ammonium Chloride (DSDEAC) and 1,2-dioleoyl-sn-glycero-3-phosphocholine (DOPC) at varying concentrations of LOPC. DNA binding properties of the liposomal formulations (DS, DS LA1, DS LA2 and DS LA3) revealed that increasing the percentage of single aliphatic chain lipid LOPC, did not affect the DNA binding properties. But, transfection profiles of these liposomal formulations in 3 different cell lines (HeLa, HEK 293 and MCF7) showed difference in their efficacies. Results showed that optimal percentage of LOPC i.e. 25% in DSDEAC and DOPC at 1:1 molar ratio (DS LA1) enhanced transfection as compared to DSDEAC:DOPC alone. The endosomal escape studies with NBD labelled lysotracker and Rhodamine.
labelled liposomal formulations revealed that DS LA1 and DS LA2 facilitated the release of genetic cargo with a better efficiency than their counter parts. Reactive Oxygen Species (ROS), a key modulator of necroptosis were lowered with the treatment of DS LA1 than other liposomal formulations. Here in, we present a novel liposomal formulation using DSDEAC and DOPC at 1:1 molar ratio doped with 25-50% (mole ratio) LOPC as an efficient delivery system for enhanced transfection with quenching of ROS levels compared to formulations without LOPC.


Comprehensive Maturity Onset Diabetes of the Young (MODY) Gene Screening in Pregnant Women with Diabetes in India

Address: Department of Endocrinology, Diabetes & Metabolism, Christian Medical College, Vellore, India. Department of Neonatology, Christian Medical College, Vellore, India. Department of Obstetrics and Gynaecology, Christian Medical College, Vellore, India. Department of Biostatistics, Christian Medical College, Vellore, India.

Pregnant women with diabetes may have underlying beta cell dysfunction due to mutations/rare variants in genes associated with Maturity Onset Diabetes of the Young (MODY). MODY gene screening would reveal those women genetically predisposed and previously unrecognized with a monogenic form of diabetes for further clinical management, family screening and genetic counselling. However, there are minimal data available on MODY gene variants in pregnant women with diabetes from India. In this study, utilizing the Next generation sequencing (NGS) based protocol fifty subjects were screened for variants in a panel of thirteen MODY genes. Of these subjects 18% (9/50) were positive for definite or likely pathogenic or uncertain MODY variants. The majority of these variants was identified in subjects with autosomal dominant family history, of whom five were in women with pre-GDM and four with overt-GDM. The identified variants included one patient with HNF1A Ser3Cys, two PDX1 Glu224Lys, His94Gln, two NEUROD1 Glu59Gln, Phe318Ser, one INS Gly44Arg, one GCK, one ABCC8 Arg620Cys and one BLK Val418Met variants. In addition, three of the seven offspring screened were positive for the identified variant. These identified variants were further confirmed by Sanger sequencing. In conclusion, these findings in pregnant women with diabetes, imply that a proportion of GDM patients with autosomal dominant family history may have MODY. Further NGS based comprehensive studies with larger samples are required to confirm these finding.

54. Duraikannan, P., Saheer, S., Balamugesh, T. and Christopher, D. J.

Rare cause of paradoxical worsening of pleural effusion in a patient with tuberculosis

Lung India; 2017, 34 (2): 167-169

Address: Department of Pulmonary Medicine, Christian Medical College, Vellore, Tamil Nadu, India.
A 33-year-old patient, Known case of chronic kidney disease on maintenance dialysis presented with complaints of low-grade fever and weight loss of 2 months duration. Computed tomography (CT) revealed bilateral mild pleural effusion with significant mediastinal and abdominal adenopathy. CT-guided fine-needle aspiration cytology of abdominal lymph nodes and bone marrow culture was suggestive of tuberculosis. The patient was started on four drug anti-tubercular therapy, post 6 weeks of initiation he developed new onset fever and chest X-ray revealed moderate right pleural effusion. Diagnostic thoracocentesis was suggestive of chylothorax. To the best of our knowledge, this is the first case report of chylothorax due to the paradoxical reaction in the HIV-negative tuberculous patient.

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<th>Eapen, C. E. and Nair, S. C.</th>
<th>Potential danger of isolated platelet transfusion in patients with dengue infection</th>
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<td>Indian J Med Res; 2017, 145 (2): 158-160</td>
<td>Address: Department of Hepatology, Christian Medical College, Vellore 632 004, Tamil Nadu, India. Department of Transfusion Medicine, Christian Medical College, Vellore 632 004, Tamil Nadu, India.</td>
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56. Edwin Stephen, Vimalin Samuel, Sunil Agarwal, Dheepak Selvaraj, Prabhu Premkumar
Deep Vein Thrombosis is Not Uncommon In India
DOI: 10.4103/ijves.ijves_33_17
Address
Department of Vascular Surgery, Christian Medical College, Vellore, Vellore, India.

57. Edwin, Stephen
Antithrombotics: Do we know Enough?
Indian Journal of Vascular and Endovascular Surgery, Year 2017, Volume 4, Issue 3 [p. 84]
DOI: 10.4103/ijves.ijves_34_17
Address: Christian Medical College, Vellore, India.

58. Ferri CP(1), Jacob KS(2).
Dementia in low-income and middle-income countries: Different realities mandate tailored solutions.
Author information: (1)Department of Psychobiology, Universidade Federal de São Paulo, Sao Paulo, Brazil. (2)Department of Psychiatry, Christian Medical College, Vellore, India.
### 59. Ferri, C. P. and Jacob, K. S.

Dementia in low-income and middle-income countries: Different realities mandate tailored solutions


**Address:** Department of Psychobiology, Universidade Federal de Sao Paulo, Sao Paulo, Brazil. Department of Psychiatry, Christian Medical College, Vellore, India.

In a Perspective, Cleusa Ferri and K. S. Jacob discuss the assessment, recognition, and care of people living with dementia in low- and middle-income countries.

**INTRODUCTION:**
The implementation of early long-term, regular clotting factor concentrate (CFC) replacement therapy ('prophylaxis') has made it possible to offer boys with haemophilia a near normal life.


Choosing outcome assessment tools in haemophilia care and research: a multidisciplinary perspective

Haemophilia; 2017, 23 (1): 11-24

**Address:** Van Creveldkliniek, University Medical Center Utrecht, Utrecht, The Netherlands. Department of Orthopaedics, Christian Medical College, Vellore, Tamil Nadu, India. Division of Hematology and Oncology, Nationwide Children's Hospital and The Ohio State University, Columbus, OH, USA. Department of Medical Imaging, University of Saskatchewan and Saskatoon Health Region Royal University Hospital, Saskatoon, SK, Canada. Section of Hematology/Oncology/Bone Marrow Transplantation, Department of Pediatrics, University of Colorado Anschutz Medical Campus and Children's Hospital, Aurora, CO, USA. Department of PMR, Christian Medical College, Vellore, Tamil Nadu, India. Child Health Services, Child Development and Exercise Center, University Medical Center and Children's Hospital, Utrecht, The Netherlands. Division of Rheumatology, Department of Paediatrics and Child Health Evaluative Sciences, Research Institute, Hospital for Sick Children, University of Toronto, Toronto, ON, Canada. Division of Hematology/Oncology, University Hospital of Munich, Munich, Germany. Division of Haematology/Oncology, Department of Paediatrics and Child Health Evaluative Sciences, Research Institute, Hospital for Sick Children, University of Toronto, Toronto, ON, Canada. Department of Rehabilitation, Nursing Science and Sports, and Van Creveldkliniek, University Medical Center Utrecht, Utrecht, The Netherlands. Department of Orthopaedic Surgery, Orthopaedic Institute for Children, David Geffen School of Medicine at UCLA, Los Angeles, CA, USA. Department of Rehabilitation, Hospital for Sick Children, University of Toronto, Toronto, ON, Canada. Department of Diagnostic Imaging, Research Institute, Hospital for Sick Children, University of Toronto, Toronto, ON, Canada. Department of Haematology, Christian Medical College, Vellore, Tamil Nadu, India.

**INTRODUCTION:**

The implementation of early long-term, regular clotting factor concentrate (CFC) replacement therapy ('prophylaxis') has made it possible to offer boys with haemophilia a near normal life.
Many different regimens have reported favourable results, but the optimum treatment regimens have not been established and the cost of prophylaxis is very high. Both for optimizing treatment and reimbursement issues, there is a need to provide objective evidence of both short- and long-term results and benefits of prophylactic regimens.

AIMS: This report presents a critical review of outcome measures for use in the assessment of musculoskeletal health in persons with haemophilia according to the International Classification of Functioning, Disability and Health (ICF). This framework considers structural and functional changes, activities and participation in a context of both personal and environmental factors. METHODS: Results were generated by a combination of a critical review of available literature plus expert opinion derived from a two day consensus conference between 48 health care experts from different disciplines involved in haemophilia assessment and care. Outcome tools used in haemophilia were reviewed for reliability and validity in different patient groups and for resources required. RESULTS AND CONCLUSION: Recommendations for choice of outcome tools were made according to the ICF domains, economic setting, and reason for use (clinical or research). The next step will be to identify a 'core' set of outcome measures for use in clinical care or studies evaluating treatment.

61. Fletcher, G. J., Raghavendran, A., Sivakumar, J., Samuel, P. and Abraham, P.
   Diagnostic reliability of Architect anti-HCV assay: Experience of a tertiary care hospital in India
   J Clin Lab Anal; 2017,
   Address: Department of Clinical Virology, Christian Medical College, Vellore, India. Department of Biostatistics, Christian Medical College, Vellore, India.
   BACKGROUND & AIMS: Anti-HCV assays are prone to false positive results. Thus, accurate detection of HCV infection is critical for the timely therapeutic management. This study ascertained the reliability of Architect anti-HCV assay (Abbott) and to estimate the agreement of this assay with Ortho HCV 3.0 ELISA Test System with Enhanced SAVe (Ortho), HCV Tri-dot (Tri-dot) and HCV-PCR in a tertiary care setting.
   METHODS: A total of 78 788 consecutive sera were routinely screened for anti-HCV antibodies using Architect. All repeatedly reactive anti-HCV sera (n=1000) and anti-HCV negative sera (n=300) were tested in Ortho and in Tri-dot assays. Representative proportions of sera (n=500) with various signal-to-cut-off (S/Co) ratio were also compared with HCV-PCR. RESULTS: When Architect was compared with Ortho, Tri-dot, and HCV-PCR, the level of agreement as assessed by kappa were .26, .16, and .27 respectively. Using Latent class analysis (LCA), we found that sensitivity and specificity were 100% and 36.1% for Architect, 93.8% and 100% for Ortho and 63.8% and 100% for Tri-dot respectively. The median S/CO ratio of Architect and Ortho anti-HCV assays were significantly different between HCV-PCR positive and negative results (P<.0001). Furthermore, Architect S/CO ratio of >8 showed higher accuracy indices in both anti-HCV assays.
   CONCLUSIONS: Architect can be used as a screening assay because of its high sensitivity, high throughput, and short turnaround time. However, S/Co ratios of >7 to <8 in Architect necessitates HCV PCR to identify current infection and or EIA to distinguish true positivity from false biological positivity.

Surgical Outcomes Associated with Operable Gastric Cancer in a Tertiary Care Indian Hospital

J Gastric Cancer; 2017, 17 (1): 63-73

Address: Upper GI Surgery Unit, Department of General Surgery Unit 3, Christian Medical College, Vellore, India.

PURPOSE: Data on operable gastric cancer from India is sparse. The purpose of this study was to investigate the clinical details, histopathological demographics, and 5-year overall survival (OS) and disease free survival (DFS) associated with operable, non-metastatic gastric cancer in a dedicated upper gastrointestinal (GI) surgical unit in India. MATERIALS AND METHODS: Data for patients diagnosed with operable gastric cancer between January 2006 and December 2014 were retrospectively analyzed. Data were collected from electronic hospital records in addition to mail and telephonic interviews when possible. RESULTS: A total of 427 patients were included. The tumor was located in the pyloro-antral region in 263 patients (61.7%). Subtotal gastrectomy was performed in 291 patients and total gastrectomy in 136 patients. Tumor stage classification revealed 43 patients (10.0%) with stage I, 40 patients (9.4%) with stage IIA, 59 patients (13.9%) with stage IIB, 76 patients (17.8%) with stage IIIA, 96 patients (22.5%) with stage IIIB, and 113 patients (26.4%) with stage IIIC disease. Follow-up data were available for 71.6% of the patients with a mean duration of 32.4 months. Five-year DFS and OS were 39% and 59%, respectively. CONCLUSIONS: Despite presenting at an advanced stage, the 5-year DFS and OS of patients with operable gastric cancer treated at a dedicated upper GI unit of a tertiary care center in India was good.


Prospective randomised controlled trial comparing early post-operative complications in patients undergoing loop colostomy with and without a stoma rod

Colorectal Dis; 2017,

Address: Department of Surgery Unit 2(Colorectal Surgery), Christian Medical College, Vellore, 632004, Tamil Nadu, India. Department of biostatistics, Christian Medical College, Vellore, 632002, Tamil Nadu, India. Consultant Surgeon, Dr. Gray's Hospital, Elgin, IV30 6BZ.

AIM: A stoma rod or bridge has been traditionally placed under the bowel loop while constructing loop colostomies. This is believed to prevent stoma retraction and provide better faecal diversion. However, the rod can cause complications such as mucosal congestion, oedema and necrosis. This single centre prospective randomized controlled trial compared outcomes after loop colostomy creation with and without a supporting stoma rod. The primary outcome studied was stoma retraction rate, and other stoma related complications were studied as secondary outcomes. METHODS: One hundred and fifty one patients were randomly allotted into one of two arms, colostomy with or without a supporting rod. Post-operative complications such as retraction, muco-cutaneous separation, congestion and re-exploration for stoma related complications were recorded. RESULTS: There was no difference in the stoma retraction rate between the two arms; 8.1% in the rod arm and 6.6% in the no rod arm (p=0.719). Stomal necrosis (10.7 vs. 1.3% p=0.018), oedema (23 vs3.9% p=0.001), congestion (20.3 vs. 2.6% p=0.001) and re-admission rates (8.5% vs. 0% p=0.027) were significantly increased in the arm randomised to the rod.
CONCLUSIONS: The stoma rod does not prevent stomal retraction. However, complication rates are significantly higher when a stoma rod is used. Routine use of a stoma rod for loop colostomy construction can be avoided. This article is protected by copyright. All rights reserved.

64. Gabriel, N., Samuel, R. and Jayandharan, G. R.

Targeted delivery of AAV-transduced mesenchymal stromal cells to hepatic tissue for ex vivo gene therapy


Address: Department of Haematology, Christian Medical College, Vellore, Tamil Nadu, India. Centre for Stem Cell Research, Christian Medical College, Vellore, Tamil Nadu, India. Department of Biological Sciences and Bioengineering, Indian Institute of Technology, Kanpur, Uttar Pradesh, India.

Adeno-associated virus (AAV)-mediated gene therapy holds great promise if challenges related to vector neutralization by pre-existing antibodies are circumvented. The use of autologous or allogeneic cells to shield the vector might offer the possibility of successful gene transfer in such a situation. In the present study, we evaluated the feasibility of AAV-transduced mesenchymal stromal cells (MSCs) as a vehicle for hepatic gene transfer in a murine liver injury model. In our initial studies to determine the most suitable vector, we observed that AAV1 (91%) and AAV6 (72%) serotypes are highly efficient in transducing MSCs. Subsequently, we generated a transient liver injury model to analyse the efficacy of MSCs homing to the liver, as well as their hepatic gene transfer efficiency; our data show that administration of acetaminophen (500 mg/kg) served as a cue for the homing of MSCs to the liver. Furthermore, sex-mismatched transplantation of AAV1-infected MSCs demonstrated a 3.5-fold (day 7) and 2.2-fold (day 28) higher hepatic gene transfer efficiency. To further corroborate this, we estimated the donor cell Y chromosome copies in the liver of recipient female mice. Our data revealed a 12.7-fold increase in average genome copies of male MSCs in the livers of recipient mice with injury compared to control, 60 days after transplantation. However, in vivo administration of AAV-transduced MSCs in the presence of neutralization antibodies (intravenous immunoglobulin, IVIG) was not beneficial. This is possibly due to the clearance of transplanted MSCs by circulating IVIG and underscores the need to develop suitable in vivo models to study such a mode of gene transfer. Copyright (c) 2015 John Wiley & Sons, Ltd.


Surgical procedures in patients with Glanzmann's thrombasthenia: case series and literature review

Blood Coagul Fibrinolysis; 2017, 28 (2): 171-175

Address: aDepartment of Haematology bDepartment of Immunohaematology and Transfusion Medicine, Christian Medical College, Vellore, Tamil Nadu, India.

Glanzmann's thrombasthenia is a rare platelet function disorder with an autosomal recessive pattern of inheritance. Achieving haemostasis in such patients who undergo surgical procedures always poses a significant challenge. Herein we report six cases of Glanzmann's thrombasthenia, who underwent nine

A novel nasoseptal flap harvesting technique in revision expanded endoscopic transsphenoidal approaches

**Neurol India; 2017, 65 (1): 129-133**

**Address:** Department of Neurosurgery, Christian Medical College, Vellore, Tamil Nadu, India. Department of Otolaryngology, Christian Medical College, Vellore, Tamil Nadu, India.

**OBJECTIVES:** To describe the technique of harvesting the nasoseptal flap (NSF) in revision-expanded endoscopic approaches (EEA). **STUDY DESIGN:** We retrospectively analyzed four cases of endoscopic skull base reconstruction (ESBR) following revision EEA done for pituitary adenoma recurrence. The presence of an intact mucoperiosteum between the nasal septum and the roof of the choana as judged on a preoperative endoscopic and radiological assessment was considered to be sufficient for the presence of a viable pedicle. By strategic placement of the incisions, the entire bilateral posterior nasal septal mucoperiosteum was raised in the NSF containing the remnant vascular pedicle. ESBR was performed with multilayer grafting of the dural defect, and the NSF was placed onto the bony margins of the defect. **RESULTS:** All patients had successful skull base reconstruction with the NSF raised by this technique as none of them developed postoperative cerebrospinal fluid leak. **CONCLUSION:** Though the number of patients in this study is small, we would like to present the concept of harvesting the NSF in revision surgery, wherein neither measuring the surface area of the pedicle nor the acoustic Doppler assessment of the pedicle is required.


Cortical Aquaporin-4 in relation to brain oedema and neurological function of cortical cryo-injured mice

**J Clin Neurosci; 2017,**

**Address:** Department of Neurological Sciences, Christian Medical College and Hospital, Vellore, Tamil Nadu, India. Department of Neurological Sciences, Christian Medical College and Hospital, Vellore, Tamil Nadu, India. Department of Biostatistics, Christian Medical College and Hospital, Vellore, Tamil Nadu, India. Electronic **Address:** ranjith@cmcvellore.ac.in. Department of Biostatistics, Christian Medical College and Hospital, Vellore, Tamil Nadu, India. Department of Neurological Sciences, Christian Medical College and Hospital, Vellore, Tamil Nadu, India. Electronic **Address:** rajeshkhar@cmcvellore.ac.in

To estimate the spatial and temporal expression of Aquaporin-4 (AQP-4) in a murine model of automated
cerebral cryoinjury and correlate AQP-4 expression with development of brain oedema and neurological function. AQP-4 levels were determined quantitatively by Western blots at site of injury and at sites adjacent to and distant from injury in brains of cryoinjured (experimental) (n=18), sham injured (n=18) & normal mice at 24, 48, 72h post injury. AQP-4 expression was correlated with percentage water content of brain, Neurological Severity Score (NSS) and rotarod scores. We found a 1.4-fold increase in expression of AQP-4 at the site of injury and at sites distant from injury at 24h when compared to normal mice (p=0.05). The increase in expression of AQP-4 24h post injury was significantly higher in experimental group at the site of injury and at the site adjacent to the injury in the ipsilateral hemisphere when compared to the sham injured mice (p=0.05). At 24h post injury the median NSS score in the experimental group was 9 (interquartile range 7.25-10) and that in the sham group was 0.5 (interquartile range 0.0-1.0) (p<0.001). At 48 and 72h, AQP-4 expression remained elevated in the experimental group when compared to normal brain, but the levels were not significantly different from that in sham group. AQP-4 expression was significantly elevated in the ipsilateral hemisphere in the first 24h following cerebral cortical injury in mice and this could be correlated with worsening of neurological function. Over the next 48h, there was a trend towards decrease in AQP-4 expression that was associated with partial recovery of neurological function.

68. Garge, S., Keshava, S. N. and Moses, V.
Cannula-Assisted, Transabdominal Ultrasound-Guided Inferior Vena Cava Recanalization in Inferior Vena Cava Occlusion


Address: Department of Radiology, Christian Medical College, Vellore, India. Electronic Address: drshaileshgarge@gmail.com Department of Radiology, Christian Medical College, Vellore, India.

We describe a novel technique for facilitating recanalization of intrahepatic inferior vena cava (IVC) via the transjugular approach in patients with short segmental hepatic IVC occlusion, where a transjugular liver biopsy cannula provides additional support to the catheter-wire combination and trans-abdominal ultrasound helps in positioning the tip of the cannula at the stump of suprahepatic IVC.

Radiofrequency ablation of osteoid osteoma in common and technically challenging locations in pediatric population

Indian J Radiol Imaging; 2017, 27 (1): 88-91

Address: Department of Radiology, Christian Medical College, Vellore, Tamil Nadu, India. Department of Paediatric Orthopedics, Christian Medical College, Vellore, Tamil Nadu, India.

CONTEXT: Percutaneous radiofrequency ablation (RFA) of osteoid osteoma has a high technical and clinical success rate. However, there is limited data on its use in the pediatric population, especially in technically challenging locations. OBJECTIVE: To assess the safety and efficacy of computed tomography
(CT)-guided percutaneous RFA of osteoid osteoma in pediatric population. **PATIENTS AND METHODS:** From June 2009 to May 2014, 30 patients with osteoid osteoma were treated with CT-guided RFA in common (25 cases) and technically challenging (five cases: four near articular surface and one in sacrum) locations. Therapy was performed under general anesthesia with a three-array expandable RF probe for 6 min at 90 degrees C and power of 60-100 W. The patients were discharged next day under instruction. The treatment success was evaluated in terms of pain relief before and after (1 day, 1 month, and 6 months) treatment. **RESULTS:** Technical success was achieved in all patients (100%). Primary clinical success was 96.66% (29 of total 30 patients), despite the pediatric population and atypical location. One patient had persistent pain after 1 month and was treated successfully with a second procedure (secondary success rate was 100%). One patient had immediate complication of weakness of right hand and fingers extension. No delayed complications were observed. **CONCLUSIONS:** CT-guided RFA is relatively safe and highly effective for treatment of osteoid ostema in pediatric population, even in technically difficult locations.

**70.** Garge, S., Mani, S., Inbaraj, A., Rajshhekar, V. and Mohapatra, P.

Cavernous sinus melanoma: A rare tumor

Indian J Radiol Imaging; 2017, 27 (1): 43-45

**Address:** Department of Radiology and Neurosurgery, Christian Medical College, Vellore, Tamil Nadu, India.

Primary melanoma of the cavernous sinus is very rare with only few cases reported in the literature. We present the cross-sectional imaging findings of this rare tumor. The differential diagnosis for cavernous sinus mass lesion is wide as it contains vital neurovascular structures that may be affected by vascular, neoplastic, infective, and infiltrative lesions arising in the cavernous sinus proper or via extension from adjacent intra and/or extracranial regions. Radiologic imaging can narrow the differential diagnosis, however, imaging cannot definitely reach single diagnosis if they present in atypical form with hemorrhage and cystic degeneration. This case report illustrates that primary cavernous sinus melanoma may present as a atypical tumor with diagnostic dilemma.

**71.** Gathani, T., Barnes, I., Ali, R., Arumugham, R., Chacko, R., Digumarti, R., Jivarajani, P., Kannan, R., Loknatha, D., Malhotra, H. and Mathew, B. S.

Lifelong vegetarianism and breast cancer risk: a large multicentre case control study in India

Bmc Womens Health; 2017, 17 (1): 6

**Address:** Cancer Epidemiology Unit, Nuffield Department of Population Health, University of Oxford, Richard Doll Building, Roosevelt Drive, Oxford, OX3 7LF, UK. toral.gathani@ceu.ox.ac.uk. Oxford University Hospitals NHS Foundation Trust, Oxford, UK. toral.gathani@ceu.ox.ac.uk. Cancer Epidemiology Unit, Nuffield Department of Population Health, University of Oxford, Richard Doll Building, Roosevelt Drive, Oxford, OX3 7LF, UK. G Kuppuswamy Naidu Memorial Hospital, Coimbatore, India. Christian Medical College, Vellore, India. Nizams Institute of Medical Sciences, Hyderabad, India. Gujarat Cancer
**BACKGROUND:** The lower incidence of breast cancer in Asian populations where the intake of animal products is lower than that of Western populations has led some to suggest that a vegetarian diet might reduce breast cancer risk. **METHODS:** Between 2011 and 2014 we conducted a multicentre hospital based case-control study in eight cancer centres in India. Eligible cases were women aged 30-70 years, with newly diagnosed invasive breast cancer (ICD10 C50). Controls were frequency matched to the cases by age and region of residence and chosen from the accompanying attendants of the patients with cancer or those patients in the general hospital without cancer. Information about dietary, lifestyle, reproductive and socio-demographic factors were collected using an interviewer administered structured questionnaire. Multivariate logistic regression models were used to estimate the odds ratio (OR) and 95% confidence intervals for the risk of breast cancer in relation to lifelong vegetarianism, adjusting for known risk factors for the disease. **RESULTS:** The study included 2101 cases and 2255 controls. The mean age at recruitment was similar in cases (49.7 years (SE 9.7)) and controls (49.8 years (SE 9.1)). About a quarter of the population were lifelong vegetarians and the rates varied significantly by region. On multivariate analysis, with adjustment for known risk factors for the disease, the risk of breast cancer was not decreased in lifelong vegetarians (OR 1.09 (95% CI 0.93-1.29)). **CONCLUSIONS:** Lifelong exposure to a vegetarian diet appears to have little, if any effect on the risk of breast cancer.

**OBJECTIVES:** To explore the relative effectiveness of topical or oral metronidazole used for malodour in necrotic cancers and to propose a protocol for metronidazole usage in managing malodour. **METHODS:** A retrospective case note review of the management of malodour over 10 years comparing outcomes with topical, intermittent and maintenance oral metronidazole. **RESULTS:** Among 179 patients treated for malodour, the commonest primaries were cervical (45%), and head and neck cancers (40%). Outcomes were poor during the period when only topical or intermittent oral metronidazole was used. Topical use gradually decreased (97% vs 55%) and the proportion of patients receiving maintenance oral metronidazole increased (0% in 2003-2004 vs 93% in 2011). Concurrently, there was reduction in documented malodour (12.5% of visits per patient in 2003-2004 vs 1.5% in 2011, p<0.01). **CONCLUSIONS:** Our data support formulary guidelines recommending maintenance metronidazole for recurrent malodour. Dimethyl trisulfide, a product of anaerobic necrosis causes malodour and can attract maggot-producing flies to decaying tissues. Therefore, to reduce anaerobic malodour in vulnerable settings, we propose a ladder for metronidazole titration. High-risk patients should start with 400 mg.
### The molecular speciation of soil-transmitted helminth eggs collected from school children across six endemic countries

Department of Virology, Parasitology and Immunology, Ghent University, Faculty of Veterinary Medicine, Salisburylaan 133, B-9820 Merelbeke, Belgium. Department of Gastrointestinal Sciences, Christian Medical College, Vellore, India. Department of Control of Neglected Tropical Diseases, World Health Organization, Geneva, Switzerland. Department of Virology, Parasitology and Immunology, Ghent University, Faculty of Veterinary Medicine, Salisburylaan 133, B-9820 Merelbeke, Belgium

**BACKGROUND:** The diagnosis of soil-transmitted helminths (STHs; Ascaris, Trichuris and hookworms) is traditionally based on the demonstration of eggs in stool using microscopic techniques. While molecular techniques are more appropriate to speciate STH species, they are seldom applied. In this study, we speciated STH eggs from stool collected during the baseline survey of six drug efficacy trials conducted in Brazil, Cambodia, Cameroon, Ethiopia, Tanzania, and Vietnam applying a PCR - restriction fragment length polymorphisms based approach.

**METHODS:** We speciated 207 STH egg isolates from stool collected during the baseline survey of six drug efficacy trials conducted in Brazil, Cambodia, Cameroon, Ethiopia, Tanzania, and Vietnam applying a PCR - restriction fragment length polymorphisms based approach. RESULTS: DNA of Ascaris was detected in 71 (34.3%) samples, of which all were identified as the human roundworm *Ascaris lumbricoides*. In 87 (42.0%) samples, DNA of *Trichuris spp.* was found and further speciation demonstrated the presence of the human *Trichuris trichiura* (100%) and the canine *Trichuris vulpis* (n=7; 8.0%; in Cameroon only). Hookworms were identified in 104 (50.2%) samples, with *Necator americanus* (n=73; 70.2%) being the predominant species followed by *Ancylostoma duodenale* (n=40; 38.5%). CONCLUSIONS: Our study indicates that STH infections in humans are predominantly caused by human STH species. They also suggest that zoonotic transmission occurs on a local scale.
### 'Chamber within a chamber': a rare cardiac anomaly

Cardiol Young; 2017, 1-3

**Address:** Department of Cardiology, Christian Medical College, Vellore, India.

Double-chambered left ventricle is a rare cardiac anomaly. We report a case of double-chambered left ventricle in a one-and-half-year-old asymptomatic boy. We depict the use of three-dimensional echocardiography in the demonstration and diagnosis of the condition.

### RVX 208: a novel BET protein inhibitor, role as an inducer of apo A-I/HDL and beyond

Cardiovasc Ther; 2017,

**Address:** Department of Cardiology, Christian Medical College, Vellore, India. Department of Medicine, St. Vincent Charity Medical Center, A Teaching Hospital of Case Western Reserve University, Cleveland, OH. Department of Cardiovascular Medicine, St. Vincent Charity Medical Center, A Teaching Hospital of Case Western Reserve University, Cleveland, OH. Cleveland Clinic, Cleveland, OH.

Low density cholesterol (LDL) has been the prime target of currently available lipid-lowering therapies although current research is expanding the focus beyond LDL lowering and has included high density cholesterol (HDL) also as the target. Bromo and extra-terminal (BET) proteins are implicated in the regulation of transcription of several regulatory genes and regulation of pro-inflammatory pathways. As atherosclerosis is an inflammatory pathway and studies showed that BET inhibition has a role in inhibiting inflammation, the concept of BET inhibition came in the field of atherosclerosis. RVX 208 is a novel, orally active, BET protein inhibitor and the only BET inhibitor currently available in the field of atherosclerosis. RVX 208 acts primarily by increasing apo A-I (apolipoprotein A-I) and HDL levels. RVX 208 has a novel action of increasing larger, more cardio-protective HDL particles. Post hoc analysis of Phase II trials also showed that RVX 208 reduced major adverse cardiovascular events (MACE) in treated patients, over and above that of apo A-I/HDL increasing action. This MACE reducing actions of RVX 208 was largely due to its novel anti-inflammatory actions. Currently a phase III trial, BETonMACE is recruiting patients to look for the effects of RVX 208 in patients with increased risk of atherosclerotic cardiovascular disease. So BET inhibitors act in multiple ways to inhibit and modulate atherosclerosis and would be an emerging and potential option in the management of multifactorial disease like coronary artery disease by inhibiting a single substrate. But we need long-term phase III trial data's to look for effects on real world patients. This article is protected by copyright. All rights reserved.

### Penetrating mitral annular abscess ruptured into the left atrium: a rare cause of mitral regurgitation

BMJ Case Rep; 2017, 2017

**Address:**

Penetrating mitral annular abscess ruptured into the left atrium: a rare cause of mitral regurgitation
### 77. Comparison of culture, single and multiplex real-time PCR for detection of Sabin poliovirus shedding in recently vaccinated Indian children

**Address:** Department of Cardiology, Christian Medical College Hospital, Vellore, Tamil Nadu, India. Department of Gastrointestinal Sciences, Christian Medical College, Vellore, India. Department of Clinical Virology, Christian Medical College, Vellore, India. Institute of Infection and Global Health, University of Liverpool, Liverpool, United Kingdom. Division of Infectious Diseases and International Health, University of Virginia School of Medicine, Charlottesville, Virginia. Department of Community Medicine, Christian Medical College, Vellore, India.

Although, culture is considered the gold standard for poliovirus detection from stool samples, real-time PCR has emerged as a faster and more sensitive alternative. Detection of poliovirus from the stool of recently vaccinated children by culture, single and multiplex real-time PCR was compared. Of the 80 samples tested, 55 (68.75%) were positive by culture compared to 61 (76.25%) and 60 (75%) samples by the single and one step multiplex real-time PCR assays respectively. Real-time PCR (singleplex and multiplex) is more sensitive than culture for poliovirus detection in stool, although the difference was not statistically significant.

**PMID:** 28213965

### 78. The effect of influence quantities and detector orientation on small-field patient-specific IMRT QA: comparison of measurements with various ionization chambers

**Address:** Department of Radiation Physics, Kidwai Memorial Institute of Oncology, Dr. M.H. Marigowda Road, Bangalore, 560 029, India. Department of Radiotherapy, Christian Medical College, Vellore, India. Department of Radiation Physics, Kidwai Memorial Institute of Oncology, Dr. M.H. Marigowda Road, Bangalore, 560 029, India. drmravi59@yahoo.com.

Intensity-modulated radiation therapy (IMRT) requires a patient-specific quality assurance (QA) program to validate the treatment plan and a high level of dosimetric accuracy in the treatment delivery. Dosimetric verification generally consists of both absolute- and relative-dose measurements in a phantom using ionization chambers. Measurements were carried out with three different ionization chambers (Scanditronix FC 65G, Exradin A18, and PTW PinPoint 31014) to assess the effects of influence quantities such as the stability, pre- and post-irradiation leakage, stem effect, polarity, and ion recombination on the IMRT point-dose verification with two different orientations. The Exradin A18 and PTW PinPoint ion chambers were used.

**PMID:** 27910001
### 79. Goel, R., Kabeerdoss, J., Mohan, H., Danda, S., Jayaseelan, V., Kumar, T. S., Jude, J., Bacon, P., Joseph, G. and Danda, D.

Soluble-HLA-E: A follow up biomarker in Takayasu arteritis, independent of HLA-E genotype

Int J Rheum Dis; 2017,

**Address:** 
Department of Clinical Immunology and Rheumatology, Christian Medical College, Vellore, India. Department of Medical Genetics, Christian Medical College, Vellore, India. Department of Biostatistics, Christian Medical College, Vellore, India. Department of Child Health, Christian Medical College, Vellore, India. Department of Microbiology, Christian Medical College, Vellore, India. School of Immunity and Infection, College of Medicine and Dentistry, University of Birmingham, Birmingham, UK. Department of Cardiology, Christian Medical College, Vellore, India.

**AIM:** Disease activity assessment in Takayasu arteritis (TA) is challenging. Human leukocyte antigen E (HLA-E) is shed from endothelium into serum as a soluble molecule (sHLA-E) in response to inflammation. We aimed to study: (i) utility of sHLA-E as a biomarker of disease activity; and (ii) association of HLA-E polymorphism rs1264457 with clinical disease in Asian-Indian TA patients.

**MATERIALS AND METHODS:**
In phase-1, sHLA-E levels were estimated in sera of 50 consecutive TA patients at baseline visit and 27 healthy controls. Serial estimations were performed in 27 of them. In phase-2, DNA of 150 TA patients and 264 healthy controls were genotyped for rs1264457 polymorphism.

**RESULTS:** At baseline visit, disease was classified as active, stable and grumbling in 23, 18 and nine patients, respectively. sHLA-E levels were higher in active TA (43; interquartile range [IQR]: 25.3-64.6) pg/mL than stable disease (12.9; IQR: 7.6-21.6 pg/mL) (P = 0.001). At first follow-up visit, sHLA-E levels were numerically higher in active disease than stable disease (P = 0.06) but this trend was blunted at second follow-up. sHLA-E levels increased in 54% versus 25% of patients with persistently active/relapsing and persistent stable course, respectively. rs1264457 polymorphism was not associated with susceptibility to TA and did not affect sHLA-E levels. **CONCLUSION:** sHLA-E level is useful as a biomarker of disease activity and course in TA patients. rs1264457 polymorphism is neither associated with susceptibility nor did it influence sHLA-E levels in TA.


INT J JAN TO JUN PMID:28400869
Serum Cytokine Profile in Asian Indian Patients with Takayasu Arteritis and its Association with Disease Activity

Open Rheumatol J; 2017, 11 23-29

**Address:** Department of Clinical Immunology and Rheumatology, Christian Medical College, Vellore-632004, Tamil Nadu, India. Department of Clinical Microbiology, Christian Medical College, Vellore-632004, Tamil Nadu, India. Wellcome Trust Research Laboratories, Division of Gastro Intestinal Sciences Christian Medical College, Vellore-632004, Tamil Nadu, India. Department of Biostatistics, Christian Medical College, Vellore-632004, Tamil Nadu, India. Department of Cardiology, Christian Medical College, Vellore-632004, Tamil Nadu, India.

**BACKGROUND:** Arterial inflammation Takayasu arteritis (TA) is an outcome of balance between pro- and anti-inflammatory cytokines. Comprehensive assessment of these cytokines is important for understanding pathogenesis and assessing disease activity. **OBJECTIVE:** To study pro- and anti-inflammatory cytokines representing different T-helper cell pathway in serum samples of Asian Indian patients with TA and to assess their association with disease activity. **METHODS:** Consecutive Indian patients with TA were assayed for serum interferon-gamma, interleukin-6, interleukin-23, interleukin-17, interleukin-10 and transforming growth factor-beta levels at baseline and follow up visit. Patients were grouped into active and stable disease based on Indian Takayasu Arteritis clinical Activity Score-2010. Serum levels of these cytokines between active and stable disease and between baseline and follow up visits were compared by non-parametric tests. **RESULTS:** Among 32 patients enrolled, 15 were classified as active while 17 as stable disease at baseline. IFN-gamma levels were significantly higher in active disease than stable disease (p=0.0129) while other cytokines did not differ significantly between 2 groups. Serum levels of none of the cytokines changed significantly over 2 visits in both responders and non-responders. IL23 levels positively correlate with disease duration ((r=0.999; p<0.005). Modest correlation was observed between IFN-gamma and IL23 levels at both baseline and follow up and between IFN-gamma and IL-6 and CRP at follow up. **CONCLUSION:** IFN-gamma levels are raised in active disease in TA and correlates well with other biomarkers of disease activity and proinflammatory cytokines. There is also a direct correlation between IL-23 levels and disease duration.

**81.** Gupta, M., Roy, S., Wann, C. and Eapen, A.

Giant fibroepithelial polyp of the ureter

BMJ Case Rep; 2017, 2017

**Address:** Department of General Pathology, Christian Medical College, Vellore, India gupta.mayank103@gmail.com Department of General Pathology, Christian Medical College, Vellore, India. Department of Urology, Christian Medical College, Vellore, India. Department of Radiodiagnosis and Imaging, Christian Medical College, Vellore, India.

Giant fibroepithelial polyp is a rare cause of ureteric/ureteropelvic junction (UPJ) obstruction. We report a rare case of giant fibroepithelial polyp in a 32-year-old woman involving the whole length of the ureter, reaching up to the UPJ which was clinically and radiologically considered to be urothelial carcinoma. Frozen section showed a polypoid lesion lined by urothelium with no evidence of dysplasia or malignancy.
<table>
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<th>PMID: 28550399</th>
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<tr>
<td>Addition of second-line steroid sparing immunosuppressants like mycophenolate mofetil improves outcome of Immunoglobulin G4-related disease (IgG4-RD): a series from a tertiary care teaching hospital in South India</td>
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Rheumatol Int; 2017, |

**Address:** Department of Clinical Immunology & Rheumatology, Christian Medical College, Vellore, India. Department of Gastrointestinal Sciences, Christian Medical College, Vellore, India. Department of Pulmonary Medicine, Christian Medical College, Vellore, India. Department of Neurology, Christian Medical College, Vellore, India. Department of Nephrology, Christian Medical College, Vellore, India. Department of Biostatistics, Christian Medical College, Vellore, India. Department of Clinical Immunology & Rheumatology, Christian Medical College, Vellore, India. debashisdandacmc@hotmail.com

IgG4-related disease (IgG4-RD) is a systemic fibro-inflammatory disease. This disease may be associated with elevated serum and tissue IgG4 levels. Early treatment prevents fibrosis and organ damage. We retrospectively studied the clinicopathologic correlation and outcome of treatment in IgG4-RD. This single-center retrospective study was done using electronic records of patients subjected to assay of serum IgG4 levels in our laboratory by nephelometry. There were 473 patients with suspected IgG4-RD. Of them, 41 patients fulfilled comprehensive diagnostic criteria for IgG4-RD and 432 had diseases other than IgG4-RD. Clinical and histopathological data including tissue IgG4/IgG ratio, other relevant laboratory findings as well as management data of 41 patients with IgG4-RD were analyzed. There were 29 males and 12 females with mean age of 44.1 +/- 2.19 years. Thirteen patients had definite, 19 had probable and 9 had possible IgG4-RD. Male predominance, multiple organ involvement and IgG4 responder Index were significantly higher in definite IgG4-RD as compared to probable and possible IgG4-RD. Serum IgG4 level was elevated in 37 patients (90.2%). Glucocorticoids were used in 35 patients (85.4%) and second-line immunosuppressive agent in 23 patients (65.7%). Of the 21 patients on follow-up, 19 (90.7%) had clinical improvement at the first follow-up visit. Nine (90%) out of the ten patients who were assessed by IgG4 responder index, also had shown improved score with treatment. Patients with IgG4-RD in our series showed favorable responses to treatment with glucocorticoids and addition of steroid sparing immunosuppressive agents (mainly mycophenolate mofetil) helped successful tapering of steroids, while maintaining the improvement.

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<td>Administration of Adult Human Bone Marrow-Derived, Cultured, Pooled, Allogeneic Mesenchymal Stromal Cells in Critical Limb Ischemia Due to Buerger's Disease: Phase II Study Report Suggests Clinical Efficacy</td>
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Stem Cells Transl Med; 2017, 6 (3): 689-699

**Address:** Stempeutics Research, Bangalore, India. Department of Vascular Surgery, Sri Jayadeva Institute of Cardiovascular Sciences, Bangalore, India. Department of Vascular Surgery, MS Ramaiah Medical College & Hospitals, Bangalore, India. Department of Vascular Surgery, SRM Medical College, Chennai, India. Department of Cardiovascular Surgery, Nightingale Hospital, Kolkata, India. Department of Cardiovascular Surgery, Health Point Hospital, Kolkata, India. Department of Vascular Surgery, Sri Ramachandra Medical College, Chennai, India. Department of Surgical Disciplines, All India Institute of Medical Sciences, New Delhi, India. Division of Peripheral Vascular and Endovascular Sciences, Medanta-The Medicity, Gurgaon, Haryana, India. Department of Biostatistics, Christian Medical College, Vellore, India. Manipal University, Manipal, India.

Critical limb ischemia (CLI) due to Buerger’s disease is a major unmet medical need with a high incidence of morbidity. This phase II, prospective, nonrandomized, open-label, multicentric, dose-ranging study was conducted to assess the efficacy and safety of i.m. injection of adult human bone marrow-derived, cultured, pooled, allogeneic mesenchymal stromal cells (BMMSC) in CLI due to Buerger’s disease. Patients were allocated to three groups: 1 and 2 million cells/kg body weight (36 patients each) and standard of care (SOC) (18 patients). BMMSCs were administered as 40-60 injections in the calf muscle and locally, around the ulcer. Most patients were young (age range, 38-42 years) and ex-smokers, and all patients had at least one ulcer. Both the primary endpoints—reduction in rest pain (0.3 units per month [SE, 0.13]) and healing of ulcers (11% decrease in size per month [SE, 0.05])—were significantly better in the group receiving 2 million cells/kg body weight than in the SOC arm. Improvement in secondary endpoints, such as ankle brachial pressure index (0.03 [SE, 0.01] unit increase per month) and total walking distance (1.03 [SE, 0.02] times higher per month), were also significant in the group receiving 2 million cells/kg as compared with the SOC arm. Adverse events reported were remotely related or unrelated to BMMSCs. In conclusion, i.m. administration of BMMSC at a dose of 2 million cells/kg showed clinical benefit and may be the best regimen in patients with CLI due to Buerger’s disease. However, further randomized controlled trials are required to confirm the most appropriate dose. Stem Cells Translational Medicine 2017;6:689-699.

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**OBJECTIVES:** Autoimmune diseases do not impair fertility, and women with autoimmune diseases who become pregnant are likely to experience more complicated pregnancies than are women without the disease. Pregnancies complicated by these disorders have a high clinical impact on both the pregnancy

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**Address:** Medical Officer in the Department of Obstetrics and Gynecology at the Vardhman Mahavir Medical College and Safdarjung Hospital in Delhi, New Delhi, India. drsurchi87@gmail.com. Fellow in Clinical Immunology & Rheumatology at the Christian Medical College in Vellore, India. nik.gupta4u@gmail.com

**OBJECTIVES:** Autoimmune diseases do not impair fertility, and women with autoimmune diseases who become pregnant are likely to experience more complicated pregnancies than are women without the disease. Pregnancies complicated by these disorders have a high clinical impact on both the pregnancy
and the disease. The effect of autoimmune disease on pregnancy differs according to the type of maternal disease, disease activity, severity of organ damage, antibody profile, and drug treatment. Sjogren syndrome is an autoimmune disease with a high prevalence of anti-SS-A (anti-Ro) and anti-SS-B (anti-La) antibodies. Anti-SS-A antibodies are associated with congenital heart block. Data on pregnancy outcomes in primary Sjogren syndrome are scarce. METHODS: We performed a review of the literature regarding pregnancy outcomes in women with Sjogren syndrome. RESULTS: Women with Sjogren syndrome are likely to experience more complications during pregnancy than women without an autoimmune disease. Studies show a high incidence of poor fetal outcomes for these patients. CONCLUSION: Women with Sjogren syndrome require prenatal counseling explaining the risks involved and the need to control the disease well before conception. High-risk pregnancies can be optimally managed by a multidisciplinary team.

85. Gupta, S., Gupta, N., Singhal, S. and Nair, N.
Carcinoma Cervix Presenting as Ischaemic Stroke in Young Female: A Case Report and Review of Literature
J Clin Diagn Res; 2017, 11 (4): QD01-QD02

Address: Senior Resident, Department of Gynaecology, Safdarjung Hospital, Delhi, India. Fellow, Department of Clinical Immunology and Rheumatology, CMC, Vellore, Tamil Nadu, India. Senior Resident, Department of Pathology, BJ Medical College, Ahmedabad, Gujarat, India. Senior Resident, Department of Radio-Diagnosis, AIIMS, Delhi, India.

Stroke is a disabling disease which increases the burden of already suffering cancer patients. Several mechanisms of stroke exist in cancer patients which includes - metastatic or non-metastatic such as coagulation disorders, infections or therapy related. Increased risk of ischaemic stroke has been validated for several cancers. However, there is scarce literature reported in carcinoma cervix patients. Review of literature suggests that stroke occurs more frequently in cancer patients than in the average population. We report an unusual case of a patient who presented with stroke but was later diagnosed as a case of carcinoma cervix.

86. Gupta, T., Sarkar, C., Rajshekhar, V., Chatterjee, S., Shirsat, N., Muzumdar, D., Pungavkar, S., Chinnaswamy, G. and Jalali, R.
Indian Society of Neuro-Oncology consensus guidelines for the contemporary management of medulloblastoma
Neurol India; 2017, 65 (2): 315-332

Address: Neuro-Oncology Disease Management Group, Tata Memorial Centre, Mumbai, Maharashtra, India. Division of Neuro-pathology, All India Institute of Medical Sciences, New Delhi, India. Department of Neuro-surgery, Christian Medical College and Hospital, Vellore, Tamil Nadu, India. Department of Neuro-surgery, Park Clinic, Kolkata, West Bengal, India. Department of Neuro-surgery, King Edward Memorial Hospital, Mumbai, Maharashtra, India. Division of Radio-diagnosis and Imaging, Global Hospital, Mumbai,
Maharashtra, India.

INTRODUCTION: The high success rate in the management of medulloblastoma achieved in the western world is not exactly mirrored in developing countries including India. Socio-demographic differences, health-care disparity, and lack in uniformity of care with resultant widespread variations in the clinical practice are some of the reasons that may partly explain this difference in outcomes. Patients with medulloblastoma require a multi-disciplinary team approach involving but not limited to neuro-radiology, neurosurgery; neuropathology, molecular biology, radiation oncology, pediatric medical oncology and rehabilitative services for optimizing outcomes. METHODS: The Indian Society of Neuro-Oncology (ISNO) constituted an expert multi-disciplinary panel with adequate representation from all stakeholders to prepare national consensus guidelines for the contemporary management of medulloblastoma. RESULTS: Minimum desirable, as well as preferable though optional recommendations (as appropriate), were developed and adopted for the pre-surgical work-up including neuroimaging; neurosurgical management including surgical principles, techniques, and complications; neuropathology reporting and molecular testing; contemporary risk-stratification in the molecular era; appropriate adjuvant therapy (radiotherapy and chemotherapy); and follow-up schedule in medulloblastoma. CONCLUSIONS: The current document represents a broad consensus reached amongst various stakeholders within the neuro-oncology community involved in the contemporary curative-intent management of children with medulloblastoma. It provides both general as well as specific guidelines and recommendations to be adopted by physicians and health care providers across India to achieve uniformity of care, improve disease-related outcomes, and compare results between institutions within the country.


Hybrid positron emission tomography segmentation of heterogeneous lung tumors using 3D Slicer: improved GrowCut algorithm with threshold initialization

J Med Imaging (Bellingham); 2017, 4 (1): 011009

Address: VIT University, School of Advanced Sciences, Department of Physics, Vellore, Tamil Nadu 632004, India. Christian Medical College, Department of Nuclear Medicine, Vellore, Tamil Nadu 632004, India. Christian Medical College, Department of Radiation Oncology, Vellore, Tamil Nadu 632004, India. University of Washington, School of Medicine, Departments of Radiology and Radiation Oncology, Seattle, Washington 98195, United States.

This paper presents an improved GrowCut (IGC), a positron emission tomography-based segmentation algorithm, and tests its clinical applicability. Contrary to the traditional method that requires the user to provide the initial seeds, the IGC algorithm starts with a threshold-based estimate of the tumor and a three-dimensional morphologically grown shell around the tumor as the foreground and background seeds, respectively. The repeatability of IGC from the same observer at multiple time points was compared with the traditional GrowCut algorithm. The algorithm was tested in 11 nonsmall cell lung cancer lesions and validated against the clinician-defined manual contour and compared against the clinically used 25% of the maximum standardized uptake value [SUV-(max)], 40% [Formula: see text], and adaptive threshold methods. The time to edit IGC-defined functional volume to arrive at the gross
tumor volume (GTV) was compared with that of manual contouring. The repeatability of the IGC algorithm was very high compared with the traditional GrowCut ([Formula: see text]) and demonstrated higher agreement with the manual contour with respect to threshold-based methods. Compared with manual contouring, editing the IGC achieved the GTV in significantly less time ([Formula: see text]). The IGC algorithm offers a highly repeatable functional volume and serves as an effective initial guess that can well minimize the time spent on labor-intensive manual contouring.

Vaccine coverage and adherence to EPI schedules in eight resource poor settings in the MAL-ED cohort study

Vaccine; 2017, 35 (3): 443-451

Address: Division of International Epidemiology and Population Studies of Fogarty International Center, National Institutes of Health, 16 Center Drive, Bethesda, MD 20892, USA. Electronic Address: christel.host@nih.gov Division of International Epidemiology and Population Studies of Fogarty International Center, National Institutes of Health, 16 Center Drive, Bethesda, MD 20892, USA. Department of International Health, Johns Hopkins University, Baltimore, MD, 21205, USA. Division of Infectious Diseases and International Health, University of Virginia, P.O. Box 801340, 345 Crispell Drive, Carter Harrison Building, Charlottesville, VA 22908, USA. Aga Khan University, Department of Pediatrics and Child Health, Stadium Road, Karachi, Pakistan. Asociacion Cremon Benefica Proyectos de Informatica, Salud, Medicina, y Agricultura (A.B. PRISMA), Ramirez Hurtado 622, Iquitos, Peru. HIV/AIDS and Global Health Research Programme, University of Venda, Thohoyandou 0950, South Africa. Department of Child Health, Institute of Medicine, Tribhuvan University, Katmandu, Nepal; Centre for International Health, University of Bergen, P.O. Box 7800, 5020 Bergen, Norway. Department of Gastrointestinal Sciences/Department of Community Health, Christian Medical College, Vellore, Tamil Nadu 632004, India. Nutrition and Clinical Services Division, International Centre For Diarrhoeal Disease Research, Bangladesh (icdrr,b), 68 Shaheed Tajuddin Ahmed Sarani, Mohakhali, Dhaka 1212, Bangladesh. Haydon Lutheran Hospital, POB 9041, Haydom, Manyara Region, Tanzania. Instituto de Biomedicina, Departamento de Fisiologia e Farmacologia, Faculdade de Medicina Federal University of Ceara, Rua Coronel Nunes de Melo, 1315, CEP: 60.430-270 - C.P. 3229 - Porangabussu, Fortaleza Ceara, Brazil. Department of Environmental Science and Policy and the Duke Global Health Institute, Duke University, Durham, NC, USA. Armed Forces Research Institute of Medical Sciences, Bangkok, Thailand.

BACKGROUND: Launched in 1974, the Expanded Program on Immunization (EPI) is estimated to prevent two-three million deaths annually from polio, diphtheria, tuberculosis, pertussis, measles, and tetanus. Additional lives could be saved through better understanding what influences adherence to the EPI schedule in specific settings.

METHODS: The Etiology, Risk Factors and Interactions of Enteric Infections and Malnutrition and the Consequences for Child Health and Development (MAL-ED) study followed cohorts in eight sites in South Asia, Africa, and South America and monitored vaccine receipt over the first two years of life for the children enrolled in the study. Vaccination histories were obtained
monthly from vaccination cards, local clinic records and/or caregiver reports. Vaccination histories were compared against the prescribed EPI schedules for each country, and coverage rates were examined in relation to the timing of vaccination. The influence of socioeconomic factors on vaccine timing and coverage was also considered.

**RESULTS:** Coverage rates for EPI vaccines varied between sites and by type of vaccine; overall, coverage was highest in the Nepal and Bangladesh sites and lowest in the Tanzania and Brazil sites. Bacillus Calmette-Guerin coverage was high across all sites, 87-100%, whereas measles vaccination rates ranged widely, 73-100%. Significant delays between the scheduled administration age and actual vaccination date were present in all sites, especially for measles vaccine where less than 40% were administered on schedule. A range of socioeconomic factors were significantly associated with vaccination status in study children but these results were largely site-specific.

**CONCLUSIONS:** Our findings highlight the need to improve measles vaccination rates and reduce delayed vaccination to achieve EPI targets related to the establishment of herd immunity and reduction in disease transmission.


Hematology oncology practice in the Asia-Pacific APHCON survey results from the 6th international hematologic malignancies conference: bridging the gap 2015, Beijing, China

Oncotarget; 2017, 8 (25): 41620-41630

**Address:** Peking University People's Hospital, Peking University Institute of Hematology, Beijing, China. Royal Melbourne Hospital, Melbourne, Australia. MD Anderson Cancer Center, Houston, Texas, USA. Shanghai Changzheng Hospital, Shanghai, China. MD Anderson Cancer Center, Madrid, Spain. Chinese Academy of Medical Sciences & Peking Union Medical College, Beijing, China. National University Hospital, Singapore. Seoul St. Mary’s Hospital, S. Korea. Singapore General Hospital, Singapore. First Affiliated Hospital of Soochow University, Jiangsu Institute of Hematology, Jiangsu, China. Ramathibodi Hospital, Bangkok, Thailand. First Affiliated Hospital of Nanjing Medical University, Jiangsu Province Hospital, Nanjing, China. Ruijin Hospital, Shanghai, China. Gansu Provincial Key Laboratory of Hematology, Lanzhou, China. Post Graduate Institute of Medical Education and Research, Chandigarh, India. Prince of Wales Hospital, The Chinese University of Hong Kong, Hong Kong, China. Methodist Hospital, Houston, Texas, USA. Christian Medical College and Hospital, Vellore, India. Wuhan Union Hospital, Wuhan, China. Institute of Hematology and Hospital of Blood Diseases, Chinese Academy of Medical Sciences, Tianjin, China. General Hospital of Tianjin Medical University, Tianjin, China. Queen Mary Hospital, Hong Kong. Royal North Shore Hospital, University of Sydney, Australia. University Hospital La Fe, Valencia, Spain. The Institute of Medical Science, University of Tokyo, Japan. Faculty of Medicine Siriraj Hospital, Bangkok, Thailand.

This report serves as a snapshot of the state-of-knowledge in the Asia Pacific (APAC) Hematology
Oncology community, and establishes a baseline for longitudinal investigations to follow changes in best practices over time. The objective of this study was to understand the approach to hematologic diseases, common standards of care and best practices, issues that remain controversial or debated, and educational or resource gaps that warrant attention. We used mobile application to disseminate and distribute questionnaires to delegates during the 6th international hematologic malignancies conference hosted by the APAC Hematology Consortium at Beijing, China. User responses were collected in an anonymous fashion. We report survey results in two ways: the overall responses, and responses as stratified between Chinese physicians and "Other" represented nationalities. Overall geographical concordance in survey responses was positive and strong. Perhaps more interesting than instances of absolute agreement, these data provide a unique opportunity to identify topics in which physician knowledge or opinions diverge. We assigned questions from all modules to broad categories of: patient information; diagnosis; treatment preference; transplantation; and general knowledge/opinion. On average, we observed a geographic difference of 15% for any particular answer choice, and this was fairly constant across survey modules. These results reveal utility and need for widespread and ongoing initiatives to assess knowledge and provide evidence-based education in real time. The data will be made more valuable by longitudinal participation, such that we can monitor changes in the state of the art over time.

90. Inbaraj, L. R., Rose, A., George, K. and Bose, A.

Incidence and Impact of Unintentional Childhood Injuries: A Community Based Study in Rural South India

Indian J Pediatr; 2017, 84 (3): 206-210

Address: Department of Community Health, Bangalore Baptist Hospital, Bangalore, Karnataka, 560024, India. leeberk2003@gmail.com Department of Community Health, Christian Medical College, Vellore, Tamil Nadu, India.

OBJECTIVE: To estimate the incidence of unintentional childhood injuries and to assess the impact of injury during childhood. METHODS: This is a cross sectional study, conducted in 13 clusters of a rural block in Vellore. Children were screened by two-stage cluster sampling method by two weeks and three months recall method. The primary caregivers of injured children were administered a questionnaire to assess the impact of the injury. RESULTS: Childhood injury related morbidity was 292.5 per 1000 y. Children between 10 and 14 y (4.6%) and boys (4.5%) had a higher rate of injury. Fall (43.1 %) was the most common cause of injury followed by RTIs (Road Traffic Incidents- 27.6%). Work absenteeism for primary caregivers ranged from 1 to 60 (IQR 2-7) days. Sickness absenteeism ranged from 1 to 45 d with a mean of 7.64 (IQR 2-7) days. Half of the children missed school after an injury. The days spent with temporary disability ranged from 1 to 60 d with a mean of 11.79 (IQR 2-7) d and 7.73% had permanent disability. CONCLUSIONS: Unintentional childhood injury is a neglected public health problem which leads to sickness absenteeism and disability. Boys and older children are the most common victims of injury. There is a need for establishing state or nationwide injury registries to help understand accurate estimates of disability-adjusted life year (DALY) and loss of productivity.

91. Indu, P. S., Anilkumar, T. V., Pisharody, R., Russell, P. S. S., Raju, D., Sarma, P. S., Remadevi, S.,

INT – INTERNATIONAL; NAT – NATIONAL; PMID: PUBMED ID; PMCID: PUBMED CENTRAL ID
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<th>Amma, Krli, Sheelamoni, A. and Andrade, C.</th>
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<td><strong>Primary care Screening Questionnaire for Depression: reliability and validity of a new four-item tool</strong></td>
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<td><strong>BJPsych Open; 2017, 3 (2): 91-95</strong></td>
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<td><strong>Address:</strong> MD, DPM, PhD, Department of Community Medicine, Government Medical College, Trivandrum, India., DNB, DPM, MPhil, Department of Psychiatry, Government Medical College, Trivandrum, India., MD, DM, Clinical Epidemiology Resource Training Centre, Government Medical College, Trivandrum, India., MD, Child and Adolescent Psychiatry Division, Christian Medical College, Vellore, Tamil Nadu, India., MD, Department of Psychiatry, Government Medical College, Trivandrum, India., PhD, Department of Biostatistics, Achutha Menon Centre for Health Science Studies, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum, India., PhD, Medico-Sociology, Community Medicine, Government Medical College, Trivandrum, India., MD, Department of Community Medicine, Government Medical College, Trivandrum, India., MD, PhD, Clinical Epidemiology Resource Training Centre, Government Medical College, Trivandrum, India., MD, Department of Psychopharmacology, National Institute of Mental Health and Neurosciences, Bangalore, India.</td>
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<td><strong>BACKGROUND:</strong> Unidentified depression in primary care is a public health concern, globally. There is a need for brief, valid and easily administered tools in primary care. <strong>AIMS:</strong> To estimate reliability and validity of the newly developed Primary care Screening Questionnaire for Depression (PSQ4D), a four-item tool, with 'yes' or 'no' options. <strong>METHOD:</strong> PSQ4D was administered verbally (time required, &lt;1 min) by primary care physicians to adult outpatients (n=827) in six primary care settings in Kerala, India. A psychiatrist evaluated each patient on the same day, using ICD-10 Diagnostic Criteria for Research, based on unstructured clinical interview. <strong>RESULTS:</strong> The Cronbach's alpha for internal consistency reliability was 0.80; kappa coefficient for test-retest reliability was 0.9 and that for interrater reliability was 0.72. At a score &gt;/=2, sensitivity was 0.96, specificity was 0.87, positive predictive value was 0.74, negative predictive value was 0.98, positive likelihood ratio was 7.4 and negative likelihood ratio was 0.05. <strong>CONCLUSIONS:</strong> When physician administered, PSQ4D has good reliability. At a cut-off score of &gt;/=2, it has high sensitivity and specificity to identify depressive disorder in primary care. <strong>DECLARATION OF INTEREST:</strong> None. <strong>COPYRIGHT AND USAGE:</strong> (c) The Royal College of Psychiatrists 2017. This is an open access article distributed under the terms of the Creative Commons Non-Commercial, No Derivatives (CC BY-NC-ND) license.</td>
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BACKGROUND: It is known that persons who die by suicide commonly visit a primary care physician (PCP) shortly before the fatal act. There is little information on history of suicide attempt in depressed patients who consult PCPs for non-mental health indications. This information is important because past history of suicide attempt is a known predictor of future suicide risk. OBJECTIVE: To estimate the prevalence of depression among outpatients in primary care and to determine the prevalence and determinants of past suicide attempt among them. METHOD: This cross-sectional study was conducted in six primary care settings, both public and private, in Kerala, India. A psychiatrist evaluated adult outpatients (n=827), diagnosed depression using ICD-10 Diagnostic Criteria for Research, and elicited history of suicide attempt. RESULTS: Overall depression prevalence was 27.2% and was higher in women. Past suicide attempt was identified in 6.9% (95% CI, 5.17-8.63%) of all outpatients; higher in women (9.2%) than men (3.6%). Among the depressed, 21.3% had previously attempted suicide; while this figure was 1.5% in the non-depressed. The prevalence of current depression was 81% (severe depression, 61%) in patients reporting past suicide attempts. In univariate analyses, female gender, perceived financial stress, and being depressed were significantly associated with past suicide attempts. In multivariate analysis, current depression was the largest predictor of past suicide attempt (adjusted odds ratio, 14.3; 95% CI, 6.60-31.07). CONCLUSION: Depression and suicide attempt are both common in primary care. Depression is the single most important predictor of suicide attempt.

93. Isaac, R., Paul, B., Geethanajali, F. S., Kang, G. and Wanke, C.

Role of intestinal dysfunction in the nutritional compromise seen in human immunodeficiency virus-infected adults in rural India

Address: Associate Professor, RUHSA Department, Christian Medical College, Vellore, Tamil Nadu, India

Human immunodeficiency virus (HIV) disease progression is often marked by significant weight loss with...
or without chronic diarrhoea. We studied the extent of intestinal dysfunction using a D-xylose absorption test and association with nutritional compromise as measured by body mass index (BMI) and serum antioxidants levels in HIV-infected individuals through a cross-sectional survey of 45 ART naive, HIV-positive and 45, age-socioeconomic status matched negative controls in a rural population in India. More than 40% of HIV-positive and HIV-negative participants had intestinal dysfunction (42.2% vs. 44.4%). However an increasing gradient of low D-xylose absorption was noted with decreasing CD4 counts (32%, 50% and 58.3% among those with >350, 200-350 and <200 cells/mm³, respectively). Multivariate analysis revealed a significant association between intestinal dysfunction and low BMI (P = 0.03) independent of HIV infection and calorie intake per day (P = 0.02). Weight loss in HIV-infected individuals should be investigated for intestinal dysfunction especially in low resource settings.

**94.** Jacob, K. S.

Insight in psychosis: Standards, science, ethics and value judgment


**Address:** Christian Medical College, Vellore, Vellore, India.

**BACKGROUND:** The clinical assessment of insight solely employs biomedical perspectives and criteria to the complete exclusion of context and culture and to the disregard of values and value judgments. **AIM:** The aim of this discussion article is to examine recent research from India on insight and explanatory models in psychosis and re-examine the framework of assessment, diagnosis and management of insight and explanatory models. **METHODS:** Recent research from India on insight in psychosis and explanatory models is reviewed. **RESULTS:** Recent research, which has used longitudinal data and adjusted for pretreatment variables, suggests that insight and explanatory models of illness at baseline do not predict course, outcome and treatment response in schizophrenia, which seem to be dependent on the severity and quality of the psychosis. It supports the view that people with psychosis simultaneously hold multiple and contradictory explanatory models of illness, which change over time and with the trajectory of the illness. It suggests that insight, like all explanatory models, is a narrative of the person's reality and a coping strategy to handle with the varied impact of the illness. **CONCLUSION:** This article argues that the assessment of insight necessarily involves value entailments, commitments and consequences. It supports a need for a broad-based approach to assess awareness, attribution and action related to mental illness and to acknowledge the role of values and value judgment in the evaluation of insight in psychosis.

**95.** Jacob, K. S.

Mental health services in low-income and middle-income countries

Lancet Psychiatry; 2017, 4 (2): 87-89

**Address:** Christian Medical College, Vellore 632002, India. Electronic **Address:** ksjacob@cmcvellore.ac.in

**96.** Jasper, S., Vedula, S. S., John, S. S., Horo, S., Sepah, Y. J. and Nguyen, Q. D.

Corticosteroids as adjuvant therapy for ocular toxoplasmosis

**INT**  **JAN TO JUN**  **PMID:** 28063878

**INT**  **JAN TO JUN**  **PMID:** 28125765
BACKGROUND: Ocular infection caused by Toxoplasma gondii, a parasite, may result in inflammation in the retina, choroid, and uvea, and consequently lead to complications such as glaucoma, cataract, and posterior synechiae. OBJECTIVES: The objective of this systematic review was to assess the effects of adjunctive use of corticosteroids to anti-parasitic therapy versus anti-parasitic therapy alone for ocular toxoplasmosis.

SEARCH METHODS: We searched CENTRAL (which contains the Cochrane Eyes and Vision Trials Register (2016; Issue 11)), MEDLINE Ovid, Epub Ahead of Print, In-Process & Other Non-Indexed Citations, MEDLINE Ovid Daily (January 1946 to December 2016), Embase (January 1980 to December 2016), Latin American and Caribbean Literature on Health Sciences (LILACS (January 1982 to December 2016)), the ISRCTN registry (www.isrctn.com/editAdvancedSearch), ClinicalTrials.gov (www.clinicaltrials.gov), and the World Health Organization (WHO) International Clinical Trials Registry Platform (ICTRP; www.who.int/ictrp/search/en). We used no date or language restrictions in the electronic searches for trials. We last searched the electronic databases on 7 December 2016. SELECTION CRITERIA: We had planned to include randomized and quasi-randomized controlled trials. Eligible trials would have enrolled participants of any age who were immunocompetent and were diagnosed with acute ocular toxoplasmosis. Included trials would have compared anti-parasitic therapy plus corticosteroids versus anti-parasitic therapy alone, different doses or times of initiation of corticosteroids.

DATA COLLECTION AND ANALYSIS: Two authors independently screened titles and abstracts retrieved through the electronic searches. We retrieved full-text reports of studies categorized as 'unsure' or 'include' after we reviewed the abstracts. Two authors independently reviewed each full-text report for eligibility. Discrepancies were resolved through discussion. MAIN RESULTS: We identified no completed or ongoing trial that was eligible for this Cochrane review. AUTHORS' CONCLUSIONS: Although research has identified a wide variation in practice regarding the use of corticosteroids, our review did not identify any evidence from randomized controlled trials for or against the role of corticosteroids in the management of ocular toxoplasmosis. Several questions remain unanswered by well-conducted randomized trials in this context, including whether the use of corticosteroids as an adjunctive agent is more effective than the use of anti-parasitic therapy alone; if so, when corticosteroids should be initiated in the treatment regimen (early versus late course of treatment), and what would be the best dose and duration of steroid use.
therapeutics and has spanned an entirely new branch of research. This review addresses the potential applications of Nanotechnology in Urology. This article is based on the Dr. Sitharaman Best Essay award of the Urological Society of India for 2016. **METHODS:** A PubMed search was performed for all relevant articles using the terms, "nanotechnology, nanoparticles, nanoshells, nanoscaffolds, and nanofibers.

**RESULTS:** The developments in diagnostics include novel techniques of imaging of genitourinary malignancies, prostate-specific antigen measurement, early detection of mutations that are diagnostic for polycystic kidney disease. The potential applications of nanotechnology are in the targeted therapy of genitourinary malignancies, erectile dysfunction, overactive bladder, bladder reconstruction, construction of artificial kidneys and biodegradable stents as well as in robotic surgery. **CONCLUSIONS:** Nanotechnology is a rapidly emerging branch of research in urology with diverse and clinically significant applications in diagnostics as well as therapeutics.

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<th><strong>98.</strong> Jehangir, S. and David, D. D.</th>
<th>Knotted urethral catheter: a twist in the tail</th>
<th>INT</th>
<th>JAN TO JUN</th>
<th>PMID: 28473355</th>
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<td>BMJ Case Rep; 2017, 2017</td>
<td><strong>Address:</strong> General Surgery, Christian Medical College and Hospital, Vellore, Tamil Nadu, India.</td>
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<td>Inadvertent knotting of infant feeding tubes used for clean intermittent catheterisation (CIC) is a rare complication in paediatric patients. The small flexible tubes used in infants if advanced too far into the bladder may form a knot as the bladder empties. Surgical intervention is required especially if it is lodged in the urethra. We present a case of a baby boy aged 4 months on CIC with a 6 Fr feeding tube, which required a meatotomy for removal. Education while instituting CIC must emphasise the length of catheter insertion, the chance of knotted catheter and steps to take if it occurs. A dedicated urotherapy nurse would be ideal.</td>
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<th><strong>99.</strong> Jehangir, S., Kurian, J. J., Jacob, T. J., Gurram, G. M., Thomas, R. J., Mathai, J. and Karl, S.</th>
<th>Pneumonostomy in the Surgical Management of Hydatid Cyst of the Lung</th>
<th>INT</th>
<th>JAN TO JUN</th>
<th>PMID: 27019148</th>
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<td>Eur J Pediatr Surg; 2017, 27 (2): 171-176</td>
<td><strong>Address:</strong> Department of Paediatric Surgery, Christian Medical College and Hospital, Vellore, Tamil Nadu, India.</td>
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<td>Background Pneumonostomy in the surgical treatment of bilateral hydatid cyst of the lung(HCL) was described by Anand et al. This study presents the comparative long-term results of pneumonostomy for simple and complicated HCL. Methods and Patients The pneumonostomy technique was applied to both open and minimally invasive operations. The cyst was opened, endocyst removed, and any bronchial openings closed. The pericyst was closed over a 20-French Malecot tube, which was exteriorized and connected to an underwater seal. The tube was removed after 3 weeks by which time a well-established tract had formed. Hospital records of 26 children with 30 HCL who underwent pneumonostomy between 2001 and 2014 were reviewed and followed up. Patients were analyzed in two groups: group1 comprised uncomplicated and group2 complicated HCL. There was a statistically significant difference in the age at</td>
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CMC SCIENTIFIC RESEARCH PUBLICATION FOR THE YEAR 2017 (JANUARY TO JUNE)

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Intravenous clonidine as a part of balanced anaesthesia for controlled hypotension in functional endoscopic sinus surgery: A randomised controlled trial

**Address:** Department of Anaesthesia, Christian Medical College, Vellore, Tamil Nadu, India. Department of Surgical Intensive Care Unit, Christian Medical College, Vellore, Tamil Nadu, India.

**BACKGROUND AND AIMS:** Controlled hypotension with balanced anaesthesia minimises blood loss. This study was done to evaluate the effectiveness of intravenous clonidine as a single bolus dose to establish controlled hypotension during functional endoscopic sinus surgery (FESS).

**METHODS:** This randomised, double-blind, placebo-controlled study was done in a tertiary hospital in India. Sixty American Society of Anesthesiologists physical status I and II patients (18-65 years) undergoing FESS were randomly allocated to one of the two groups. Placebo group (group A, n = 30) received sterile water whereas the clonidine group (group B, n = 30) received 3mug/kg of clonidine intravenously, 30 min prior to induction of anaesthesia. The primary outcome was to achieve a target mean arterial blood pressure (MAP) of 55-65 mmHg intraoperatively. The secondary outcomes measured were requirement of additional fentanyl and metoprolol, intra-operative blood loss, surgeon's opinion on the surgical field, pain, sedation score and complications requiring treatment.

**RESULTS:** Target MAP was easily achieved in clonidine group as against the placebo group (P < 0.001). Significant reduction in intra-operative blood loss (P = 0.0449), a better surgical site scoring (P = 0.02), less requirement of additional hypotensive drugs and good analgesia (P = 0.01) were seen in clonidine group. The complication rates were similar in both the groups.

**CONCLUSION:** Clonidine is effective in achieving controlled hypotension in patients undergoing FESS. It reduces intra-operative blood loss, requirement of additional hypotensive drugs, improves the surgical field and offers good analgesia without significant side effects.

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Department of Radiodiagnosis, Christian Medical College, Vellore, Tamil Nadu, India.

Rhinosporidiosis is a granulomatous infection of mucocutaneous tissue caused by Rhinosporidium seeberi that most commonly occurs in the nasal cavity. Ocular rhinosporidiosis affects primarily the conjunctiva. Diagnosis of rhinosporidiosis is based on strong clinical suspicion and is confirmed by histopathological examination. We report a rare case of conjunctival rhinosporidiosis in an immunocompromised patient (human immunodeficiency virus) with disseminated cutaneous rhinosporidiosis. A 44-year-old male presented with a swelling in the right upper eyelid for 6 months. Excision biopsy of the ocular lesion showed multiple thick-walled, variable-sized sporangia containing endospores within the subepithelium suggestive of rhinosporidiosis. A multidrug regimen of systemic cycloserine, ketoconazole, and dapsone was administered to treat disseminated rhinosporidiosis, in addition to antiretroviral therapy. There was good response with reduction in the swellings.


The Duration of Intestinal Immunity After an Inactivated Poliovirus Vaccine Booster Dose in Children Immunized With Oral Vaccine: A Randomized Controlled Trial

J Infect Dis; 2017, 215 (4): 529-536

Address: Department of Community Health. Division of Gastrointestinal Sciences, and. Department of Clinical Virology, Christian Medical College, Vellore, Tamil Nadu, and. WHO Regional Office for South-East Asia, New Delhi, India. Bill & Melinda Gates Foundation, Seattle, Washington. WHO Country Office, New Delhi, India; and. Department of Infectious Disease Epidemiology, Imperial College London, United Kingdom.

Background: In 2014, 2 studies showed that inactivated poliovirus vaccine (IPV) boosts intestinal immunity in children previously immunized with oral poliovirus vaccine (OPV). As a result, IPV was introduced in mass campaigns to help achieve polio eradication. Methods.: We conducted an open-label, randomized, controlled trial to assess the duration of the boost in intestinal immunity following a dose of IPV given to OPV-immunized children. Nine hundred healthy children in Vellore, India, aged 1-4 years were randomized (1:1:1) to receive IPV at 5 months (arm A), at enrollment (arm B), or no vaccine (arm C). The primary outcome was poliovirus shedding in stool 7 days after bivalent OPV challenge at 11 months.

Results.: For children in arms A, B, and C, 284 (94.7%), 297 (99.0%), and 296 (98.7%), respectively, were eligible for primary per-protocol analysis. Poliovirus shedding 7 days after challenge was less prevalent in arms A and B compared with C (24.6%, 25.6%, and 36.4%, respectively; risk ratio 0.68 [95% confidence interval: 0.53-0.87] for A versus C, and 0.70 [0.55-0.90] for B versus C).

Conclusions.: Protection against poliovirus remained elevated 6 and 11 months after an IPV boost, although at a lower level than reported at 1 month. Clinical Trials Registration.: CTRI/2014/09/004979.

John, T. J., Jain, Y., Nadimpally, S. and Jesani, A.
Vaccine delivery to disease control: a paradigm shift in health policy

Indian J Med Ethics; 2017, 2 (2): 112-115

Address: Emeritus Professor of Virology, Christian Medical College, Vellore, India.
tjacobjohn@yahoo.co.in Paediatrician, Jan Swasthya Sahyog, Ganiyari PO, Bilaspur District, Chhattisgarh 495 112, India,. yogeshjain.jssbilaspur@gmail.com. Sama-Resource Group for Women and Health, B 45, Shivalk Main, Malviya Nagar, New Delhi 110 017, India,. sarjojiprir@gmail.com Independent Consultant Researcher and Teacher, Bioethics and Public Health, Prabhu Darshan, 31, Swatantra Sainik Nagar, Andheri West, Mumbai 400 058, India,. amar.jesani@gmail.com

India's Universal Immunisation Programme (UIP) has resulted in the creation of infrastructure, human resources and systems for the procurement and delivery of vaccines. Recently, new vaccines have been added and there are plans for the introduction of more. However, the outcomes in terms of reduction of the diseases for which the vaccines are being administered remain ambiguous. This is evident from the persistent health issues that children continue to experience, despite immunisation. This situation raises a fundamental ethical question for public health: vaccinations are one of the tools of disease control, but are they properly aligned to the control of disease so as to produce the expected public health utility or benefit?

Jose, J., Sulimov, D. S., El-Mawardy, M., Sato, T., Allali, A., Holy, E. W., Becker, B., Landt, M., Kebernik, J., Schwarz, B., Richardt, G. and Abdel-Wahab, M.

Clinical Bioprosthetic Heart Valve Thrombosis After Transcatheter Aortic Valve Replacement: Incidence, Characteristics, and Treatment Outcomes

JACC Cardiovasc Interv; 2017, 10 (7): 686-697

Address: Heart Center, Segeberger Kliniken (Academic Teaching Hospital of the Universities of Kiel, Lubeck, and Hamburg), Bad Segeberg, Germany; Christian Medical College Hospital, Vellore, Tamil Nadu, India. Heart Center, Segeberger Kliniken (Academic Teaching Hospital of the Universities of Kiel, Lubeck, and Hamburg), Bad Segeberg, Germany. Heart Center, Segeberger Kliniken (Academic Teaching Hospital of the Universities of Kiel, Lubeck, and Hamburg), Bad Segeberg, Germany; Tachikawa General Hospital, Nagaoka, Japan. Heart Center, Segeberger Kliniken (Academic Teaching Hospital of the Universities of Kiel, Lubeck, and Hamburg), Bad Segeberg, Germany. Electronic Address: mohamed.abdel-wahab@segebergerkliniken.de.

OBJECTIVES: The aim of this study was to determine the incidence, characteristics, and treatment outcomes of patients diagnosed with clinical transcatheter heart valve thrombosis. BACKGROUND: Limited data exists on clinical or manifest transcatheter heart valve thrombosis. Prior studies have focused on subclinical thrombosis. METHODS: A retrospective analysis was conducted of prospectively collected data from a single-center registry that included 642 consecutive patients who underwent transcatheter aortic valve replacement between 2007 and 2015 (305 patients had self-expanding valves; balloon-expandable, n = 281; mechanically expanding, n = 56). Long-term oral anticoagulation (OAC) was
indicated in 261 patients, while 377 patients received dual-antiplatelet therapy post-procedure. All patients underwent scheduled clinical and echocardiographic follow-up. **RESULTS:** The overall incidence of clinical valve thrombosis was 2.8% (n = 18). No patient on OAC developed thrombosis. Of the detected thrombosis cases, 13 patients had balloon-expandable, 3 had self-expanding, and 2 had mechanically expanding valves. Thrombosis occurred significantly more often with balloon-expandable valves (odds ratio: 3.45; 95% confidence interval: 1.22 to 9.81; p = 0.01) and following valve-in-valve procedures (odds ratio: 5.93; 95% confidence interval: 2.01 to 17.51; p = 0.005). Median time to diagnosis of valve thrombosis was 181 days. The median N-terminal pro-brain natriuretic peptide level was 1,318 pg/ml (interquartile range: 606 to 1,676 pg/ml). The mean transvalvular gradient and valve area were 34 +/- 14 mm Hg and 1.0 +/- 0.46 cm², respectively. Computed tomography showed hypoattenuating areas with reduced leaflet motion. Initiation of OAC resulted in significant reduction of transvalvular gradient and clinical improvement. No deaths were related to valve thrombosis. **CONCLUSIONS:** Clinical transcatheter heart valve thrombosis is more common than previously considered, characterized by imaging abnormalities and increased gradients and N-terminal pro-brain natriuretic peptide levels. It occurred more commonly after balloon-expandable transcatheter aortic valve replacement and valve-in-valve procedures. OAC appeared to be effective in the prevention and treatment of valve thrombosis. Randomized control trials are needed to define optimal antithrombotic therapy after transcatheter aortic valve replacement.

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undergoing supratentorial craniotomy under general anesthesia. We compared the intraoperative anesthetic and postoperative analgesic requirement with and without the addition of dexamethasone to the local anesthetics.

**METHODS:** The consented 90 patients were randomized into 2 groups: one group received 8 mg (2 mL) of dexamethasone, whereas the other received 2 mL of normal saline along with the local anesthetics in the scalp nerve block administered soon after induction of general anesthesia. All patients received oral/intravenous dexamethasone perioperatively to decrease cerebral edema. The general anesthetic technique for induction, maintenance, and recovery was standardized in the 2 groups. The primary outcome assessed was the time to administration of the first dose of analgesic postoperatively. The secondary outcomes included intraoperative opioid requirement, time to emergence, and incidence of postoperative nausea and vomiting.

**RESULTS:** There was no significant difference between the dexamethasone and saline groups with respect to time to first analgesic requirement, intraoperative fentanyl requirements, time to emergence from general anesthesia, and incidence of postoperative nausea and vomiting.

**CONCLUSIONS:** Addition of dexamethasone as an adjuvant to local anesthetics in scalp nerve blocks in the setting of perioperative steroid therapy does not appear to provide any additional benefit with respect to prolongation of the duration of the block.
2 DNB General Medicine Assistant Professor, Christian Medical College and Hospital, Vellore, Tamil Nadu, India.
3 DNB General Medicine Postgraduate Registrar, Christian Medical College and Hospital, Vellore, Tamil Nadu, India.
4 DNB General Medicine Senior Consultant, Christian Fellowship Hospital, Oddanchatram, Tamil Nadu, India.

Most of the studies on the appropriate dose of anti-snake venom (ASV) are from tertiary hospitals and the guidelines are unclear. Our observational study compared the outcomes of two prevalent treatment regimes for haematotoxic snake bite in a secondary care hospital in South India. The time to normalisation of whole blood clotting time, mortality and complications were not different between the groups. The average dose of ASV required in the low and high dose groups were 106 mL and 246 mL, respectively. Consequently, patients who received low dose ASV incurred approximately 50% less expense. Urticarial rashes were also significantly fewer in the low dose group.

Joy, P., Prithishkumar, I. J. and Isaac, B.
Clinical anatomy of the inferior epigastric artery with special relevance to invasive procedures of the anterior abdominal wall

Address: Department of Anatomy, All Institute of Medical Sciences, Raipur, Chhattisgarh, India. Department of Anatomy, Christian Medical College, Vellore, Tamil Nadu, India.

**INTRODUCTION:** Injury to the inferior epigastric artery (IEA) has been reported following lower abdominal wall surgical incisions, abdominal peritoneocentesis and trocar placements at laparoscopic port sites, resulting in the formation of abdominal wall haematomas that may expand considerably due to lack of tissue resistance. The aim of this study was to localise its course in relation to standard anatomic landmarks and suggest safe areas for performance of invasive procedures. **MATERIALS AND METHODS:** Sixty IEAs of 30 adult cadavers (male = 19; female = 11) were dissected and the course of the IEA noted in relation to the mid-inguinal point, anterior superior iliac spine (ASIS) and umbilicus. **RESULTS:** The mean distance of the IEA from the midline was 4.45 +/- 1.42 cm at the level of the mid-inguinal point, 4.10 +/- 1.15 cm at the level of ASIS and 4.49 +/- 1.15 cm at the level of umbilicus. There was an average of 3.3 branches per IEA with more branches arising from its lateral aspect. The IEA was situated within one-third (32%) of the distance between the midline and the sagittal plane through ASIS at all levels.

**CONCLUSION:** To avoid injury to IEA, trocars can be safely inserted 5.5 cm [mean + 1 standard deviation (SD)] away from the midline (or) slightly more than one-third of the distance between the midline and a sagittal plane running through ASIS. These findings may be useful not only for laparoscopic procedures but also for image-guided biopsy, abdominal paracentesis, and placement of abdominal drains.

Kabeerdoss, J., Gupta, N., Pulukool, S., Mohan, H., Mahasampath, G. and Danda, D.
Anti-C1q Antibody is Associated with Renal and Cutaneous Manifestations in Asian Indian Patients with
## INTRODUCTION:

C1q plays an important role in clearance of immune complexes and apoptotic cell debris. Impaired clearance leads to exposure of C1 native antigen and development of anti-C1q antibody formation. Anti-C1q antibody is well studied in Systemic Lupus Erythematosus (SLE). Significance of anti-C1q Ab in Indian SLE patients and their clinical manifestations is not clear. **AIM:** The aim of this study was to investigate the associations between anti-C1q antibody and clinical as well as serological markers of SLE.

### MATERIALS AND METHODS:

Retrospective study of SLE patients fulfilling either American College of Rheumatology (ACR) 1990 or Systemic Lupus International Collaborating Clinics (SLICC) 2012 classification criteria were recruited from inpatients and outpatients services of the Clinical Immunology and Rheumatology Department, Christian Medical College at Vellore, India between March 2013 and January 2015. Anti-C1q antibody was assayed by ELISA (Demeditec Diagnostics GmbH, Germany). Logistic regression analysis was performed to find the association of anti-C1q antibodies with serological and clinical parameters in SLE including Lupus Nephritis (LN). **RESULTS:** Sixty-nine patients (54.76%) out of 126 SLE patients had LN. Anti-C1q levels were higher in patients with LN as compared to those without (p<0.05). Anti-C1q antibody was also significantly associated with positive C1q immunofluorescence staining in renal biopsy specimens (p<0.05). Overall, renal Systemic Lupus Erythematosus Disease Activity Index (SLEDAI) {OR 1.35 (1.08-1.69)}, low C4 {OR 3.11 (1.04-9.26)} and mucocutaneous manifestation {OR 4.72 (1.38-16.05)} were independently associated with anti-C1q levels in serum. **CONCLUSION:** Renal SLEDAI, low C4 and mucocutaneous manifestations were independently associated with raised anti-C1q antibody in SLE patients.
INTRODUCTION: Course of Ulcerative Colitis is characterized by intermittent flares interposed between variable periods of remission. Identification of exacerbating factors and appropriate assessment of disease activity are crucial in deciding the choice of treatment. AIM: To evaluate various clinical, endoscopic and histological parameters in assessing disease activity and to find out various risk factors involved in the exacerbation of ulcerative colitis especially the role of Cytomegalo Virus (CMV) infection. MATERIALS AND METHODS: It was a prospective study of patients diagnosed as ulcerative colitis presenting with acute exacerbation of symptoms (cases) and those who were in remission (controls). A detailed evaluation of the disease history including personal history, treatment compliance and clinical disease severity were noted. Investigations including blood routine, endoscopic examination with biopsy, histopathological examination and immunohistochemistry for CMV were done on the biopsy sample. RESULTS: A total of 58 patients with ulcerative colitis were studied which included 37 cases and 21 controls. Out of the various clinical and demographic parameters, Good treatment compliance (p =0.0003) and Perceived Stress Scale (PSS) score (p=0.0001) showed significant difference between cases and controls. Basic laboratory parameters {Haemoglobin level, Total Leucocyte Count (TLC) and Erythrocyte Sedimentation Rate (ESR)}, clinical disease severity predictors (Truelove and Witt's criteria, Mayo score and endoscopic disease severity grade) and Geboes histological scoring showed significant difference between cases and controls. The prevalence of CMV colitis in our study was only 5.4% (two cases). CONCLUSION: Clinical and endoscopic disease severity indicators can be used as predictors of histological activity in ulcerative colitis. Poor treatment compliance and stress are important risk factors for acute exacerbation of ulcerative colitis. Clinicians should be aware of the possibility of concurrent CMV infection while treating patients with acute exacerbation of ulcerative colitis not responding to the conventional management. Reduced prevalence of CMV colitis in cases of acute exacerbation of ulcerative colitis in our study may be due to the small sample size, reduced number of steroid dependent cases or reduced severity of our cases.

Kalipatnapu, S., Kuppuswamy, S., Venugopal, G., Kaliaperumal, V. and Ramadass, B.  
Fecal total iron Concentration is inversely associated with Fecal Lactobacillus in preschool children  
J Gastroenterol Hepatol; 2017,  
Address: Christian Medical College, Vellore. Indian Institute of Technology, Bhubaneswar, India.  

BACKGROUND: Iron deficiency is associated with stunting and poor performance in children. Oral iron supplementation is widely promoted to correct iron deficiency. However, excess iron may be toxic to beneficial luminal gut bacteria and could support growth of pathobionts. OBJECTIVE: To analyze the fecal total iron concentration and fecal Lactobacillus levels in a cohort of stunted and normal children. DESIGN: The study was undertaken in two different locations. One of them is a rural area and other is a semi-urban-slum area, both areas are located in the Vellore district of Tamilnadu state. 20 children (10 stunted and 10 normal growth) aged 2 to 5 years from each area were recruited. Both groups were nearly identical demographically. Fecal samples were collected. Fecal total iron was estimated, fecal DNA was extracted and subjected to 16S rDNA-targeted real-time polymerase chain reaction to determine the relative predominance of Lactobacillus and Escherichia coli. RESULTS: The fecal total iron concentration in rural children (3656 microg/ g wet wt. of feces) was significantly higher when compared to semi-urban-slum children (114.9 microg/ g wet wt. of feces, p < 0.005). Inversely, fecal Lactobacillus in rural children
### CMC SCIENTIFIC RESEARCH PUBLICATION FOR THE YEAR 2017 (JANUARY TO JUNE)

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<th>Article Number</th>
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<td>114</td>
<td>Kamath, M. S. and Muthukumar, K.</td>
<td>Appendix B: Solid Surface Vitrification</td>
<td>Methods Mol Biol; 2017, 1568 297-307</td>
<td>JAN TO JUN</td>
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<td>Address: Reproductive Medicine Unit, Christian Medical College Hospital, Ida Scudder Road, Vellore, 632004, Tamil Nadu, India. <a href="mailto:dockamz@gmail.com">dockamz@gmail.com</a> Reproductive Medicine Unit, Christian Medical College Hospital, Ida Scudder Road, Vellore, 632004, Tamil Nadu, India.</td>
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<td>Solid surface vitrification method involves direct contact of carrier loaded with droplet containing gametes or embryos with precooled metal surface. Over the years, following certain modifications, solid surface vitrification has emerged as an efficient method for vitrifying human gametes and embryos. Here, we describe the principle and methodology of solid surface vitrification.</td>
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<td>Address: aReproductive Medicine Unit, Christian Medical College, Vellore, India bQueen’s Hospital, Barking Havering Redbridge University Hospitals NHS Trust, Essex, UK.</td>
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<td>PURPOSE OF REVIEW: To critically appraise the existing literature on perinatal outcomes following oocyte donation (OD) pregnancies and compare it with autologous in-vitro fertilization (IVF) pregnancies. RECENT FINDINGS: OD pregnancies are at higher risk of developing hypertensive disorders compared with autologous IVF. The risk of preterm birth and low birth weight is higher with singleton and multiple OD compared with autologous IVF pregnancies. There is no increased risk of congenital malformations following OD compared with autologous IVF births. SUMMARY: OD pregnancies are at higher risk of developing hypertensive disorders and adverse perinatal outcomes compared with autologous IVF.</td>
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Granulocyte-colony stimulating factor (G-CSF), a glycoprotein, has been used in women undergoing Assisted Reproductive Technology (ART). We decided to undertake a systematic review to evaluate the effectiveness of G-CSF in women with thin endometrium and recurrent implantation failure (RIF) undergoing ART. The outcomes included an increase in endometrial thickness, live birth, clinical pregnancy rates and adverse effects. We included two trials evaluating women with thin endometrium and another two trials evaluating women with RIF. The pooled data did not reveal statistically significant increase in endometrial thickness following G-CSF in women with thin endometrium (mean difference 0.47, 95% CI -1.36-2.31; I² 82%). However significantly higher clinical pregnancy rate was noted (RR 2.43, 95% CI 1.09-5.40; 12 0%) following G-CSF compared to no intervention and quality of evidence for both these outcomes was very low. In RIF population, the administration of G-CSF was associated with a significantly higher clinical pregnancy rate compared to no intervention with pooled risk ratio of 2.51 (95% CI 1.36-4.63; 12 0%) and quality of evidence being low. Findings of current review suggest a possible benefit of G-CSF in women with thin endometrium undergoing ART and RIF. However these findings need to be further validated in larger trials before G-CSF can be used in routine clinical practice.
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<td>118</td>
<td>Role of NF-E2 related factor 2 (Nrf2) on chemotherapy resistance in acute myeloid leukemia (AML) and the effect of pharmacological inhibition of Nrf2</td>
<td>Karathedath, S., Rajamani, B. M., Musheer Aalam, S. M., Abraham, A., Varatharajan, S., Krishnamurthy, P., Mathews, V., Velayudhan, S. R. and Balasubramanian, P.</td>
<td>Intrauterine instillation of embryo culture supernatant prior to embryo transfer compared to no intervention in women undergoing ART and we remain uncertain regarding its effect on live birth rate.</td>
<td>PLoS One; 2017, 12 (5): e0177227</td>
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<td>JAN TO JUN</td>
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poor settings. Understanding the natural history of cryptosporidiosis and the correlates of protection are essential to develop effective and sustainable approaches to disease control and prevention. **METHODS:** Children (N = 497) were recruited at birth in semiurban slums in Vellore, India, and followed for 3 years with twice-weekly home visits. Stool samples were collected every 2 weeks and during diarrheal episodes were tested for Cryptosporidium species by polymerase chain reaction (PCR). Serum samples obtained every 6 months were evaluated for seroconversion, defined as a 4-fold increase in immunoglobulin G directed against Cryptosporidium gp15 and/or Cp23 antigens between consecutive sera. **RESULTS:** Of 410 children completing follow-up, 397 (97%) acquired cryptosporidiosis by 3 years of age. PCR identified 1053 episodes of cryptosporidiosis, with an overall incidence of 0.86 infections per child-year by stool and serology. The median age for the first infection was 9 (interquartile range, 4-17) months, indicating early exposure. Although infections were mainly asymptomatic (693 [66%]), Cryptosporidium was identified in 9.4% of diarrheal episodes. The proportion of reinfected children was high (81%) and there was clustering of asymptomatic and symptomatic infections (P < .0001 for both). Protection against infection increased with the order of infection but was only 69% after 4 infections. Cryptosporidium hominis (73.3%) was the predominant Cryptosporidium species, and there was no species-specific protection. **CONCLUSIONS:** There is a high burden of endemic cryptosporidiosis in southern India. Clustering of infection is suggestive of host susceptibility. Multiple reinfections conferred some protection against subsequent infection.

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**Khan, N., Lipsa, A., Arunachal, G., Ramadwar, M. and Sarin, R.**

Novel mutations and phenotypic associations identified through APC, MUTYH, NTHL1, POLD1, POLE gene analysis in Indian Familial Adenomatous Polyposis cohort

Sci Rep; 2017, 7 (1): 2214

**Address:** Sarin Lab, Advanced Centre for Treatment, Research and Education in Cancer (ACTREC)-Tata Memorial Centre, Navi Mumbai, India. Homi Bhabha National Institute, Training School Complex, Anushakti Nagar, Mumbai, 400085, India. Clinical Genetics Unit, Christian Medical College and Hospital, Vellore, India. Department of Pathology, Tata Memorial Hospital-Tata Memorial Centre, Mumbai, India. Sarin Lab, Advanced Centre for Treatment, Research and Education in Cancer (ACTREC)-Tata Memorial Centre, Navi Mumbai, India. rsarin@actrec.gov.in, Homi Bhabha National Institute, Training School Complex, Anushakti Nagar, Mumbai, 400085, India. rsarin@actrec.gov.in

Colo-Rectal Cancer is a common cancer worldwide with 5-10% cases being hereditary. Familial Adenomatous Polyposis (FAP) syndrome is due to germline mutations in the APC or rarely MUTYH gene. NTHL1, POLD1, POLE have been recently reported in previously unexplained FAP cases. Unlike the Caucasian population, FAP phenotype and its genotypic associations have not been widely studied in several geoethnic groups. We report the first FAP cohort from South Asia and the only non-Caucasian cohort with comprehensive analysis of APC, MUTYH, NTHL1, POLD1, POLE genes. In this cohort of 112 individuals from 53 FAP families, we detected germline APC mutations in 60 individuals (45 families) and biallelic MUTYH mutations in 4 individuals (2 families). No NTHL1, POLD1, POLE mutations were identified. Fifteen novel APC mutations and a new Indian APC mutational hotspot at codon 935 were identified. Eight very rare FAP phenotype or phenotypes rarely associated with mutations outside specific APC regions were observed. APC genotype-phenotype association studies in different geo-ethnic groups can enrich the

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<td>existing knowledge about phenotypic consequences of distinct APC mutations and guide counseling and risk management in different populations. A stepwise cost-effective mutation screening approach is proposed for genetic testing of south Asian FAP patients.</td>
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<td>121</td>
<td>Kisku, S.</td>
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<td>Orbit technique in malrotation with non-obstructive volvulus: A novel technique of devolvulation</td>
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<td></td>
<td>Address: Department of Paediatric Surgery, Christian Medical College, Vellore, India.</td>
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<td>INTRODUCTION: Volvulus may be noted in up to two-thirds of cases involving malrotation beyond infancy. Laparoscopic devolvulation has been described as a frustrating procedure because of restricted visualization. Here, a setup and technique that address these concerns are proposed. MATERIALS AND SURGICAL TECHNIQUE: Three boys (median age: 7 years) who had been diagnosed preoperatively with malrotation underwent laparoscopic exploration and devolvulation for volvulus found intraoperatively. The children were placed in a dorsal supine modified lithotomy position. Four 5-mm ports were inserted—one umbilically, one in the suprapubic region, and one in both the right and left iliac. After the volvulus was inspected, the right iliac atraumatic grasper was placed at the root of the mesentery. The bowel was devolvulated counterclockwise with the grasper used as a pivot—that is, the orbit technique. Once derotated, the rest of the operation proceeded with the division of Ladd's bands, the widening of the mesentery, and appendectomy. DISCUSSION: Devolvulation was successful in all three boys. The orbit technique is a useful devolvulation technique in non-obstructive volvulus when other techniques fail.</td>
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<td>PMID: 28547930</td>
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<td>122</td>
<td>Kodiatte, T. A., George, S. V., Chacko, R. T. and Ramakrishna, B.</td>
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<td>Malignant melanocytic neoplasm of pancreas with liver metastasis: Is it malignant melanoma or clear cell sarcoma?</td>
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<td>Indian J Pathol Microbiol; 2017, 60 (1): 102-104</td>
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<td>Address: Department of General Pathology, Christian Medical College, Vellore, Tamil Nadu, India. Department of Surgery, Christian Medical College, Vellore, Tamil Nadu, India. Department of Medical Oncology, Christian Medical College, Vellore, Tamil Nadu, India.</td>
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<td>Malignant melanocytic neoplasm, usually seen in soft tissues, is rare in a visceral location and presents as a diagnostic dilemma. We present a case of pancreatic malignant melanocytic neoplasm with liver metastasis. A 58-year-old man presented with left upper abdominal swelling and loss of appetite. Imaging revealed a large mass arising from the pancreatic tail, and this was diagnosed as malignant neoplasm with melanocytic differentiation on biopsy with the possible differentials of malignant melanoma, clear cell sarcoma (CCS), and perivascular epithelioid cell neoplasm. The patient underwent distal pancreatectomy and splenectomy for the same. Follow-up imaging 6 months later showed a metastatic liver lesion, for which he also underwent a liver resection. BRAF mutational analysis was found to be negative. Both CCS and malignant melanoma have similar morphological features and melanocytic differentiation, but each</td>
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<td>PMID: 28195103</td>
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Kohli, S., Pasangulapati, S. B., Yoganathan, S., Rynjah, G. L., Prabhakar, A. T., Aaron, S., Alexander, M. and Mathew, V.

Study of Refractory Status Epilepticus from a Tertiary Care Center

Ann Indian Acad Neurol; 2017, 20 (2): 116-121

**OBJECTIVES:** To determine the proportion of refractory status epilepticus (RSE) and super-RSE (SRSE) among patients with status epilepticus (SE) and to analyze RSE and non-RSE (NRSE) in terms of etiology and predictors for RSE.  

**MATERIALS AND METHODS:** Patients were identified from discharge summaries database with keywords of SE and records of the portable electroencephalogram (EEG) machine from January 2011 to March 2016.  

**RESULTS:** Two hundred and eighteen events were included in the study with 114 (52.3%) males, bimodal age preponderance age <5 years 30%, and second peak in age 15-65 years 52.8%, preexisting seizures were present in 34.4% (n = 75). Nearly 77.1% had NRSE (n = 168) and 22.9% had RSE (n = 50). This included 17 patients with SRSE (n = 17, 7.8% of all SE). Central nervous system (CNS) infection was a single largest etiological group in SE (69/218, 31.7%). In RSE, autoimmune encephalitis (17/50) and CNS infection (13/50) were the largest groups. De novo seizures (P = 0.007), low sensorium at admission (P = 0.001), low albumin at admission (P = 0.002), and first EEG being abnormal (P = 0.001) were risk factors on bivariate analysis. An unfavorable status epilepticus severity score (STESS) was predictive for RSE (P = 0.001). On multivariate analysis, de novo seizures (P = 0.009) and abnormal EEG at admission (P = 0.03) were predictive for RSE.  

**CONCLUSIONS:** Fifty patients had RSE (22.9%), of which 17 went on to become SRSE (7.8%). Unfavorable STESS score was predictive for RSE on bivariate analysis. On multivariate analysis, de novo seizures and abnormal initial EEG were predictors of RSE.


Age and Sex Normalization of Intestinal Permeability Measures for the Improved Assessment of Enteropathy in Infancy and Early Childhood: Results from the MAL-ED Study

J Pediatr Gastroenterol Nutr; 2017,
OBJECTIVES: To describe changes in intestinal permeability in early childhood in diverse epidemiologic settings. METHODS: In a birth cohort study the lactulose:mannitol (LM) test was administered to 1,980 children at four time points in the first 24 months of life in eight countries. Data from the Brazil site with an incidence of diarrhea similar to that seen in the U.S. and no growth faltering was used as an internal study reference to derive age- and sex-specific Z-scores for mannitol and lactulose recoveries and the lactulose mannitol ratio.

RESULTS: 6,602 tests demonstrated mannitol recovery, lactulose recovery, and the L:M ratio were associated with country, sex, and age. There was heterogeneity in the recovery of both probes between sites with mean mannitol recovery ranging for 1.34%-to 5.88%, lactulose recovery of 0.19%-0.58%, and L:M ratios 0.10-0.17 in boys of 3 months of age across different sites. We observed strong sex-specific differences in both mannitol and lactulose recovery, with boys having higher recovery of both probes. Alterations in intestinal barrier function increased in most sites from 3-9 months of age and plateaued or diminished from 9-15 months of age. CONCLUSIONS: Alterations in recovery of the probes differ markedly in different epidemiologic contexts in children living in the developing world. The rate of change in the L:M-Z ratio was most rapid and consistently disparate from the reference standard in the period between 6 and 9 months of age suggesting that this is a critical period of physiologic impact of enteropathy in these populations. This is an open access article distributed under the Creative Commons Attribution License 4.0 (CCBY), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. http://creativecommons.org/licenses/by/4.0.

Kumar, J. G., Abhilash, K. P., Saya, R. P., Tadipaneni, N. and Bose, J. M.

A retrospective study on epidemiology of hypoglycemia in Emergency Department

Indian J Endocrinol Metab; 2017, 21 (1): 119-124

BACKGROUND: Hypoglycemia is one among the leading causes for Emergency Department (ED) visits and is the most common and easily preventable endocrine emergency. This study is aimed at assessing the incidence and elucidating the underlying causes of hypoglycemia. MATERIALS AND METHODS: A retrospective, observational study which included patients registering in ED with a finger prick blood
glucose \leq 60 \text{ mg/dl} at the time of arrival. All patients aged above 15 years with the above inclusion criteria during the period of August 2010 to July 2013 were selected. The study group was categorized based on diabetic status into diabetic and nondiabetic groups. **RESULTS:** A total of 1196 hypoglycemic episodes encountered at the ED during the study period were included, and of which 772 with complete data were analyzed. Underlying causes for hypoglycemia in the diabetic group (535) mainly included medication related 320 (59.81%), infections 108 (20.19%), and chronic kidney disease 61 (11.40%). Common underlying causes of hypoglycemia in nondiabetic group (237, 30.69%) included infections 107 (45.15%), acute/chronic liver disease 42 (17.72%), and malignancies 22 (9.28%). Among diabetic subjects on antidiabetic medications (n = 320), distribution over 24 h duration clearly reported two peaks at 8th and 21st h. The incidence of hypoglycemia and death per 1000 ED visits were 16.41 and 0.73 in 2011, 16.19 and 0.78 in 2012, 17.20 and 1.22 in 2013 with an average of 16.51 and 0.91, respectively. **CONCLUSION:** Bimodal distribution with peaks in incidences of hypoglycemic attacks at 8th and 21st h based on hourly distribution in a day can be correlated with the times just before next meal. None of the patients should leave ED without proper evaluation of the etiology of hypoglycemia and the problem should be addressed at each individual level. Increasing incidence of death over the years is alarming, and further studies are needed to conclude the root cause.

**Kumar, S.**

Roundup

Indian J Urol; 2017, 33 (2): 101-103

**Address:** Department of Urology, Christian Medical College, Vellore, Tamil Nadu, India.

**Kumar, V., Yadav, A. K., Gang, S., John, O., Modi, G. K., Ojha, J. P., Pandey, R., Parameswaran, S., Prasad, N., Sahay, M., Varughese, S., Baid-Agarwal, S. and Jha, V.**

Indian chronic kidney disease study: Design and methods

Nephrology (Carlton); 2017, 22 (4): 273-278

**Address:** Department of Nephrology, Post Graduate Institute of Medical Education and Research, Chandigarh, India. Muljibhai Patel Urological Hospital, Nadiad, India. George Institute for Global Health, New Delhi, India. Samarpan Kidney Institute and Research Center, Bhopal, India. Department of Nephrology, Institute of Medical Science, Banaras Hindu University, Varanasi, India. Department of Nephrology, Institute of Post Graduate Medical Education & Research, Kolkata, India. Department of Nephrology, Jawaharlal Institute of Postgraduate Medical Education & Research, Pondicherry, India. Department of Nephrology, Sanjay Gandhi Postgraduate Institute of Medical Science, Lucknow, India. Department of Nephrology, Osmania Medical College, Osmania General Hospital, Hyderabad, India. Department of Nephrology, Christian Medical College, Vellore, India. Department of Nephrology and Transplant Center, Sahlgrenska University Hospital, Gothenburg, Sweden. University of Oxford, Oxford, UK.

**AIM:** The rate and factors that influence progression of chronic kidney disease (CKD) in developing
countries like India are unknown. A pan-country prospective, observational cohort study is needed to address these knowledge gaps. **METHODS:** The Indian Chronic Kidney Disease (ICKD) study will be a cohort study of approximately 5000 patients with mild to moderate CKD presenting to centres that represent different geographical regions in India. Time to 50% decline in baseline estimated glomerular filtration rate, need of renal replacement therapy or any new cardiovascular disease (CVD) event or death from CVD are the primary end points. **VALUE OF STUDY:** This study will provide the opportunity to determine risk factors for CKD progression and development of CVD in Indian subjects and perform international comparisons to determine ethnic and geographical differences. A bio-repository will provide a chance to discover biomarkers and explore genetic risk factors.

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<th>Reference</th>
<th>Authors</th>
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<td>128</td>
<td>Kumaran, S., George, G., Varsha, A. V. and Sahajanandan, R.</td>
<td>Inverted left atrial appendage masquerading as a left atrial mass</td>
<td>Ann Card Anaesth; 2017, 20 (2): 248-249</td>
<td></td>
<td>28393790</td>
<td>Department of Anaesthesia, Christian Medical College and Hospital, Vellore, Tamil Nadu, India. An inverted left atrial appendage after cardiac surgery is a rare finding and can be misinterpreted as a thrombus, mass, or vegetation. We report a case where intraoperative transesophageal echocardiography assisted in making an accurate diagnosis.</td>
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Medical College, Vellore, India. Department of Biostatistics, Christian Medical College, Vellore, India.

**OBJECTIVES:** Conditioning child growth measures on baseline accounts for regression to the mean (RTM). Here, we present the "conditional random slope" (CRS) model, based on a linear-mixed effects model that incorporates a baseline-time interaction term that can accommodate multiple data points for a child while also directly accounting for RTM. **METHODS:** In two birth cohorts, we applied five approaches to estimate child growth velocities from 0 to 12 months to assess the effect of increasing data density (number of measures per child) on the magnitude of RTM of unconditional estimates, and the correlation and concordance between the CRS and four alternative metrics. Further, we demonstrated the differential effect of the choice of velocity metric on the magnitude of the association between infant growth and stunting at 2 years. **RESULTS:** RTM was minimally attenuated by increasing data density for unconditional growth modeling approaches. CRS and classical conditional models gave nearly identical estimates with two measures per child. Compared to the CRS estimates, unconditional metrics had moderate correlation ($r = 0.65-0.91$), but poor agreement in the classification of infants with relatively slow growth (kappa = 0.38-0.78). Estimates of the velocity-stunting association were the same for CRS and classical conditional models but differed substantially between conditional versus unconditional metrics. **CONCLUSION:** The CRS can leverage the flexibility of linear mixed models while addressing RTM in longitudinal analyses.

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Indian J Radiol Imaging; 2017, 27 (1): 82-87

**Address:** Department of Radiology, Christian Medical College, Vellore, Tamil Nadu, India. Department of Neurology, Christian Medical College, Vellore, Tamil Nadu, India.

**BACKGROUND:** In dural venous sinus thrombosis (DVST), the mortality ranges 5-30%. Deep venous system involvement and septic dural sinus thrombosis have a higher mortality rate. In acute occlusion, collateral flow may not be established, which may result in significant edema and mass effect. Endovascular interventions may be considered as a treatment option in appropriate high-risk patients with DVST. **MATERIALS AND METHODS:** Eight patients with magnetic resonance imaging (MRI)-confirmed dural sinus thrombosis, who did not respond to the conventional standard medical treatment, were subsequently treated with mechanical thrombectomy using the Penumbra System(R). In all cases, medical treatment including anticoagulants were continued following the procedure for a minimum period of 1 year. **RESULTS:** Recanalization of the dural sinus thrombosis was achieved in all 8 cases. There were no immediate or late endovascular-related complications. One death occurred due to an unrelated medical event. At 6 months, there was notable improvement in the modified Rankin Score (mRS), with 5/8 (62%) patients achieving mRS of 2 or less. The follow-up ranged between 3 months and 26 months (mean: 14.5 months), and there were no new neurological events during the follow-up period. **CONCLUSION:** Cerebral venous sinus thrombosis is a rare but life-threatening condition that demands timely diagnosis and therapy. In cases of rapidly declining neurological status despite standard therapy with systemic anticoagulation and anti-edema measures, mechanical thrombectomy could be a lifesaving and effective treatment.
option. In this study, good outcomes were observed in the majority of patients at long-term follow up.

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<th>132</th>
<th>Manesh, A., Balaji, V., Kumar, D. R. and Rupali, P.</th>
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<tr>
<td>A case of clinical and microbiological failure of azithromycin therapy in Salmonella enterica serotype Typhi despite low azithromycin MIC</td>
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<td>Int J Infect Dis; 2017, 54 62-63</td>
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**Address:** Department of Infectious Diseases, Christian Medical College, Vellore, India. Electronic Address: abimanesh@gmail.com Department of Clinical Microbiology, Christian Medical College, Vellore, India. Electronic Address: vbalaji@cmcvellore.ac.in Department of Infectious Diseases, Christian Medical College, Vellore, India. Electronic Address: speed.naveen1@gmail.com Department of Infectious Diseases, Christian Medical College, Vellore, India. Electronic Address: prisci@cmcvellore.ac.in

Typhoid fever remains a serious problem in many developing countries. Due to resistance to multiple first line drugs, azithromycin has evolved as an important drug in the treatment of typhoid. While therapy with azithromycin is highly effective, no clinically validated mean inhibitory concentration (MIC) break points or disc diffusion cutoff guidelines are available so far. We describe an Indian adult with clinical and microbiological failure to azithromycin despite low azithromycin MIC.

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<th>133</th>
<th>Manesh, A., Moorthy, M., Bandopadhyay, R. and Rupali, P.</th>
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<td>HIV-associated sub-acute sclerosing panencephalitis - an emerging threat?</td>
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<td>Int J STD AIDS; 2017, 956462416687675</td>
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**Address:** 1 Department of Infectious Diseases, Christian Medical College, Vellore, India. 2 Department of Clinical Virology, Christian Medical College, Vellore, India. Earlier age of measles virus infection predisposes to development of sub-acute sclerosing panencephalitis (SSPE) and this risk is heightened in HIV-infected children. We describe a HIV-infected young adult on antiretroviral therapy, presenting with a non-classical, fulminant form of SSPE to highlight the unpredictable nature of measles presentation. The recent spate of measles outbreaks due to virus introduction in populations with sub-optimal vaccine coverage or waning immunity and co-existing paediatric HIV cohorts is a cause for concern.

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<th>134</th>
<th>Mani, S. S. R., Mathansingh, A. J., Kaur, H. and Iyyadurai, R.</th>
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<tr>
<td>Ruptured intracranial tuberculous aneurysm, a rare complication of central nervous system tuberculosis- A report and review of literature</td>
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<td>Neurol India; 2017, 65 (3): 626-628</td>
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**Address:** Department of Medicine, Christian Medical College, Vellore, Tamil Nadu, India. Department of Radiology, Christian Medical College, Vellore, Tamil Nadu, India.
### 135 Mani, S. S., Kodiatte, T. and Jagannati, M.

A rare presentation of plasmablastic lymphoma as cutaneous nodules in an immunocompromised patient

*Int J STD AIDS; 2017, 28 (6): 623-625*

**Address:** 1 Department of General Medicine, Christian Medical College, Vellore, India. 2 Department of General Pathology, Christian Medical College, Vellore, India.

Plasmablastic lymphoma is a rare entity accounting for around 2.7% of all AIDS-related lymphomas. The oral cavity and gastrointestinal tract are the most common sites involved. We report a case of a 34-year-old HIV-positive woman with a rare presentation of cutaneous nodules all over the body. Due to overwhelming tumour burden, she developed tumour lysis syndrome during her hospital stay and succumbed to the illness.

### 136 Manoharan, R., Jacob, T., Benjamin, S. and Kirishnan, S.

Lateral Anal Sphincterotomy for Chronic Anal Fissures- A Comparison of Outcomes and Complications under Local Anaesthesia Versus Spinal Anaesthesia


**Address:** Consultant Surgeon, Department of General Surgery, Tribal Health Initiative, Dharmapuri, Tamil Nadu, India. Assistant Professor, Department of Paediatric Surgery, Christian Medical College, ISSCC Building, Vellore, Tamil Nadu, India. Professor, Department of General Surgery, NH Narayana Multispecialty Clinic, Bengaluru, Karnataka, India. Consultant Surgeon, Department of General Surgery, Christian Fellowship Hospital, Oddanchatram, Tamil Nadu, India.

**INTRODUCTION:** Fissure-in-Ano is one of the common and most painful anorectal conditions encountered in surgical practice. Inspite of several conservative treatment options, surgical treatment in the form of Lateral Anal Spincterotomy (LAS) remains the gold standard of treatment for Chronic Anal Fissures (CAF). However, LAS is often done under spinal or general anaesthesia incurring huge treatment costs and hospital stay. **AIM:** To study if LAS can be treated with Local Anaesthesia (LA) thereby, reducing the costs and the anaesthetic risk to patients with no significant change in the surgical ease or clinical outcome. **MATERIALS AND METHODS:** A total of 79 patients with chronic fissure underwent randomized allocation to two treatment arms - The first to undergo LAS under LA and the second under Spinal Anaesthesia (SA). The primary outcome variables studied were complications like post-operative pain, infections, healing rate of fissure and incontinence rates. Secondary outcome variables studied were cost, hospital stay and need for additional anaesthetic. **RESULTS:** A total of 79 patients underwent LAS procedure. A total of 42 patients had LA and 39 patients had SA. There was no statistically significant difference in the healing rate, pain, infection and incontinence rates between the two groups. Moreover, the LA group incurred lower cost, reduced hospital stay and reduced risk of anaesthesia. **CONCLUSIONS:**

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**INT – INTERNATIONAL; NAT – NATIONAL; PMID: PUBMED ID; PMCID: PUBMED CENTRAL ID**
LAS can be satisfactorily performed under local anaesthesia with no increased risk of pain or complications, and is best suited for resource-poor surgical settings.

| 137 | Manuel, D. A., Ghosh, G. C. and Alex, A. G. | INT | JAN TO JUN | PMID:28093089 |
| --- | Atrial septal defect with right-to-left shunt in the absence of pulmonary hypertension | Cardiol Young; 2017, 27 (3): 575-576 |
| **Address:** Department of Cardiology, Christian Medical College and Hospital, Vellore, India. | We describe the case of a 27-year-old gentleman who developed late-onset clubbing and cyanosis. Transoesophageal echocardiography revealed a 27-mm ostium secundum atrial septal defect and a large, floppy Eustachian valve directing right atrial blood to the left side of the heart. |

| 138 | Manuel, D. A., Sahayo, B. J., Thomson, V. S. and Jose, J. | INT | JAN TO JUN | PMID:28163437 |
| --- | Pseudoaneurysm of the left atrium following infective endocarditis | Ann Pediatr Cardiol; 2017, 10 (1): 84-86 |
| **Address:** Department of Cardiology, Christian Medical College and Hospital, Vellore, Tamil Nadu, India. | Transthoracic echocardiogram of a 3-year-old child showed a hypoechoic cavity in the posterior wall of the left atrium communicating with the left ventricle through an orifice in the mitral annulus, suggestive of pseudoaneurysm (Ps), probably the result of infective endocarditis. Three-dimensional echocardiography was helpful to confirm the diagnosis and assess the anatomical relationship of the Ps. |

| 139 | Mariappan, R., Philip, A., Gandham, E. J. and Raju, K. | INT | JAN TO JUN | PMID:28538330 |
| --- | Simultaneous Surgical Decompression of Bilateral Subdural Hematoma and an Administration of Epidural Blood Patch for Spontaneous Intracranial Hypotension | J Neurosurg Anesthesiol; 2017, |
| **Address:** Departments of *Anesthesia daggerNeurological Sciences, Christian Medical College, Vellore, TN, India. | |

| 140 | Mariappan, R., Singh, G. and Koshy, M. S. | INT | JAN TO JUN | PMID:26649769 |
| --- | The Effect of Increased Intracranial Pressure on Pulmonary Compliance in a Neonate | J Neurosurg Anesthesiol; 2017, 29 (1): 66-67 |
| **Address:** Department of Anesthesia, Christian Medical College, Vellore, Tamil Nadu India. | |

| 141 | Mathew, A. J., Coates, L. C., Danda, D. and Conaghan, P. G. | INT | JAN TO JUN | PMID:27487860 |
Psoriatic arthritis: lessons from imaging studies and implications for therapy

**Address:** a Clinical Immunology & Rheumatology, Christian Medical College, Vellore, India. b Leeds Institute of Rheumatic and Musculoskeletal Medicine, University of Leeds & NIHR Leeds Musculoskeletal Biomedical Research Unit, Leeds, UK.

**INTRODUCTION:** Modern imaging may aid in the diagnosis, prognosis and monitoring of therapeutic response in psoriatic arthritis (PsA). Detection of osteitis and technical advances like whole body magnetic resonance imaging (MRI) exemplify the value of this technology. Areas covered: Ultrasound (US) provides a clinic-based tool for evaluating both joint pathologies and extra-articular structures (especially enthesitis) including skin and nail disease. Recent studies have demonstrated subclinical disease in psoriasis without arthritis, as well as in PsA, with implications for diagnosis and treatment classification. Modern imaging can also facilitate decisions on tapering of expensive biologics, though real-world clinical studies are still lacking. Expert commentary: The increase in novel PsA therapies should increase the utilization of modern imaging, providing both increased validation of imaging biomarkers as well as responsive outcome measures.

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Mathew, A. J., Ganapati, A., Kabeerdoss, J., Nair, A., Gupta, N., Chebbi, P., Mandal, S. K. and Danda, D.

Chikungunya Infection: a Global Public Health Menace
Curr Allergy Asthma Rep; 2017, 17 (2): 13

**Address:** Department of Clinical Immunology and Rheumatology, Christian Medical College, Vellore, 632 004, India.
Department of Clinical Immunology and Rheumatology, Christian Medical College, Vellore, 632 004, India.
debashisdandacmc@hotmail.com.

Chikungunya virus (CHIKV) has been involved in epidemics in African and Asian subcontinents and, of late, has transcended to affect the Americas. Aedes aegypti and Aedes albopictus are the major vectors for CHIKV infection, which results in dissemination of virus to various vital organs. Entry of virus into these tissues causes infiltration of innate immune cells, monocytes, macrophages, neutrophils, natural killer cells, and adaptive immune cells. Macrophages bearing the replicating virus, in turn, secrete pro-inflammatory cytokines IL-1beta, TNF-alpha, and IL-17. Together, this pro-inflammatory milieu induces osteoclastogenesis, bone loss, and erosion. CHIKV is characterized by fever, headache, myalgia, rash, and symmetric polyarthritis, which is generally self-limiting. In a subset of cases, however, musculoskeletal symptoms may persist for up to 3-5 years. Viral culture and isolation from blood cells of infected patients are the gold standards for diagnosis of CHIKV. In routine practice, however, assays for anti-CHIKV IgM antibodies are used for diagnosis, as elevated levels in blood of infected patients are noted from 10 days following infection for up to 3-6 months. Early diagnosis of CHIKV is possible by nucleic acid detection techniques. Treatment of acute CHIKV is mainly symptomatic, with analgesics, non-steroidal anti-
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<td>143</td>
<td>Mathew, G., Gupta, V., Santhanam, S. and Rebekah, G.</td>
<td>Postnatal Weight Gain Patterns in Preterm Very-Low-Birth-Weight Infants Born in a Tertiary Care Center in South India</td>
<td>INT JAN TO JUN PMID:28582577</td>
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<td>Mathews, V.</td>
<td>APL: Oh! What a tangled web we weave</td>
<td>INT JAN TO JUN PMID:28360358</td>
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<td>146</td>
<td>Matthai, S. M., Jacob, S., Palak, R., Jagdish, K., Varughese, S. and Tamilarasi, V.</td>
<td>Crescentic C3 glomerulopathy with acquired partial lipodystrophy: An unusual cause of rapidly progressive renal failure</td>
<td>Indian J Pathol Microbiol; 2017, 60 (2): 290-291</td>
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| 147 | Maziarz, R. T., Brazauskas, R., Chen, M., Mcleod, A. A., Martino, R., Wingard, J. R., Aljurf, M., Battiwalla, M., Dvorak, C. C., Geroge, B., Guinan, E. C., Hale, G. A., Lazarus, H. M., Lee, J. W., Liesveld, J. L., Ramanathan, M., Reddy, V., Savani, B. N., Smith, F. O., Strasfeld, L., Taplitz, R. A., Ustun, C., Boeckh, M. J., Gea-Banacloche, J., Lindemans, C. A., Auletta, J. J. and Riches, M. L. | Pre-existing invasive fungal infection is not a contraindication for allogeneic HSCT for patients with hematologic malignancies: a CIBMTR study | Bone Marrow Transplant; 2017, 52 (2): 270-278 | Adult Blood and Marrow Stem Cell Transplant Program, Knight Cancer Institute, Oregon Health and Science University, Portland, OR, USA. CIBMTR, Department of Medicine, Medical College of Wisconsin, Milwaukee, WI, USA. Division of Biostatistics, Institute for Health and Society, Medical College of Wisconsin, Milwaukee, WI, USA. Division of Clinical Hematology, Hospital de la Santa Creu i Sant Pau, Barcelona, Spain. Division of Hematology & Oncology, Department of Medicine, University of Florida, Gainesville, FL, USA. Department of Oncology, King Faisal Specialist Hospital Center & Research, Riyadh, Saudi Arabia. Hematology Branch, National Heart, Lung and Blood Institute, Bethesda, MD, USA. Department of Pediatrics, University of California San Francisco Medical Center, San Francisco, CA, USA. Department of Hematology, Christian Medical College, Vellore, India. Department of Pediatric Oncology, Dana-Farber Cancer Institute, Boston, MA, USA. Department of Hematology/Oncology, All Children's Hospital, St Petersburg, FL, USA. Seidman Cancer Center, University Hospitals Case Medical Center, Cleveland, OH, USA. BMT Center, Seoul St Mary's Hospital, The Catholic University of Korea, Seoul, South Korea. Department of Medicine, University of Rochester Medical Center, Rochester, NY, USA. Division of Hematology and Oncology, Department of Medicine, UMass Memorial Medical Center, Worcester, MA, USA. Department of Internal Medicine, University of Central Florida College of Medicine, Orlando, FL, USA. Division of Hematology/Oncology, Department of Medicine, Vanderbilt University Medical Center, Nashville, TN, USA. University of Cincinnati Cancer Institute, Cincinnati, OH, USA. Infectious Disease Clinic, Oregon Health and Science University, Portland, OR, USA. Infectious Diseases Program, UC San Diego Health, La Jolla, CA, USA. Division of Hematology, Oncology and Transplantation, Department of Medicine, University of Minnesota Medical Center, Minneapolis, MN, USA. Vaccine and Infectious Disease
Patients with prior invasive fungal infection (IFI) increasingly proceed to allogeneic hematopoietic cell transplantation (HSCT). However, little is known about the impact of prior IFI on survival. Patients with pre-transplant IFI (cases; n=825) were compared with controls (n=10247). A subset analysis assessed outcomes in leukemia patients pre- and post 2001. Cases were older with lower performance status (KPS), more advanced disease, higher likelihood of AML and having received cord blood, reduced intensity conditioning, mold-active fungal prophylaxis and more recently transplanted. Aspergillus spp. and Candida spp. were the most commonly identified pathogens. 68% of patients had primarily pulmonary involvement. Univariate and multivariable analysis demonstrated inferior PFS and overall survival (OS) for cases. At 2 years, cases had higher mortality and shorter PFS with significant increases in non-relapse mortality (NRM) but no difference in relapse. One year probability of post-HSCT IFI was 24% (cases) and 17% (control, P<0.001). The predominant cause of death was underlying malignancy; infectious death was higher in cases (13% vs 9%). In the subset analysis, patients transplanted before 2001 had increased NRM with inferior OS and PFS compared with later cases. Pre-transplant IFI is associated with lower PFS and OS after allogeneic HSCT but significant survivorship was observed. Consequently, pre-transplant IFI should not be a contraindication to allogeneic HSCT in otherwise suitable candidates. Documented pre-transplant IFI is associated with lower PFS and OS after allogeneic HSCT. However, mortality post-transplant is more influenced by advanced disease status than previous IFI. Pre-transplant IFI does not appear to be a contraindication to allogeneic HSCT.


Dynamics and Trends in Fecal Biomarkers of Gut Function in Children from 1-24 Months in the MAL-ED Study


Growth and development shortfalls that are disproportionately prevalent in children living in poor environmental conditions are postulated to result, at least in part, from abnormal gut function. Using data from The Etiology, Risk Factors, and Interactions of Enteric Infections and Malnutrition and the Consequences for Child Health and Development (MAL-ED) longitudinal cohort study, we examine biomarkers of gut inflammation and permeability in relation to environmental exposures and feeding practices. Trends in the concentrations of three biomarkers, myeloperoxidase (MPO), neopterin (NEO), and alpha-1-antitrypsin (AAT), are described from fecal samples collected during the first 2 years of each child's life. A total of 22,846 stool samples were processed during the longitudinal sampling of 2,076 children 0-24 months of age. Linear mixed models were constructed to examine the relationship between biomarker concentrations and recent food intake, symptoms of illness, concurrent enteropathogen infection, and socioeconomic status. Average concentrations of MPO, NEO, and AAT were considerably higher than published references for healthy adults. The concentration of each biomarker tended to decrease over the first 2 years of life and was highly variable between samples from each individual child. Both MPO and AAT were significantly elevated by recent breast milk intake. All three biomarkers were associated with pathogen presence, although the strength and direction varied by pathogen. The interpretation of biomarker concentrations is subject to the context of their collection. Herein, we identify that common factors (age, breast milk, and enteric infection) influence the concentration of these biomarkers. Within the context of low- and middle-income communities, we observe concentrations that indicate gut abnormalities, but more appropriate reference standards are needed.


Peridomestic Aedes malayensis and Aedes albopictus are capable vectors of arboviruses in cities


Address: Program in Emerging Infectious Disease, Duke-NUS Medical School, Singapore. Department of Clinical Virology, Christian Medical College, Vellore, Tamilnadu, India. Department of Biological Sciences, National University of Singapore, Singapore. MIVEGEC, UMR IRD 224-CNRS5290-Université de Montpellier, Montpellier, France.

BACKGROUND: Dengue and chikungunya are global re-emerging mosquito-borne diseases. In Singapore, sustained vector control coupled with household improvements reduced domestic mosquito populations for the past 45 years, particularly the primary vector Aedes aegypti. However, while disease incidence was low for the first 30 years following vector control implementation, outbreaks have re-emerged in the past 15 years. Epidemiological observations point to the importance of peridomestic infection in areas not targeted by control programs. We investigated the role of vectors in peri-domestic areas. METHODS: We carried out entomological surveys to identify the Aedes species present in vegetated sites in highly populated areas and determine whether mosquitoes were present in open-air areas frequented by people. We compared vector competence of Aedes albopictus and Aedes malayensis with Ae. aegypti after oral infection with sympatric dengue serotype 2 and chikungunya viruses. Mosquito
saliva was tested for the presence of infectious virus particles as a surrogate for transmission following oral infection. **RESULTS:** We identified Aedes albopictus and Aedes malayensis throughout Singapore and quantified their presence in forested and opened grassy areas. Both Ae. albopictus and Ae. malayensis can occupy sylvatic niches and were highly susceptible to both arboviruses. A majority of saliva of infected Ae. malayensis contained infectious particles for both viruses. **CONCLUSIONS:** Our study reveals the prevalence of competent vectors in peri-domestic areas, including Ae. malayensis for which we established the vector status. Epidemics can be driven by infection foci, which are epidemiologically enhanced in the context of low herd immunity, selective pressure on arbovirus transmission and the presence of infectious asymptomatic persons, all these conditions being present in Singapore. Learning from Singapore’s vector control success that reduced domestic vector populations, but has not sustainably reduced arboviral incidence, we suggest including peri-domestic vectors in the scope of vector management.

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<td><strong>Address:</strong> Department of Medicine, Christian Medical College, Vellore, Tamil Nadu, India.</td>
<td><strong>Address:</strong> Department of General Medicine, Christian Medical College and Hospital, Vellore, India. <a href="mailto:angel_miraclin@yahoo.com">angel_miraclin@yahoo.com</a> Department of Clinical Microbiology, Christian Medical College and Hospital, Vellore, India. Department of General Medicine, Christian Medical College and Hospital, Vellore, India.</td>
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<td>Abiotrophia defectiva endarteritis with infective spondylodiscitis in an adult patient with patent ductus arteriosus</td>
<td>Cerebrovascular injury in cryptococcal meningitis</td>
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Endarteritis is a major complication in patients with patent ductus arteriosus, causing significant morbidity and mortality. We report an adult patient with asymptomatic patent ductus arteriosus and endarteritis involving the main pulmonary artery and secondary infective spondylodiscitis at the L5-S1 intervertebral disc caused by Abiotrophia defectiva. A. defectiva, commonly referred to as nutritionally variant streptococci, cannot be identified easily by conventional blood culture techniques from clinical specimens. Its isolation was confirmed by 16S ribosomal RNA sequencing. The patient was successfully managed with a combination of penicillin G and gentamicin, pending surgical repair of the patent ductus arteriosus.

Cerebrovascular injury is a complication related to cryptococcal meningitis that can lead to infarcts primarily in the basal ganglia, internal capsule, and thalamus. Literature reporting the incidence and manifestations of cerebrovascular injury in patients with cryptococcal meningitis is sparse. The aim of this study was to analyze a consecutive cohort of patients with cryptococcal meningitis who were admitted to a tertiary care center from India. The study was conducted to understand the clinical profile and study the imaging findings, including infarcts. The patients were retrospectively identified and evaluated for the presence of infarcts. The study population included 151 patients with confirmed cryptococcal meningitis, of whom 66 patients met the inclusion criteria and were included in the study. The presence of infarcts was assessed by two independent radiologists. The results showed that 20 patients (13%) had evidence of central nervous system infarcts on imaging.
years and 38 years, respectively. Male predominance was present among both the groups. The presence of fever, neck stiffness, positive blood culture, and hydrocephalus in central nervous system imaging was similar among patients with or without infarct. Longer duration of illness, low sensorium at the time of presentation, low Glasgow Coma Scale score, presence of meningeal inflammation, cryptococcomas, and basal exudates in imaging were higher in patients with infarct. All the infarcts were of the lacunar type. Sixty percent of the cerebrovascular infarcts were acute in nature, 50% of these being multiple. Unilateral infarcts were seen in 70% of the patients. The most common site of infarct was the basal ganglia, others being distributed over the thalamus, frontal, temporal, parieto-occipital regions in the descending order. The presence of neurovascular involvement in the form of infarcts to the risk of morbidity and mortality had an odds ratio of 9.1 and 2.6, respectively. Conclusion Neurovascular involvement in chronic cryptococcal meningitis is a rare entity. These tend to present as multiple lacunar infarcts. Mortality and morbidity associated with these patients is higher when compared to patients who do not have infarcts. This result suggests that vascular injury plays a role in predicting outcome of patients with cryptococcal meningitis. Future studies are needed to understand the mechanism by which vascular events (infarcts) occur and result in poor outcome.

| Can J Neurol Sci; 2017, 44 (3): 318-321 |

**BACKGROUND:** Ross syndrome is diagnosed by the presence of segmental anhidrosis, areflexia, and tonic pupils. Fewer than 60 cases have been described in literature so far. There have been reports of presence of antibodies in such patients, suggesting an autoimmune pathogenesis. **METHODS:** We describe the clinical profile in this case series of 11 patients with Ross syndrome and discuss the current status of autoimmunity in its pathogenesis and the management. **RESULTS:** Of the 11 patients with Ross syndrome there was an almost equal sex distribution (male:female ratio was 1.17:1) and the mean age of onset of symptoms was 26 years. Patients took an average of 6 years to present to a tertiary center. Sixty-three percent of the patients presented with complaints of excessive sweating, whereas only 27% had complaints of decreased sweating over a particular area of the body. Only 45% of the patients had the complete triad of Ross syndrome, which included segmental anhidrosis, tonic pupil, and absent reflexes. Eighty-nine percent of the patients had documented absent sympathetic skin response on electromyography. The various markers of autoimmunity were negative in all patients who were investigated for the same in this series. Ninety percent of the patients were managed conservatively. **CONCLUSIONS:** These findings suggest that, in Ross syndrome, generalized injury to ganglion cells or their projections are not purely autoimmune-mediated.
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<td>Cryptococcal meningitis presenting as acute onset bilateral cerebellar infarct</td>
<td>Department of Internal Medicine, Christian Medical College and Hospital, Vellore, Tamil Nadu, India. Department of Radiology, Christian Medical College and Hospital, Vellore, Tamil Nadu, India. Department of Clinical Microbiology, Christian Medical College and Hospital, Vellore, Tamil Nadu, India.</td>
<td>28400044</td>
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<td>Management algorithms for acute ST elevation myocardial infarction in less industrialized world</td>
<td>Department of Emergency Medicine, Christian Medical College, Vellore, Tamil Nadu, India. Department of General Medicine, Christian Medical College, Vellore, Tamil Nadu, India. Department of Biostatistics, Christian Medical College, Vellore, Tamil Nadu, India.</td>
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<td>Clinical Score to Differentiate Scrub Typhus and Dengue: A Tool to Differentiate Scrub Typhus and Dengue</td>
<td>Department of Emergency Medicine, Christian Medical College, Vellore, Tamil Nadu, India. Department of General Medicine, Christian Medical College, Vellore, Tamil Nadu, India. Department of Biostatistics, Christian Medical College, Vellore, Tamil Nadu, India.</td>
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multivariate logistic regression analysis was performed to identify clinical features and laboratory results that were significantly different between the two groups. Each variable was assigned scores based on the strength of association and receiver operating characteristics area under the curve (ROC-AUC) was generated and compared. Six scoring models were explored to ascertain the model with the best fit. **RESULTS:** Model 2 was developed using the following six variables: oxygen saturation (>90%, <=90%), total white blood cell count (<4000, 4001-7000 and >7000 cells/cumm), hemoglobin (<14 and <=14 g/dL), total bilirubin (<2 and >=2 mg/dL), serum glutamic oxaloacetic transaminase (>200 and >=200 IU/dL), and altered sensorium (present or absent). Each variable was assigned scores based on its strength of association. The AUC-ROC curve (95% confidence interval) for model 2 was 0.84 (0.79-0.89). At the cut off score of 13, the sensitivity and specificity were 85% and 77% respectively, with a higher score favoring dengue. **CONCLUSION:** In areas of high burden of ST and dengue, model 2 (the "clinical score to differentiate scrub typhus and dengue fever") is a simple and rapid clinical scoring system that may be used to differentiate scrub typhus and dengue at initial presentation.

**ROTAVIRUS INFECTION AND DISEASE IN A MULTI-SITE BIRTH COHORT: RESULTS FROM THE MAL-ED STUDY**

**Address:** Department of Community Health, Christian Medical College, Vellore, India. Division of Gastrointestinal Sciences, Christian Medical College, Vellore, India. Fogarty International Center, National Institutes of Health, Bethesda, USA. Walter Reed/ AFRIMS Research Unit Nepal (WARUN) & Centre for International Health, University of Bergen. Haydom Lutheran Hospital, Haydom, Tanzania. University of Venda, Thohoyandou, South Africa. International Centre for Diarrhoeal Disease Research, Dhaka, Bangladesh. Aga Khan University, Karachi, Pakistan. Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA and Asociacion Benefica PRISMA, Iquitos, Peru. Clinical Research Unit and Institute of Biomedicine, Federal University of Ceara, Fortaleza, Brazil. Division of Infectious Diseases and International Health, University of Virginia, Charlottesville, USA. Foundation for the National Institutes of Health, Bethesda, USA.

**BACKGROUND:** In a multi-country birth cohort study, we describe rotavirus infection in the first two years of life in sites with and without rotavirus vaccination programs. **METHODS:** Children were recruited by 17 days of age and followed to 24 months with collection of monthly surveillance and diarrheal stools. Data on socio-demographics, feeding and illness were collected at defined intervals. Stools were tested for rotavirus and sera for anti-rotavirus immunoglobulins by enzyme immunoassays. **RESULTS:** A total of 1,737 children contributed 22,646 surveillance and 7,440 diarrheal specimens. Overall, rotavirus was detected in 5.5% (408/7440) of diarrheal stools, and 344 (19.8%) children ever had rotavirus gastroenteritis. Household overcrowding and a high pathogen load were consistent risk factors for infection and disease. Three prior infections conferred 74% (P<0.001) protection against subsequent infection in sites not using vaccine. In Peru, incidence of rotavirus disease was relatively higher during
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<td>160</td>
<td>Cryptosporidiosis in children in the Indian subcontinent</td>
<td>Murugesan, M., Ganesan, S. K. and Ajjampur, S. S.</td>
<td>Division of Gastrointestinal Sciences, Wellcome Trust Research Laboratory, Christian Medical College, Vellore, Tamil Nadu, India.</td>
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and highlight the need to be carry out these studies with uniform sampling and molecular tools for detection, especially in countries with a dearth of information. Community-based studies, however, showed similarities in spite of differences in when (the late 1990s up until recently) and where (South India or Bangladesh) they were conducted. When more sensitive detection methods were used, cryptosporidial diarrhea accounted for 7%-9% of all diarrhea episodes and 20%-30% of children in these cohorts experienced at least one cryptosporidial diarrheal episode. High rates of asymptomatic infections with increased detection by serology and multiple infections (symptomatic and asymptomatic) were also documented in all cohorts. This overview brings to light the high burden of disease associated with cryptosporidiosis in children in the subcontinent and the gaps in knowledge to be addressed.

161 Muthuirulandi Sethuvel, D. P., Devanga Ragupathi, N. K., Anandan, S. and Veeraraghavan, B.  
Update on: Shigella new serogroups/serotypes and their antimicrobial resistance  
Lett Appl Microbiol; 2017, 64 (1): 8-18  
Address: Department of Clinical Microbiology, Christian Medical College, Vellore, India.  
Shigellosis represents a major burden of disease in developing countries. A low infectious dose allows the disease to be spread effectively. Although shigellosis is mostly a self-limiting disease, antibiotics are recommended to reduce deaths, disease symptoms and organism-shedding time. However, in India, antimicrobial resistance among the genus Shigella is more common than among any other enteric bacteria. Notably, new serotypes or subserotypes in Shigella are reported from various parts of the world. Identification of new subserotypes of Shigella spp. is becoming a major issue as these strains are nontypeable by conventional serotyping. The commercially available antisera may not cover all possible epitopes of the O lipopolysaccharide antigen of Shigella serotypes. Therefore, molecular methods which most closely approach the resolution of full serotyping are necessary to identify such strains. In addition, the knowledge of a prevalent serotype in various geographic regions may assist in formulating strategies such as the development of a vaccine to prevent infection especially when the immunity to disease is serotype specific, and to understand the disease burden caused by new Shigella serotypes.

162 Muthuirulandi Sethuvel, D. P., Devanga Ragupathi, N. K., Anandan, S., Verghese, V. P. and Veeraraghavan, B.  
First report on whole-genome shotgun sequences of 23 biochemically indistinguishable clinical Shigella isolates  
J Glob Antimicrob Resist; 2017, 9 32-33  
Address: Department of Clinical Microbiology, Christian Medical College, Vellore 632 004, India.  
Department of Child Health, Christian Medical College, Vellore 632 004, India.  
Department of Clinical Microbiology, Christian Medical College, Vellore 632 004, India.  
Electronic Address: vbalaji@cmcvellore.ac.in  
Shigella spp. are a major diarrhoeal disease pathogen worldwide and can cause considerable morbidity
and mortality. Notably, limited genome data are available for serogroups/sub-serogroups of Shigella. Here we report the whole-genome shotgun sequences of 23 non-typeable Shigella from stool specimens that biochemically resembled Shigella spp. but were non-typeable with Shigella-specific antisera.

**163**

Muthuirulandi Sethuvel, D. P., Devanga Ragupathi, N. K., Anandan, S., Walia, K. and Veeraraghavan, B.

Molecular diagnosis of non-serotypeable Shigella spp.: Problems and Prospects

J Med Microbiol; 2017,

**Address:** 1Research Associate Christian Medical College, Vellore. 2Senior Research Officer Christian Medical College, Vellore. 3Associate Professor Christian Medical College, Vellore. 4Professor Indian Council of Medical Research. 5Christian Medical College and Hospital Vellore 632 004, INDIA.

It is not always possible to identify Shigella serogroups/serotypes by biochemical properties alone. Specific identification requires serotyping. Occasionally, isolates that resemble Shigella spp. biochemically, but are non-agglutinable with available antisera, have been observed. Several mechanisms have been reported to limit the efficiency of the serotyping assay. Serotype conversion is a major mechanism in Shigella spp. to escape protective host immune responses. This easy conversion through significant modification of the O-antigen backbone results in different serotypes, which makes laboratory identification difficult. Furthermore, members of the family Enterobacteriaceae are closely related and there is antigenic cross-over (intra- and inter-specific cross-reaction) which affects the agglutination reaction. The performance of the available methods for identification of non-serotypeable Shigella is discussed here, and reveals them to be non-reliable. This shows a need for an alternative method for identification and typing of Shigella spp.

**164**

Muthuirulandi Sethuvel, D. P., Devanga Ragupathi, N. K., Anandan, S., Walia, K. and Veeraraghavan, B.

Molecular diagnosis of non-serotypeable Shigella spp.: problems and prospects


**Address:** 1Department of Clinical Microbiology, Christian Medical College, Vellore 632 004, India. 2Division of Epidemiology and Communicable Diseases, Indian Council of Medical Research, New Delhi 110 029, India.

**165**

Naal, F. D., Muller, A., Varghese, V. D., Wellauer, V., Impellizzeri, F. M. and Leunig, M.

Outcome of Hip Impingement Surgery: Does Generalized Joint Hypermobility Matter?


**Address:** Technical University of Munich, Munich, Germany. Department of Orthopaedic Surgery, Schulthess Clinic, Zurich, Switzerland. Department of Orthopaedic Surgery, Christian Medical Center, Vellore, India. Department of Research and Development, Schulthess Clinic, Zurich, Switzerland.
BACKGROUND: Generalized joint hypermobility (JH) might negatively influence the results of surgical femoroacetabular impingement (FAI) treatment, as JH has been linked to musculoskeletal pain and injury incidence in athletes. JH may also be associated with worse outcomes of FAI surgery in thin females.

PURPOSE: To (1) determine the results of FAI surgery at a minimum 2-year follow-up by means of patient-reported outcome measures (PROMs) and failure rates, (2) assess the prevalence of JH in FAI patients and its effect on outcomes, and (3) identify other risk factors associated with treatment failure.

STUDY DESIGN: Cohort study; Level of evidence, 3.

METHODS: We included 232 consecutive patients (118 females; mean age, 36 years) with 244 hips surgically treated for symptomatic FAI between 2010 and 2012. All patients completed different PROMs preoperatively and at a mean follow-up of 3.7 years. Satisfaction questions were used to define subjective failure (answering any of the 2 subjective questions with dissatisfied/very dissatisfied and/or didn’t help/made things worse). Conversion to total hip replacement (THR) was defined as objective failure. JH was assessed using the Beighton score.

RESULTS: All PROM values significantly (P < .001) improved from preoperative measurement to follow-up (Oxford Hip Score: 33.8 to 42.4; University of California at Los Angeles Activity Scale: 6.3 to 7.3; EuroQol-5 Dimension Index: 0.58 to 0.80). Overall, 34% of patients scored >/=4 on the Beighton score, and 18% scored >/=6, indicating generalized JH. Eleven hips (4.7%) objectively failed and were converted to THR. Twenty-four patients (10.3%) were considered as subjective failures. No predictive risk factors were identified for subjective failure. Tonnis grade significantly (P < .001) predicted objective failure (odds ratio, 13; 95% CI, 4.45). There was a weak inverse association (r = -0.16 to -0.30) between Beighton scores and preoperative PROM values. There were no significant associations between Beighton scores and postoperative PROM values or objective failure rates, but patients who objectively failed had lower Beighton scores than did nonfailures (1.6 vs 2.6; P = .049).

CONCLUSION: FAI surgery yielded favorable outcomes at short- to midterm follow-up. JH as assessed by the Beighton score was not consistently associated with subjective and objective results. Joint degeneration was the most important risk factor for conversion to THR. Although statistical significance was not reached, female patients with no joint degeneration, only mild FAI deformity, and higher Oxford scores at the time of surgery seemed to be at increased risk for subjective dissatisfaction.

Clinical and Bacterial Risk Factors for Mortality in Children With Carbapenem-resistant Enterobacteriaceae Bloodstream Infections in India


Pediatr Infect Dis J; 2017, 36 (6): e161-e166

Address: From the *Department of Microbiology, Christian Medical College, Vellore, Tamil Nadu, India; daggerPublic Health England, London, United Kingdom; double daggerDepartment of Biostatistics, and section signDepartment of Pediatrics, Christian Medical College, Vellore, Tamil Nadu, India.

BACKGROUND: Carbapenem-resistant Enterobacteriaceae (CRE) are an increasing cause of nosocomial infection in hospitalized children worldwide. Few studies have investigated risk factors for mortality in children with CRE bloodstream infection (BSI). Data are particularly scarce in areas where NDM and OXA
carbapenemases predominate. Here, we investigate mortality rates, clinical and microbiologic risk factors for mortality in 50 pediatric patients with CRE BSI in India. **METHODS:** Children younger than 17 years old with meropenem-resistant Klebsiella pneumoniae or Escherichia coli isolated from blood culture in 2014 and 2015 were identified from laboratory records. Clinical records were systematically reviewed for each child to establish mortality at 30 days and clinical details. Bacterial isolates were subjected to meropenem E test and multiplex polymerase chain reaction to determine carbapenemase gene. Data were analyzed to establish clinical and bacterial risk factors for mortality. **RESULTS:** All CRE BSI were hospital-acquired or associated with healthcare. A total of 84% of children had an underlying comorbidity and 46% had a malignancy. K. pneumoniae was the most common bacteria isolated; NDM was the most common carbapenemase gene detected. The mortality rate was 52%. Significant risk factors for mortality included intensive care admission, intubation, inotropic support and respiratory source. Failure to clear bacteremia and a minimum inhibitory concentration > 8 mg/L for the isolate was associated with a statistically significant increase in mortality. Mortality rates were significantly lower when two or more effective drugs were used in combination. **CONCLUSIONS:** CRE BSI affects children with multiple comorbidities and repeated admissions to hospital. The mortality rate is high; combination therapy may be beneficial.

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Nair, A. M., Sandhya, P., Yadav, B. and Danda, D.

TNFalpha blockers followed by continuation of sulfasalazine and methotrexate combination: a retrospective study on cost saving options of treatment in Spondyloarthritis

Clin Rheumatol; 2017,

**Address:** Department of Clinical Immunology and Rheumatology, Christian Medical College, Vellore, Tamil Nadu, 632004, India. Department of Biostatistics, Christian Medical College, Vellore, Tamil Nadu, India. Department of Clinical Immunology and Rheumatology, Christian Medical College, Vellore, Tamil Nadu, 632004, India. debashisdandacmc@hotmail.com

High cost deters continuous use of tumor necrosis factor alpha blockers (TNFi) in developing countries. The objective of this study was to evaluate outcome and expenditure incurred in Spondyloarthritis (SpA) patients beyond a year of follow-up after receiving four doses of infliximab (IFX) over and above background therapy of methotrexate (MTX) and sulfasalazine (SSZ) combination. Electronic medical records were screened for patients with SpA satisfying the Assessment of Spondyloarthritis International Society (ASAS) criteria between 2008 and 2014. Patients who completed at least 1 year of follow-up after receiving four doses of IFX (5 mg/kg at 0, 2, 6, and 14 weeks) on a background therapy of MTX (10-25 mg/week) and SSZ (2-3 g/day) combination were enrolled after obtaining an informed consent. Primary outcome assessed was "time to disease flare". Changes in acute phase reactants, patient reported outcomes (BASDAI, BASFI), and cost were also assessed. Forty-five patients were enrolled. Mean (SD) duration of follow up after fourth IFX dose was 28.9 (18.7) months. Disease flare occurred in 33.3% (15/45) after a mean (SD) duration of 14.5 (10.8) months as compared to 4-6 months described in literature on discontinuing TNFi. Reduction in ESR, CRP, BASDAI and BASFI continued to be statistically significant at follow-up as compared to baseline. As compared to continuous IFX therapy, this treatment reduced cost by 57.1% for each patient-month of follow-up. Short course IFX dosing followed by continuation of MTX and SSZ combination can prolong time to disease flare and decrease requirement for...
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<td>Address: Department of Neurosciences, Neuro Intensive Care Unit, Christian Medical College, Vellore, Tamil Nadu, India.</td>
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<td>Subarachnoid hemorrhage is a common manifestation of traumatic brain injury. A clinical deterioration in Glasgow Coma Scale score without an accompanying radiological worsening is suggestive of vasospasm. However, hyperemia could be another possibility which can easily be considered with corroborating transcranial Doppler (TCD) features. This case report reiterates the value of TCD in such instances.</td>
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<td>Address: Department of Radiodiagnosis, M.V. Jayaram Medical College and Research Hospital, Bangalore, India. Department of Obstetrics and Gynecology, Rajarajeswari Medical College and Hospital, Bangalore, India. Department of Radiodiagnosis, Jawaharlal Nehru Medical College, Belgaum, India. Department of Obstetrics and Gynecology, M.V. Jayaram Medical College and Research Hospital, Bangalore, India. Department of Radiodiagnosis, Christian Medical College, Vellore, India.</td>
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<td>BACKGROUND: Pentalogy of Cantrell (POC) is an extremely rare and complex congenital anomaly. Ultrasound is a valuable, safe, nonionizing, cost effective, widely available, and easily reproducible imaging tool and is indispensable in the diagnosis of POC. Despite the rarity of POC, it is imperative for a radiologist to be aware of its wide spectrum of presentation on ultrasound in first trimester of gestation. Most reported cases in literature till now have been sporadic. In this paper, we aimed to report for the first time in literature, a recurrent case of POC detected in the first trimester in a mother whose previous pregnancy also was terminated in the second trimester medically due to the ultrasound diagnosis of POC. We also discuss the role of ultrasound and other imaging modalities in a case of POC as well as the differential diagnoses which can mimic POC. CASE REPORT: A 23-year-old G2P0A1 (Gravida2, para0, abortion1) woman with a gestational age of around 12 weeks was referred for a routine first trimester ultrasound scan. The antenatal ultrasound scan showed a single, live, intrauterine gestation corresponding to a gestational age of 11 weeks and 5 days. The fetal heart was visualized outside the chest through a defect in the lower sternum in association with anterior diaphragmatic and ventral abdominal wall defects suggestive of thoraco-abdominal variety of ectopia cardis. There was a membrane covered, midline, abdominal wall defect at the base of the umbilical cord insertion containing the herniated abdominal organs.</td>
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organs including the liver, bowel loops and the ectopic cardia. There was a breach in the normal outline of the lower sternum indicating a sternal deficiency. The fetal pericardium was absent. The nuchal translucency was grossly increased. Pentology of Cantrell was diagnosed on ultrasound and the patient was explained about the poor prognosis of this condition. An informed consent was obtained after she opted for medical termination of pregnancy. The autopsy confirmed all the above mentioned ultrasound features. **CONCLUSIONS:** Pentology of Cantrell (POC) is an extremely rare and complex syndrome of numerous fetal anomalies but should always be borne in the mind during the ultrasound evaluation of either of an omphalocele, ectopia cordis, distal sternal defect, pericardial defect, anterior diaphragmatic defect or intracardiac anomalies. Ultrasound is a valuable, safe, nonionizing, cost effective, widely available, and easily reproducible imaging tool for diagnosis of POC. Ultrasound should always be the primary mode of diagnosis in POC because although Magnetic resonance imaging (MRI) can help in better delineation of fetal anomalies, it does not significantly alter the course of the pregnancy or the management of POC.

**176** Natarajan, K., Abraham, P., Kota, R. and Selvakumar, D.

Aminoguanidine pretreatment prevents methotrexate-induced small intestinal injury in the rat by attenuating nitrosative stress and restoring the activities of vital mitochondrial enzymes


**Address:** Department of Biochemistry, Christian Medical College, Bagayam, Vellore, Tamil Nadu. Department of Biochemistry, Christian Medical College, Bagayam, Vellore 632002, Tamil Nadu. Department of Pathology, Madha Medical College, Thandalam, Kovur, Chennai, Tamil Nadu.

**BACKGROUND:** One of the major toxic side effects of methotrexate (MTX) is enterocolitis, for which there is no efficient standard treatment. Nitric oxide overproduction has been reported to play an important role in MTX-induced mucositis. This study was designed to investigate whether pretreatment with aminoguanidine (AG) - a selective iNOS inhibitor - prevents MTX-induced mucositis in rats.

**METHODS:** Rats were pretreated with AG (30 and 50 mg/kg body weight) i.p. daily 1 h before MTX (7 mg/kg body weight) administration for 3 consecutive days. After the final dose of MTX, the rats were killed, and the small intestines were used for analysis. **RESULTS:** The small intestines of MTX-treated rats showed moderate to severe injury. Pretreatment with AG had a dose-dependent protective effect on MTX-induced mucositis. AG pretreatment reduced iNOS protein levels, mucosal nitric oxide levels, and protein tyrosine nitration. AG pretreatment also restored the activities of electron transport chain (ETC) complexes, vital tricarboxylic acid (TCA cycle) enzymes, and mitochondrial antioxidant enzymes.

**CONCLUSIONS:** These findings suggest that AG is beneficial in ameliorating MTX-induced enteritis in rats.

**177** Nemani, S., Agrawal, B., Danda, S. and George, B.

Gaucher Disease Presenting in an Adult with Intracerebral Bleed

J Assoc Physicians India; 2017, 65 (4): 89-90
**Address:** Department of Clinical Hematology, Department of Pathology, Department of Medical Genetics, Christian Medical College and Hospital, Vellore, Tamil Nadu.

Gaucher disease (GD) is the most common lysosomal storage disorder, caused by deficiency of acid beta glucosidase. GD usually presents in children but occasional cases can present in adulthood. Here we report a case of type I GD in a 37 year old female who presented with intracerebral bleed due to long standing thrombocytopenia. She underwent splenectomy in view of limited resources for enzyme replacement therapy. With splenectomy her platelet counts normalised and neurological status also improved.

172 Nirmal, B.

Dermatoscopy Image Characteristics and Differences among Commonly Used Standard Dermatoscopes

*Indian Dermatol Online J; 2017, 8 (3): 233-234*

**Address:** Department of Dermatology, Christian Medical College, Vellore, Tamil Nadu, India.

173 Panda, A.

What's inside

*Indian J Urol; 2017, 33 (2): 99-100*

**Address:** Department of Urology, Christian Medical College, Vellore, Tamil Nadu, India.

174 Panda, A.

Revisiting prostate cancer: Can we separate the wheat from the chaff?

*Indian J Urol; 2017, 33 (2): 97-98*

**Address:** Associate Editor, Indian Journal of Urology, Department of Urology, Christian Medical College, Vellore, Tamil Nadu, India.


Does MRI help in the pre-operative evaluation of pelvic fracture urethral distraction defect? - A pilot study

*Int Braz J Urol; 2017, 43 (1): 127-133*

**Address:** Department of Urology, Christian Medical College and Hospital, Vellore, Tamil Nadu, India. Department of Radiology, Christian Medical College and Hospital, Vellore, Tamil Nadu, India. Department of Biostatistics, Christian Medical College and Hospital, Tamil Nadu, India.

**OBJECTIVES:** To study the usefulness of MRI in preoperative evaluation of PFUDD. Can MRI provide

**PMID:**

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- 28469294
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- 28124535
additional information on urethral distraction defect (UDD) and cause of erectile dysfunction (ED)?

MATERIALS AND METHODS: In this prospective study, consecutive male patients presenting with PFUDD were included from Feb 2011 till Dec 2012. Those with traumatic spinal cord injury and pre-existing ED were excluded. Patients were assessed using IIEF questionnaire, retrograde urethrogram and micturating cystourethrogram (RGU+MCU) and MRI pelvis. Primary end point was erectile function and secondary end point was surgical outcome. RESULTS: Twenty patients were included in this study. Fourteen patients (70%) were <=40 years; fifteen patients (75%) had ED, seven patients (35%) had severe ED. MRI findings associated with ED were longer median UDD (23mm vs. 15mm, p=0.07), cavernosal injury (100%, p=0.53), rectal injury (100%, p=0.53), retrospubic scarring (60%, p=0.62) and prostatic displacement (60%, p=0.99). Twelve patients (60%) had a good surgical outcome, five (25%) had an acceptable outcome, three (15%) had a poor outcome. Poor surgical outcome was associated with rectal injury (66.7%, p=0.08), cavernosal injury (25%, p=0.19), retrospubic scarring (18.1%, p=0.99) and prostatic displacement (16.7%, p=0.99). Five patients with normal erections had good surgical outcome. Three patients with ED had poor outcome (20%, p=0.20). CONCLUSIONS: MRI did not offer significant advantage over MCU in the subgroup of men with normal erections. Cavernosal injury noted on MRI strongly correlated with ED. Role of MRI may be limited to the subgroup with ED or an inconclusive MCU.

Panwar, J., Mathew, A. and Thomas, B. P.

Cystic lesions of peripheral nerves: Are we missing the diagnosis of the intraneural ganglion cyst?

World J Radiol; 2017, 9 (5): 230-244

Address: Jyoti Panwar, Department of Radiology, Christian Medical College, Vellore 632004, India.

AIM: To highlight the salient magnetic resonance imaging (MRI) features of the intraneural ganglion cyst (INGC) of various peripheral nerves for their precise diagnosis and to differentiate them from other intra and extra-neural cystic lesions. METHODS: A retrospective analysis of the magnetic resonance (MR) images of a cohort of 245 patients presenting with nerve palsy involving different peripheral nerves was done. MR images were analyzed for the presence of a nerve lesion, and if found, it was further characterized as solid or cystic. The serial axial, coronal and sagittal MR images of the lesions diagnosed as INGC were studied for their pattern and the anatomical extent along the course of the affected nerve and its branches. Its relation to identifiable anatomical landmarks, intra-articular communication and presence of denervation changes in the muscles supplied by involved nerve was also studied. RESULTS: A total of 45 cystic lesions in the intra or extraneural locations of the nerves were identified from the 245 MR scans done for patients presenting with nerve palsy. Out of these 45 cystic lesions, 13 were diagnosed to have INGC of a peripheral nerve on MRI. The other cystic lesions included extraneural ganglion cyst, paralabral cyst impinging upon the suprascapular nerve, cystic schwannoma and nerve abscesses related to Hansen's disease involving various peripheral nerves. Thirteen lesions of INGC were identified in 12 patients. Seven of these affected the common peroneal nerve with one patient having a bilateral involvement. Two lesions each were noted in the tibial and suprascapular nerves, and one each in the obturator and proximal sciatic nerve. An intra-articular connection along the articular branch was demonstrated in 12 out of 13 lesions. Varying stages of denervation atrophy of the supplied muscles of the affected nerves were seen in 7 cases. Out of these 13 lesions in 12 patients, 6 underwent surgery.

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### CONCLUSION:

INGC is an important cause of reversible mono-neuropathy if diagnosed early and surgically treated. Its classic MRI pattern differentiates it from other lesions of the peripheral nerve and aid in its therapeutic planning. In each case, the joint connection has to be identified preoperatively, and the same should be excised during surgery to prevent further cyst recurrence.

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<th>177</th>
<th>Peedicayil, J.</th>
<th>Epigenetics and developmental psychiatry</th>
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<th>178</th>
<th>Peedicayil, J.</th>
<th>The role of epigenetics in social psychiatry</th>
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**BACKGROUND:**

Epigenetics refers to the study of heritable changes in gene expression not involving changes in DNA sequence and is presently an active area of research in biology and medicine. There is increasing evidence that epigenetics is involved in the pathogenesis of psychiatric disorders.

**AIMS AND METHODS:**

Several studies conducted to date have suggested that psychosocial factors act by modifying epigenetic mechanisms of gene expression in the brain in the pathogenesis of psychiatric disorders. Such studies have been conducted both on brain tissues and also using peripheral tissues as substitutes for brain tissues. This article reviews such studies.

**RESULTS AND CONCLUSION:**

Epigenetic mechanisms of gene expression in the brain appear to link one individual with another in the context of social psychiatry. Epigenetics appears to be of major importance to the field of social psychiatry.

<table>
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<tr>
<th>179</th>
<th>Philip, S. S.</th>
<th>Setting up of a cerebral visual impairment clinic for children: Challenges and future developments</th>
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<tbody>
<tr>
<td></td>
<td>Indian J Ophthalmol; 2017, 65 (1): 30-34</td>
<td>Address: Department of Ophthalmology, Cerebral Visual Impairment Clinic, Christian Medical College and Hospital, Vellore, Tamil Nadu, India.</td>
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**AIM:**

The aim of this study is to describe the setting up of a cerebral visual impairment (CVI) clinic in a tertiary care hospital in South India and to describe the spectrum of cases seen.

**MATERIALS AND METHODS:**

The CVI clinic, set up in February 2011, receives interdisciplinary input from a core team involving a pediatrician, neurologist, psychiatrist, occupational therapist, pediatric ophthalmologist, and an
optometrist. All children, <18 years of age, with cerebral palsy (CP), learning disability, autism, neurodegenerative diseases, and brain trauma are referred to the clinic for functional vision assessment and opinion for further management. **RESULTS:** One thousand four hundred and seventy-eight patients were seen in the CVI clinic from February 2011 to September 2015. Eighty-five percent of the patients were from different parts of India. In the clinic, 61% had CP, 28% had seizure disorders, autism was seen in 9.5%, and learning disability, neurodegenerative conditions, and brain injury together constituted 1.5%. Most of the children (45%) had moderate CP. Forty percent of CVI was due to birth asphyxia, but about 20% did not have any known cause for CVI. Seventy percent of patients, who came back for follow-up, were carrying out the habilitation strategies suggested. **CONCLUSIONS:** Average attendance of over 300 new patients a year suggests a definite need for CVI clinics in the country. These children need specialized care to handle their complex needs. Although difficult to coordinate, an interdisciplinary team including the support groups and voluntary organizations is needed to facilitate the successful implementation of such specialized service.

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<th>180</th>
<th>Philip, S. S., Kuriakose, T. and Chacko, G.</th>
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<tr>
<td>Successful surgical management of bilateral epiretinal membrane in a child with only cafe-au-lait spots</td>
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<td>Indian J Ophthalmol; 2017, 65 (6): 531-533</td>
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**Address:** Department of Ophthalmology, Christian Medical College and Hospital, Vellore, Tamil Nadu, South India.
Department of Pathology, Christian Medical College and Hospital, Vellore, Tamil Nadu, South India.

A 6-year-old boy diagnosed as anisometropic amblyopia, with only cafe-au-lait spots and a family history of neurofibromatosis, presented with decrease in vision in the both eyes. Dilated fundus examination showed epiretinal membrane in both eyes over the macula. He underwent successful surgical management of the epiretinal membrane.

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<tr>
<th>181</th>
<th>Phukan, C., George, A. J. P., Chandrasingh, J. and Devasia, A.</th>
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<tr>
<td>Surgical revascularization of bilateral renal artery stenosis due to fibromuscular dysplasia</td>
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<td>Urol Ann; 2017, 9 (2): 188-191</td>
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**Address:** Department of Urology, Christian Medical College, Vellore, Tamil Nadu, India.

Fibromuscular dysplasia (FMD) is a noninflammatory disease affecting small- and medium-sized arteries of the renal and the carotids. It affects the renal arteries in nearly 60%-75% cases. The primary clinical manifestation of renal FMD is hypertension. Medial fibroplasia represents the most common dysplastic lesion. We report two cases who presented with hypertension and renal insufficiency and on evaluation was found to have bilateral renal artery stenosis. Stenting of the renal vessels was not possible due to the narrowed caliber of the vessel and inability to cannulate the renal arteries. They underwent renal artery revascularization with a splenorenal end to end anastomosis. The renal parameters and blood pressure of both the patients stabilized subsequently. Renal revascularization can be a good option for patient having...
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<td>28216930</td>
<td>Can we predict the need for intervention in steinstrasse following shock wave lithotripsy?</td>
<td>Phukan, C., Nirmal, T. J., Wann, C. V., Chandrasingh, J., Kumar, S., Kekre, N. S. and Devasia, A.</td>
<td>Department of Urology, Christian Medical College, Vellore, Tamil Nadu, India.</td>
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<td>27566696</td>
<td>Randomized double-blind placebo controlled study of preinduction cervical priming with 25 microg of misoprostol in the outpatient setting to prevent formal induction of labour</td>
<td>Ponmalar, J., Benjamin, S. J., Abraham, A., Rathore, S., Jeyaseelan, V. and Mathews, J. E.</td>
<td>Department of Obstetrics and Gynaecology Unit V, Christian Medical College, Ida Scudder Road, Vellore, 632 004, India. Department of Biostatistics, Christian Medical College, Ida Scudder Road, Vellore, 632 004, India. Department of Obstetrics and Gynaecology Unit V, Christian Medical College, Ida Scudder Road, Vellore, 632 004, India. <a href="mailto:coronistrial@yahoo.co.in">coronistrial@yahoo.co.in</a></td>
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<td><strong>Ponmalar, R., Manickam, R., Ganesh, K. M., Saminathan, S., Raman, A. and Godson, H. F.</strong></td>
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<td>Dosimetric characterization of optically stimulated luminescence dosimeter with therapeutic photon beams for use in clinical radiotherapy measurements</td>
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<td>J Cancer Res Ther; 2017, 13 (2): 304-312</td>
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<td><strong>AIM:</strong> The modern radiotherapy techniques impose new challenges for dosimetry systems with high precision and accuracy in vivo and in phantom dosimetric measurements. The knowledge of the basic characterization of a dosimetric system before patient dose verification is crucial. This incites the investigation of the potential use of nanoDot optically stimulated luminescence dosimeter (OSLD) for application in radiotherapy with therapeutic photon beams. <strong>MATERIALS AND METHODS:</strong> Measurements were carried out with nanoDot OSLDs to evaluate the dosimetric characteristics such as dose linearity, dependency on field size, dose rate, energy and source-to-surface distance (SSD), reproducibility, fading effect, reader stability, and signal depletion per read out with cobalt-60 (60 Co) beam, 6 and 18 MV therapeutic photon beams. The data acquired with OSLDs were validated with ionization chamber data where applicable. <strong>RESULTS:</strong> Good dose linearity was observed for doses up to 300 cGy and above which supralinear behavior. The standard uncertainty with field size observed was 1.10% +/- 0.4%, 1.09% +/- 0.34%, and 1.2% +/- 0.26% for 6 MV, 18 MV, and 60 Co beam, respectively. The maximum difference with dose rate was 1.3% +/- 0.4% for 6 MV and 1.4% +/- 0.4% for 18 MV photon beams. The largest variation in SSD was 1.5% +/- 1.2% for 60 Co, 1.5% +/- 0.9% for 6 MV, and 1.5% +/- 1.3% for 18 MV photon beams. The energy dependence of OSL response at 18 MV and 60 Co with 6 MV beam was 1.5% +/- 0.7% and 1.7% +/- 0.6%, respectively. In addition, good reproducibility, stability after the decay of transient signal, and predictable fading were observed. <strong>CONCLUSION:</strong> The results obtained in this study indicate the efficacy and suitability of nanoDot OSLD for dosimetric measurements in clinical radiotherapy.</td>
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<td>Response of Nanodot Optically Stimulated Luminescence Dosimeters to Therapeutic Electron Beams</td>
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<td><strong>Response of Al2O3:C-based nanoDot optically stimulated luminescence (OSL) dosimeter was studied for the dosimetry of 6, 9, 12, 16, and 20 MeV therapeutic electron beams. With reference to ionization chamber, no change in the response was observed with the change in the energy of electron beams for</strong></td>
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**INT – INTERNATIONAL; NAT – NATIONAL; PMID: PUBMED ID; PMCID: PUBMED CENTRAL ID**
the field size from 6 cm x 6 cm to 25 cm x 25 cm, dose rates from 100 MU/min to 600 MU/min, and the linearity in the response up to 300 cGy. The fading of the transient signal was higher for 20 MeV electron beam than that of 6 MeV electron beam by about 5% as compared to value at 20 min after irradiation. The depletion of OSL signal per readout in 200 successive readouts was also found to change with dose and energy of electron beam from 6 MeV (9% and 12% per readout at 2 and 10 Gy, respectively) to 20 MeV (9% and 16% at 2 and 10 Gy, respectively). The OSL sensitivity changed in the range from 2% to 6% with accumulated doses from 2 to 8 Gy and with electron energy from 6 to 20 MeV, but the sensitivity could be reset using an optical annealing treatment. Although negligible fading for postirradiation storage from 20 min to several months, acceptable precision and linearity in the desired range, and high reproducibility makes nanoDot dosimeters very attractive for the dosimetry of therapeutic electron beams, a note should be made for changes in sensitivity at doses beyond 2 Gy and electron beams energy dependence in reuse, short-term fading, and signal depletion on repeated readout.

Episodic replacement of clotting factor concentrates does not prevent bleeding or musculoskeletal damage - the MUSFIH study

Haemophilia; 2017,

Address: Christian Medical College, Vellore, India. Hospital das Clinicas da Faculdade de Medicina USP, Sao Paulo, Brazil. Groote Schuur Hospital, Capetown, South Africa. Shabrawishi Hospital, Cairo, Egypt. Instituto de Investigaciones Hematologicas, National Academy of Medicine, Buenos Aires, Argentina. INCT do Sangue Hemocentro UNICAMP, University of Campinas, Campinas, SP, Brazil. Banco Municipal de Sangre, Caracas, Venezuela. Comprehensence Haemophilia Care Centre, Teheran, Iran. Singapore General Hospital, Singapore, Singapore. Ramathibodi Hospital, Bangkok, Thailand. Stellenbosch University and Tygerberg Hospital, Capetown, South Africa. Tarbiat Modares University, Tehran, Iran. KK Women’s and Children’s Hospital, Singapore, Singapore.

PATIENTS AND METHODS: A longitudinal study was carried out in 255 children from 10 centres in nine developing countries over 5 years to assess the musculoskeletal outcome of children on episodic factor replacement. Outcome was documented by assessment of the annual joint bleeding rate (AJBR), WFH clinical and Pettersson radiological joint scores as well as the FISH score for activities. Of the 203 patients for whom data was available at the end of 5 years, 164 who had received only episodic treatment are included in this report. RESULTS: The median age at the beginning of the study was 10 years (IQR 7-12). The median clotting factor concentrate (CFC) usage was 662 IU kg-1 year-1 (IQR range: 280-1437). The median AJBR was 10 (IQR range: 5-17). The median AJBR was higher in the older children with the median being 5 for the 5 year old child, while it was 9 for the 10 year old and 11 for children older than 15. Given the episodic nature of the replacement therapy, those with a higher AJBR used significantly greater annual CFC doses (P < 0.001); The median change in WFH clinical score and Pettersson radiological score over the 5 years was 0.4/year for each, while the FISH deteriorated at a rate of 0.2/year with poor correlation
of these changes with CFC dose. WFH and FISH scores were significantly worse in those with an AJBR of >3 per year (P = 0.001). The change in the Pettersson score was significantly more in those with an AJBR of >5 per year (P = 0.020). Significant changes in FISH scores were only noted after 10 years of age.

**CONCLUSION:** Episodic CFC replacement over a large range of doses does not alter the natural course of bleeding in haemophilia or the musculoskeletal deterioration and should not be recommended as a long term option for treatment. Prophylaxis is the only way to preserve musculoskeletal function in haemophilia.

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Comparison of monocyte gene expression among patients with neurocysticercosis-associated epilepsy, Idiopathic Epilepsy and idiopathic headaches in India


**Address:** Department of Neurological Sciences, Christian Medical College, Vellore, India.
Dept. of Internal Medicine, University of Oklahoma HSC, and the VA Medical Center, Oklahoma City, United States of America. Dept. of Biostatistics and Epidemiology, University of Oklahoma HSC, Oklahoma City, United States of America. Dept. of Biochemistry and Dept. of Surgery, University of Oklahoma HSC, Oklahoma City, United States of America.

**BACKGROUND:** Neurocysticercosis (NCC), a neglected tropical disease, inflicts substantial health and economic costs on people living in endemic areas such as India. Nevertheless, accurate diagnosis using brain imaging remains poorly accessible and too costly in endemic countries. The goal of this study was to test if blood monocyte gene expression could distinguish patients with NCC-associated epilepsy, from NCC-negative imaging lesion-free patients presenting with idiopathic epilepsy or idiopathic headaches.

**METHODS/PRINCIPAL FINDINGS:** Patients aged 18 to 51 were recruited from the Department of Neurological Sciences, Christian Medical College and Hospital, Vellore, India, between January 2013 and October 2014. mRNA from CD14+ blood monocytes was isolated from 76 patients with NCC, 10 Recovered NCC (RNCC), 29 idiopathic epilepsy and 17 idiopathic headaches patients. A preliminary microarray analysis was performed on six NCC, six idiopathic epilepsy and four idiopathic headaches patients to identify genes differentially expressed in NCC-associated epilepsy compared with other groups. This analysis identified 1411 upregulated and 733 downregulated genes in patients with NCC compared to Idiopathic Epilepsy. Fifteen genes up-regulated in NCC patients compared with other groups were selected based on possible relevance to NCC, and analyzed by qPCR in all patients’ samples. Differential gene expression among patients was assessed using linear regression models. qPCR analysis of 15 selected genes showed generally higher gene expression among NCC patients compared with other groups were selected based on possible relevance to NCC, and analyzed by qPCR in all patients’ samples. Differential gene expression among patients was assessed using linear regression models. qPCR analysis of 15 selected genes showed generally higher gene expression among NCC patients compared with other groups.

**CONCLUSIONS/SIGNIFICANCE:** Expression of certain genes in blood monocytes can distinguish patients with NCC-related epilepsy from patients with active Idiopathic Epilepsy and idiopathic headaches. These findings are significant because they may lead to the development of new tools to screen for and monitor NCC patients without brain imaging.
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Molecular Mechanisms of Colistin Resistance in Klebsiella pneumoniae Causing Bacteremia from India-A First Report

**Address:** Department of Clinical Microbiology, Christian Medical College Vellore, India. Department of Microbiology, Molecular Genetics and Immunology, University of Kansas Medical Centre Kansas, KS, USA. Department of Haematology, Christian Medical College Vellore, India. Department of Nephrology, Christian Medical College Vellore, India.

Colistin has long been a reserve drug used for the treatment of carbapenem resistant Klebsiella pneumoniae. Carbapenem resistance in K. pneumoniae has been increasing and is as high as 44% in India. Although a reserve agent, with rise in rates of resistance to carbapenems, the usage of colistin has increased over the years leading to slow emergence of resistance. Colistin resistance is mainly mediated by the alteration in the LPS of bacterial outer membrane with the addition of L-Ara4-N and PEtN molecules. These alterations are mediated by mutations in several genes involved in lipidA modifications and most commonly mutations in mgrB gene has been reported. Recently there is emergence of plasmid mediated resistance due to mcr-1 and mcr-2 genes which poses a threat for the rapid global spread. This study aims at characterizing eight colistin resistant K. pneumoniae from bacteremia by whole genome sequencing. Eight K. pneumoniae were isolated from blood culture during 2013 and 2014 at the Department of Clinical Microbiology, Christian Medical College, India. Antimicrobial susceptibility testing was performed and minimum inhibitory concentration (MIC) was determined for colistin and polymyxin B by broth-micro dilution method. Whole genome sequencing was performed using Ion Torrent and the genome of all eight isolates was analyzed. The eight isolates were resistant to all the antimicrobials expect tigecycline. MIC of colistin and polymyxin B were ranged from 4 to 1024 mug/ml and 0.5 to 2048 mug/ml respectively. Multiple mutations were observed in the chromosomal genes involved in lipid A modifications. mcr-1 and mcr-2 gene was absent in all the isolates. The most significant were mutations in mgrB gene. Among the eight isolates, four, three and one were belonged to sequence types ST 231, ST14 and ST147 respectively. Seven isolates had blaOXA-48 like, one co-expressed blaNDM-1 and blaOXA-48 like genes leading to carbapenem resistance. Overall, multiple numbers of alterations have been observed. This includes silent mutations, point mutations, insertions and/or deletions. Mutations in mgrB gene is responsible for resistance to colistin in this study. Due to emergence of resistance to reserve drugs, there is a need for combination therapies for carbapenem resistant K. pneumoniae and colistin must be judiciously used.

### 189


Strengths and limitations of various screening methods for carbapenem-resistant Enterobacteriaceae including new method recommended by clinical and laboratory standards institute, 2017: A tertiary care experience

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**INT – INTERNATIONAL; NAT – NATIONAL; PMID: PUBMED ID; PMCID: PUBMED CENTRAL ID**
Carbapenemase-mediated carbapenem resistance is a major concern across the world. Rapid detection of carbapenemase-producing organisms is of great importance in clinical settings. However, it is essential to have a test with good sensitivity and specificity. The aim of the study was to compare the performance of RAPIDEC(R) CARBA NP and modified carbapenem inactivation method (mCIM) recommended by Clinical and Laboratory Standards Institute guideline 2017. A total of ninety carbapenem resistant Escherichia coli and Klebsiella pneumoniae have been tested. The presence of various carbapenemases was screened by conventional multiplex polymerase chain reaction. RAPIDEC(R) CARBA NP detected 90%, whereas mCIM detected 99% of the study isolates tested. Although RAPIDEC(R) CARBA NP is a rapid test, the sensitivity is reduced for blaOxa-48-like detection; while mCIM could pick up blaOxa-48-like enzymes with excellent sensitivity. Further, organisms producing low carbapenemase activity enzymes, thickness of the inoculum and the disc potency are likely to influence the test results of mCIM with an overnight delay.

Covalently immobilized VEGF-mimicking peptide with gelatin methacrylate enhances microvascularization of endothelial cells

Acta Biomater; 2017, 51 330-340

Clinically usable tissue-engineered constructs are currently limited due to their inability of forming microvascular networks necessary for adequate cellular oxygen and nutrient supply upon implantation. The aim of this study is to investigate the conditions necessary for microvascularization in a tissue-engineered construct using vascular endothelial growth factor (VEGF). The construct was made of gelatin methacrylate (GelMA) based cell-laden hydrogel system, which was then covalently linked with VEGF-mimicking peptide (AcQK), using human umbilical vein endothelial cells (HUVECs) as the model cell. The results of the mechanics and gene expression analysis indicated significant changes in mechanical properties and upregulation of vascular-specific genes. The major finding of this study is that the increased expression of vascular-specific genes could be achieved by employing AcQK in the GelMA based hydrogel system, leading to accelerated microvascularization. We conclude that GelMA with covalently-
linked angiogenic peptide is a useful tissue engineered construct suitable for microvascularization. STATEMENT OF SIGNIFICANCE: (1) This study reports the conditions necessary for microvascularization in a tissue-engineered construct using vascular endothelial growth factor (VEGF). (2) The construct was made of gelatin methacrylate based cell-laden hydrogel system. (3) There is a significant change observed in mechanical properties and upregulation of vascular-specific genes, in particular CD34, when AcQK is used. (4) The major finding of this study is that the increased expression of vascular-specific genes, i.e., CD34 could be achieved by employing AcQK in the GelMA based hydrogel system, leading to accelerated microvascularization.

191 Prakash, S. S. and Soundrarajan, J.
Advising residents on how to present an article in a journal club
Address: Department of Biochemistry, Christian Medical College, Vellore, India. Department of Library Services, Christian Medical College, Vellore, India.

Quality of Antenatal Care Provided by Nurse Midwives in an Urban Health Centre with Regard to Low-Risk Antenatal Mothers
Indian J Community Med; 2017, 42 (1): 37-42
Address: Low Cost Effective Care Unit, Department of Community, College of Nursing, Christian Medical College, Vellore, Tamil Nadu, India. Family Medicine, College of Nursing, Christian Medical College, Vellore, Tamil Nadu, India. Department of Community Health Nursing, College of Nursing, Christian Medical College, Vellore, Tamil Nadu, India.

BACKGROUND: India contributes to 19% of the global maternal deaths. Good quality antenatal care can prevent maternal deaths by early detection of complications and maintaining maternal health. There are few studies documenting quality of antenatal care in India. This study aimed to document the antenatal services provided by nurse midwives to low-risk pregnant mothers from an urban population. AIMS: The primary objective was to describe the quality of the antenatal care provided by nurse midwives of an urban health centre with regard to low-risk mothers. The secondary objective was to document the maternal and early neonatal outcomes of the enrolled mothers during the period of study. METHODS: This prospective cohort study was done on 200 pregnant women who had antenatal care by nurse midwives between April 2014 and November 2014. The quality of care was assessed by a checklist adapted from World Health Organization (WHO). RESULTS: We report that the quality of antenatal care for all domains was above 90% except for the health education domain, which was poor with regard to breastfeeding and family planning in the enrolled 200 pregnant women. CONCLUSION: Our study concluded that trained nurse midwives when regularly monitored, audited and linked with reliable referral facilities can deliver good quality antenatal care.
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<td><strong>Address:</strong></td>
<td>Wellcome Trust Research Laboratory, Christian Medical College, Vellore, India.</td>
<td>Inflammatory bowel disease (IBD) is characterized by multigenic inheritance. Defects in autophagy related genes are considered to show genetic heterogeneity between populations. We evaluated the association of several single nucleotide polymorphisms (SNPs) in the autophagy related 16 like 1 (ATG16L1) gene with IBD in Indians. The ATG16L1 gene was genotyped for ten different SNPs using DNA extracted from peripheral blood of 234 patients with Crohn’s disease (CD), 249 patients with ulcerative colitis (UC) and 393 healthy controls. The SNPs rs2241880, rs4663396, rs3792106, rs10210302, rs3792109, rs2241877, rs6737398, rs11682898, rs4663402 and rs4663421 were genotyped using the Sequenom MassArray platform. PLINK was used for the association analysis and pairwise linkage disequilibrium (LD) values. Haplotype analysis was done using Haploview. All SNPs were in Hardy Weinberg equilibrium in cases and controls. The G allele at rs6737398 exhibited a protective association with both CD and UC. The T allele at rs4663402 and C allele at rs4663421 were positively associated with CD and UC. The T allele at rs2241877 exhibited protective association with UC only. The AA genotype at rs4663402 and the GG genotype at rs4663421 were positively associated with both CD and UC. Haplotype analysis revealed that all the SNPs in tight LD (D' = 0.76-1.0) and organized in a single haplotype block. Haplotype D was positively associated with IBD (P = 5.8 x 10^-6 for CD and 0.002 for UC). SNPs in ATG16L1 were associated with IBD in Indian patients. The relevance to management of individual patients requires further study.</td>
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<td>CMCSLPF2017_JANTOJUN_194</td>
<td>Putta, T., Irodi, A., Thangakunam, B. and Oliver, A.</td>
<td>Author’s reply</td>
<td>Indian J Radiol Imaging; 2017, 27 (1): 111</td>
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<td><strong>Address:</strong></td>
<td>Department of Radiology, Christian Medical College, Vellore, Tamil Nadu, India. E-mail: <a href="mailto:tharaniputta@gmail.com">tharaniputta@gmail.com</a>.</td>
<td>Department of Pulmonary Medicine, Christian Medical College, Vellore, Tamil Nadu, India.</td>
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We evaluated the novel application of supracutaneous locked plates in pediatric open tibia fractures. Pediatric open tibia fractures stabilized with a locked supracutaneous plate from January 2011 to December 2014 were reviewed. Twenty-eight children, mean age 8.9 years, with 29 open tibia fractures were included. Nine of these children who had metaphyseal or metadiaphyseal fractures did not require joint spanning. The mean follow-up duration was 13.5 months. The mean time to uneventful union was 11.46 weeks, with no unacceptable malunion. Supracutaneous locked plates showed early union and no refractures. They could favorably replace tubular external fixators in stabilizing pediatric open tibia fractures.

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<th>196</th>
<th>Radhakrishnan, R. C., Basu, G., George, R. E., Parmar, H. and Tamilarasi, V.</th>
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<tr>
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<td>Rituximab-induced urticarial dermatitis during the treatment of membranous nephropathy</td>
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<td><strong>Address:</strong> Department of Nephrology, Christian Medical College, Vellore, Tamil Nadu, India. Department of General Pathology, Christian Medical College, Vellore, Tamil Nadu, India.</td>
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<td>Rituximab is a monoclonal antibody directed against B cells and is being increasingly used for various renal indications. Acute dermatologic manifestations such as urticaria are well known to occur during rituximab infusion. Here, we report the case of a 53-year-old female who was treated with rituximab for membranous nephropathy and developed an exanthematous rash, which progressed with a further dose of rituximab and was diagnosed as urticarial dermatitis. A review of literature showed that urticarial dermatitis following rituximab therapy has been seldom reported and identification of this complication is very important to avoid giving further doses and thus, increasing the severity of lesions.</td>
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<td>Genital Human Papillomavirus Infection in Indian HIV-Seropositive Men Who Have Sex With Men</td>
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<td>Sex Transm Dis; 2017, 44 (3): 173-180</td>
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<td><strong>Address:</strong> From the *Department of Clinical Virology, Christian Medical College, Vellore, India; daggerDepartment of Medicine, University of California, San Francisco; double daggerDepartment of Biostatistics, University of Arkansas for Medical Sciences, Little Rock, AR; section signDepartment of Medicine, Christian Medical College, Vellore, India; and paragraph signThe Humsafar Trust, Mumbai, India.</td>
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|     | **BACKGROUND:** The incidence of penile cancer in Indian men is high. Little is known about genital human papillomavirus (HPV) infection in Indian HIV-seropositive men who have sex with men (MSM), a population that may be at particularly high risk for genital HPV infection and, potentially, penile cancer. In this study, we assessed the prevalence and risk factors for genital HPV infection in this population. **DESIGN AND METHODS:** Three hundred HIV-seropositive MSM were recruited from 2 clinical sites in India. They were tested for genital HPV infection using L1 HPV DNA polymerase chain reaction with probes specific for 29 types and a mixture of 10 additional types. Participants received an interviewer-
administered questionnaire that included questions on demographics and behaviors. **RESULTS:** Human papillomavirus data were available from 299 participants. The prevalence of any HPV type in the penis and scrotum was 55% and 54%, respectively. Human papillomavirus type 35 was the most common oncogenic HPV type followed by HPV-16. In multivariate analysis, being the insertive partner with 100+ male partners increased the odds of any penile HPV infection compared with not being insertive with any partners (odds ratio, 2.5; 95% confidence interval, 1.3-5.1). Circumcision was protective against penile HPV infection (odds ratio, 0.39; 95% confidence interval, 0.19-0.76). **CONCLUSIONS:** The prevalence of penile and scrotal HPV infection was high among Indian HIV-seropositive MSM. The most common oncogenic HPV type in this population, HPV-35, is not included in any currently available HPV vaccines. Insertive anal sex with men and lack of circumcision were the primary risk factors for penile HPV infection in this population.

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<td>198</td>
<td>Rajagopal, R. and Gupta, A.</td>
<td>Transcranial Doppler flow patterns in brain death: &quot;Storm before the calm&quot;</td>
<td>Neurol India; 2017, 65 (3): 671-672</td>
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## CMC Scientific Research Publication for the Year 2017 (January to June)

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<th>Title</th>
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<td>Prevalence and genetic mechanisms of antimicrobial resistance in Staphylococcus species: A multicentre report of the Indian council of medical research antimicrobial resistance surveillance network</td>
<td>Rajkumar, S., Sistla, S., Manoharan, M., Sugumar, M., Nagasundaram, N., Parija, S. C., Ray, P., Bakthavatchalam, Y. D., Veeraraghavan, B., Kapil, A., Walia, K. and Ohri, V. C.</td>
<td>Address: Department of Microbiology, Jawaharlal Institute of Postgraduate Medical Education and Research, Puducherry, India. Department of Microbiology, Postgraduate Institute of Medical Education and Research, Chandigarh, India. Department of Microbiology, Christian Medical College, Vellore, Tamil Nadu, India. Department of Microbiology, All India Institute of Medical Sciences, New Delhi, India. Division of Epidemiology and Communicable Diseases, Indian Council of Medical Research, New Delhi, India.</td>
<td>28303819</td>
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<td>Faecal microbiota of healthy adults in south India: Comparison of a tribal &amp; a rural population</td>
<td>Ramadass, B., Rani, B. S., Pugazhendhi, S., John, K. R. and Ramakrishna, B. S.</td>
<td>Address: Department of Gastrointestinal Sciences, Christian Medical College, Vellore, India. Department of Community Health, Christian Medical College, Vellore; Institute of Gastroenterology, SRM</td>
<td>28639601</td>
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**Purpose:** Routine surveillance of antimicrobial resistance (AMR) is an essential component of measures aimed to tackle the growing threat of resistant microbes in public health. This study presents a 1-year multicentre report on AMR in Staphylococcus species as part of Indian Council of Medical Research-AMR surveillance network. **Materials and Methods:** Staphylococcus species was routinely collected in the nodal and regional centres of the network and antimicrobial susceptibility testing was performed against a panel of antimicrobials. Minimum inhibitory concentration (MIC) values of vancomycin (VAN), daptomycin, tigecycline and linezolid (LNZ) against selected methicillin-resistant Staphylococcus aureus (MRSA) isolates were determined by E-test and MIC creep, if any, was determined. Resistant genotypes were determined by polymerase chain reaction for those isolates showing phenotypic resistance. **Results:** The prevalence of MRSA was found to be range from moderate (21%) to high (45%) among the centres with an overall prevalence of 37.3%. High prevalence of resistance was observed with commonly used antimicrobials such as ciprofloxacin and erythromycin in all the centres. Resistance to LNZ was not encountered except for a single case. Full-blown resistance to VAN in S. aureus was not observed; however, a few VAN-intermediate S. aureus isolates were documented. The most common species of coagulase negative staphylococci (CoNS) identified was Staphylococcus haemolyticus and Staphylococcus epidermidis. Resistance among CoNS was relatively higher than S. aureus. Most phenotypically resistant organisms possessed the corresponding resistance genes. **Conclusion:** There were localised differences in the prevalence of resistance between the centres. The efficacy of the anti-MRSA antimicrobials was very high; however, almost all these antimicrobials showed evidence of creeping MIC.
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<th>Institutes for Medical Science, Chennai, India. Department of Gastrointestinal Sciences, Christian Medical College, Vellore; Institute of Gastroenterology, SRM Institutes for Medical Science, Chennai, India.</th>
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<td><strong>BACKGROUND &amp; OBJECTIVES:</strong> The relevance of the gut microbiota to human health is increasingly appreciated. The objective of this study was to compare the gut microbiota of a group of adult tribals with that of healthy adult villagers in Tamil Nadu, India. <strong>METHODS:</strong> Faeces were collected from 10 healthy tribal adults (TAs) in the Jawadhi hills and from 10 healthy villagers [rural adults (RAs)] in Vellore district, Tamil Nadu. DNA was extracted, and 456 bp segments comprising hypervariable regions 3 and 4 of the 16S rRNA gene were amplified, barcoded and 454 sequenced. <strong>RESULTS:</strong> Totally 227,710 good-quality reads were analyzed. TAs consumed a millets-based diet, ate pork every day, and did not consume milk or milk products. RAs consumed a rice-based diet with meat intake once a week. In both groups, Firmicutes was the most abundant phylum, followed by Proteobacteria, Bacteroidetes and Actinobacteria. The median Firmicutes-to-Bacteroidetes ratio was 34.0 in TA and 92.9 in RA groups. Actinobacteria were significantly low in TA, possibly due to non-consumption of milk. Clostridium constituted the most abundant genus in both groups, but was significantly more abundant in TAs than RAs, while Streptococcus was significantly more abundant in RA. Analyses of genetic distance revealed that the microbiota were distinctly different between TA and RA, and principal component analysis using 550 distinct taxonomically identifiable sequences revealed a clear separation of microbiota composition in the two groups. Phylogenetic analysis of major microbiota indicated clustering of microbial groups at different major branch points for TAs and RAs. <strong>INTERPRETATION &amp; CONCLUSIONS:</strong> Phylum Firmicutes and genus Clostridium constituted the bulk of the faecal microbiota, while significant differences in composition between the groups were probably due to differences in diet and lifestyle.</td>
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<th>Ramakrishna, K., Premkumar, K., Kabeerdoss, J. and John, K. R.</th>
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<td>Impaired toll like receptor 9 response in pulmonary tuberculosis</td>
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<td><strong>Address:</strong> Wellcome Trust Research Laboratory, Christian Medical College, Vellore 632004, India. Electronic <strong>Address:</strong> <a href="mailto:kartik_ramakrishna@hotmail.com">kartik_ramakrishna@hotmail.com</a>. Wellcome Trust Research Laboratory, Christian Medical College, Vellore 632004, India. Department of Community Health, Christian Medical College, Vellore 632004, India.</td>
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<td><strong>BACKGROUND &amp; AIM:</strong> Innate immune responses are important in susceptibility to pulmonary tuberculosis (TB). In order to test the hypothesis that Toll-like receptor (TLR) 2 function would be abnormal in patients with active pulmonary TB we compared the cytokine responses of peripheral blood mononuclear cells (PBMC) to innate immune ligands in a case-control study. <strong>METHODS:</strong> PBMC from 19 untreated pulmonary TB patients, 17 healthy controls, and 11 treated pulmonary TB patients, were cultured for 24h with TLR 2 ligand (PAM-CSK) and other TLR ligands (muramyl dipeptide, flagellin, lipopolysaccharide (LPS), Cpg oligodeoxynucleotide (CpG-ODN)). Interleukin-8 (IL-8) was estimated in the supernatant by ELISA. Messenger RNA expression for inflammatory cytokines was quantitated using real time PCR. <strong>RESULTS:</strong> The important findings were (1) reduced PBMC secretion of IL-8 in response to all ligands in active TB; (2)</td>
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| INT | JAN TO JUN | PMID:27768958 |
normal to increased PBMC secretion of IL-8 in response to all ligands except CpG ODN (TLR 9 ligand) in TB patients who had recovered; (3) absence of difference in mRNA expression for a consortium of inflammatory pathway genes between healthy controls, active pulmonary tuberculosis and treated pulmonary tuberculosis patients. **CONCLUSION:** There was a generalized post-translational suppression of the IL-8 response to innate immune ligands in active TB. There appears to be a defect of TLR 9 signaling in patients with tuberculosis, the nature of which needs to be further explored.

### 204

**Ramamoorthy, H., Abraham, P., Isaac, B. and Selvakumar, D.**

Role for NF-kappaB inflammatory signalling pathway in tenofovir disoproxil fumarate (TDF) induced renal damage in rats

**Address:** Department of Biochemistry, Christian Medical College, Bagayam, Vellore 632002, Tamil Nadu, India. Department of Biochemistry, Christian Medical College, Bagayam, Vellore 632002, Tamil Nadu, India. Electronic **Address:** premilaabraham@cmcvellore.ac.in Department of Anatomy, Christian Medical College, Bagayam, Vellore 632002, Tamil Nadu, India.

Nephrotoxicity due to tenofovir treatment of HIV patients has been reported. However, the mechanism of tenofovir nephrotoxicity is not clear. NFkappaB is an important proinflammatory transcription factor that plays a pivotal role in oxidative stress-induced inflammation. We hypothesized that NFkappaB proinflammatory signalling pathway may play a role in tenofovir induced renal damage. Renal damage was induced in adult male Wistar rats by the oral administration of 600 mg/kg body wt. daily for 5 consecutive weeks. Kidneys were removed and used for histological and biochemical analysis. The protein and mRNA expressions of NFkappaB and its target genes namely iNOS, COX-2 and TNFalpha, and its inhibitor IkappaB-alpha were analysed by immunohistochemical methods, western blot and quantitative RT PCR. NFkappaBp65 activity was determined by ELISA. The protein and mRNA expressions of NFkappaB p65, iNOS, COX-2 and TNFalpha were increased in the kidneys of TDF treated rats. The activity of NFkappaBp65 was increased by 28 fold in the nuclear fractions of the TDF treated rat kidneys. Pretreatment with melatonin, a NFkappaB inhibitor attenuated TDF induced renal damage. It is concluded that the activation of NFkappaB and its downstream proinflammatory target genes iNOS, COX-2, and TNF-alpha may contribute to the pathophysiology of TDF induced renal damage.

### 205

**Ramprasad, C., Zachariah, R., Steinhoff, M. and Simon, A.**

Parental attitudes towards influenza vaccination for children in South India

**Address:** University of Miami Miller School of Medicine, Miami, Florida, USA. chethanramprasad@gmail.com Christian Medical College, Vellore, Tamil Nadu, India. Cincinnati Children’s Hospital Medical Center, Cincinnati, Ohio, USA.

**BACKGROUND:** The rate of influenza vaccination is low for children in India. The purpose of this study is...
to assess parental attitudes towards influenza vaccination in South India. **METHODS:** Participants were parents who brought their children to the Well Baby Clinic of Christian Medical College Hospital, Vellore, India for routine immunization. Participants answered questions by written survey while waiting for their children's vaccination. **RESULTS:** A total of 456 surveys were completed (403 parents did not opt for trivalent influenza vaccination and 53 opted for influenza vaccination). The majority (53.60%) of those parents who did not accept influenza vaccination identified the lack of a doctor's recommendation as the main reason. When asked separately, many non-acceptors (44.91%) indicated that they did not believe or were not sure that the influenza vaccine was effective. Nearly all non-acceptors (92.56%) stated that they would opt for influenza vaccination if a doctor recommended it. **CONCLUSIONS:** The most common reason that parents not opting for influenza vaccination for their children was the lack of recommendation by a doctor. The results of this study suggest that recommendation by a doctor is a more important factor than belief in efficacy, cost, or convenience in parental decision-making regarding childhood influenza vaccination in India, unlike the United States where parents are less likely to follow recommendations.

**Stem cell plays a significant role in tissue engineering and regenerative medicine.** However, one of the major limitations in translation of stem cell technologies for clinical applications is limited cell survival and growth upon implantation. To address this limitation, authors have made an attempt to design polyacrylamide/alginate (PAAm/Algi) based tough hydrogel substrates and studied their impact on the survival and proliferation of human bone marrow-derived mesenchymal stem cells (hBMSCs). The PAAm/Algi hydrogel substrates have been prepared by initiator-induced free radical polymerization with mechanical properties quite similar to human soft tissues. To evaluate the efficacy of hydrogel substrates in support of cellular functions, hBMSCs were cultured on the PAAm/Algi hydrogel substrate (Gel system) and conventional tissue culture plate (TcP system) under defined conditions. The results of this study demonstrated that the cells cultured on the Gel and TcP systems showed 80-90% of cell viability throughout the period of study. The cells cultured on the Gel system showed 25% increase in proliferation after 7 days of culture, whereas the TcP system showed only an increase of 10%. These results confirm the cellular compatibility and enhanced cell proliferative nature of the hydrogel substrates, due the fact that the hydrogel substrates provided necessary microenvironmental cues to the cells as compared the conventional TcP system. The overall results suggest that the PAAm/Algi based hydrogels could be used as a potential substrate for hBMScs culture and expansion.
Organ transplantation is an effective treatment for chronic organ dysfunctioning conditions. However, a dearth of available donor organs for transplantation leads to the death of numerous patients waiting for a suitable organ donor. The potential of decellularized scaffolds, derived from native tissues or organs in the form of scaffolds has been evolved as a promising approach in tissue-regenerative medicine for translating functional organ replacements. In recent years, donor organs, such as heart, liver, lung and kidneys, have been reported to provide acellular extracellular matrix (ECM)-based scaffolds through the process called 'decellularization' and proved to show the potential of recellularization with selected cell populations, particularly with stem cells. In fact, decellularized stem cell matrix (DSCM) has also emerged as a potent biological scaffold for controlling stem cell fate and function during tissue organization. Despite the proven potential of decellularized scaffolds in tissue engineering, the molecular mechanism responsible for stem cell interactions with decellularized scaffolds is still unclear. Stem cells interact with, and respond to, various signals/cues emanating from their ECM. The ability to harness the regenerative potential of stem cells via decellularized ECM-based scaffolds has promising implications for tissue-regenerative medicine. Keeping these points in view, this article reviews the current status of decellularized scaffolds for stem cells, with particular focus on: (a) concept and various methods of decellularization; (b) interaction of stem cells with decellularized scaffolds; (c) current recellularization strategies, with associated challenges; and (iv) applications of the decellularized scaffolds in stem cell-driven tissue engineering and regenerative medicine. Copyright (c) 2015 John Wiley & Sons, Ltd.

Ranganathan, D., John, G., Yeoh, E., Williams, N., O’loughlin, B., Han, T., Jeyaseelan, L., Kavitha, R. and Healy, H.

A RANDOMIZED CONTROLLED TRIAL TO DETERMINE THE APPROPRIATE TIME TO INITIATE PERITONEAL DIALYSIS AFTER INSERTION OF CATHETER (TIMELY PD STUDY)

Perit Dial Int; 2017, 208

Address: Renal Medicine, Royal Brisbane and Women’s Hospital, Brisbane, Australia
dwarakanathan.ranganathan@health.qld.gov.au Renal, Royal Brisbane and Women’\’s Hospital, Herston, Australia. Renal Medicine, Royal Brisbane and Women’\’s Hospital, Brisbane, Australia. General Surgery, Royal Brisbane and Women’\’s Hospital, Herston, Australia. Renal, Rockhampton Hospital, Rockhampton,
**BACKGROUND:** The optimal time for the commencement of peritoneal dialysis (PD) after PD catheter insertion is unclear. If dialysis is started too soon after insertion, dialysate leaks and infection could occur. However, by starting PD earlier, morbidity and costs can be reduced through lesser hemodialysis requirements. This is the first randomized controlled trial to determine the safest and shortest interval to commence PD after catheter insertion.

**METHODS:** All consecutive patients undergoing PD catheter insertion at the Royal Brisbane and Women’s Hospital and Rockhampton Hospital from 1 March 2008 to 31 May 2013 who met the inclusion and exclusion criteria were invited to participate in the trial. Participants were randomized to 1 of 3 groups. Group 1 (G1) commenced PD at 1 week, group 2 (G2) at 2 weeks and group 3 (G3) at 4 weeks after PD catheter insertion. These groups were stratified by hospital and the presence of diabetes. Primary outcomes were the incidence of peritoneal fluid leaks or PD-related infection during the 4 weeks after commencement of PD.

**RESULTS:** In total 122 participants were recruited, 39, 42, and 41 randomized to G1, G2, and G3, respectively. The primary outcome catheter leak was significantly higher in G1 (28.2%) compared with G3 (2.4%, \(p = 0.001\)) but not compared with G2 (9.5%, \(p = 0.044\)), based on intention to treat analysis. These differences were even more marked when analyzed with per protocol method: G1 had a significantly higher percentage (32.4%) compared with G3 (3.3%, \(p = 0.003\)) but not compared with G2 (10.5%, \(p = 0.040\)). Event percentages of leak were statistically higher in G1 and occurred significantly earlier compared with other groups (\(p = 0.002\)). Amongst diabetics, technique failure was significantly higher (28.6%) in G3 compared with 0% in G1 and 7.1% in G2 (\(p = 0.036\)) and earlier in G3 at 163.2 days vs 176.8 and 175.8 (\(p = 0.037\)) for G1 and G2, respectively.

**CONCLUSION:** Leaks were higher in participants commencing PD at 1 week after catheter insertion compared with the other 2 groups, and technique failure was higher in diabetics starting PD at 4 weeks.

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**209** Rani, S. B., Balamurugan, R. and Ramakrishna, B. S.

Molecular analysis of the human faecal archaea in a southern Indian population

*J Biosci; 2017, 42 (1): 113-119*

**Address:** The Wellcome Trust Research Laboratory, Christian Medical College, Vellore 632 004, India.

Archaea are an important constituent of the human gut microbiota, but there is no information on human gut archaea in an Indian population. In this study, faecal samples were obtained from different age groups (neonatal babies, preschool children, school-going children, adolescents, adults and elderly) of a southern Indian population, and from a tribal population also resident in southern India. 16S rRNA gene sequences specific to Archaea were amplified from pooled faecal DNA in each group, sequenced, and aligned against the NCBI database. Of the 806 adequate sequences in the study, most aligned with 22 known sequences. There were 9 novel sequences in the present study. All sequences were deposited in the GenBank nucleotide sequence database with the following accession numbers: KF607113 - KF607918. Methanobrevibacter was the most prevalent genus among all the age groups accounting for 98% in neonates, 96% in post-weaning, and 100% each in preschool, school and adult population. In the elderly, Methanobrevibacter accounted for 96% and in tribal adults, 99% of the clones belonged to
Methanobrevibacter genus. Other genera detected included Caldisphaera, Halobaculum, Methanosphaera and Thermogymnmononas. Methanobrevibacter smithii predominated in all age groups, accounting for 749 (92.9%) of the 806 sequences. Archaea can be found in the faeces of southern Indian residents immediately after birth. Methanobrevibacter smithii was the dominant faecal archon in all age groups, with other genera being found at the extremes of age.

210 Rathi, A. and Rathi, S.
Relative imbalance as etiology of laryngomalacia - A new theory
Med Hypotheses; 2017, 98 38-41

Address: Department of Otolaryngology and Head & Neck Surgery, Christian Medical College, Vellore, India. Electronic Address: alokrathi14@gmail.com. Department of Oculoplasty, LV Prasad Eye Institute, Hyderabad, India.

Laryngomalacia literally means weak larynx. It is the most common cause of noisy breathing in infants and children constituting around 70% of cases. Its aetiology is not clear and various theories are proposed. Treatment remains following the child with regular weight monitoring in view of expected spontaneous resolution. However we cannot predict which child will resolve spontaneously and which child may need surgical intervention. We propose a new theory based on relative imbalance of demand supply of air, suggesting the increase in demand causing turbulent airflow, increasing suction pressure and causing collapse of laryngeal structures. This theory also helps us in predicting early, which child will resolve spontaneously and which child will need surgery. The methodology to evaluate hypothesis along with techniques and tools are also suggested.

211 Revanappa, K. K., Moorthy, R. K., Alexander, M. and Rajshekhar, V.
Recovery of sympathetic skin response after central corpectomy in patients with moderate and severe cervical spondylotic myelopathy
Br J Neurosurg; 2017, 31 (2): 199-204

Address: a Department of Neurological Sciences, Christian Medical College, Vellore, India.

BACKGROUND: There are sparse data on the recovery of sympathetic skin response (SSR) following decompressive surgery in patients with cervical spondylotic myelopathy (CSM). We designed a study to assess SSR in patients with moderate and severe (Nurick grades 3, 4 and 5) CSM, and its recovery following central corpectomy (CC).

METHOD: We conducted a prospective study on 19 patients with moderate and severe CSM who underwent CC from June 2008 to December 2010. Autonomic dysfunction was defined as the presence of ‘bladder dysfunction’ or ‘orthostatic hypotension’. All patients underwent SSR test preoperatively and at follow-up. Functional evaluation was done using Nurick grade and modified Japanese Orthopedic Association (mJOA) score preoperatively and at follow-up. FINDINGS: In the preoperative assessment, 14 of 19 (73.7%) patients had bladder dysfunction and orthostatic hypotension. SSR was absent in 13 (68.4%) patients preoperatively. At a mean follow-up of 14.5 months after CC, SSR
was present in 12 of the 14 patients available for follow-up. SSR returned postoperatively in 9 of the 11 patients in whom it was absent preoperatively. Recovery of SSR postoperatively had significant correlation with improvement in Nurick grade (p =0.02), improvement in lower limb component of mJOA score (p =0.001) and Nurick grade recovery rate (p = 0.008). **CONCLUSIONS:** Dysfunction of the autonomic pathways as determined by the SSR is seen in nearly 70% of patients with moderate and severe CSM but did not correlate with other autonomic functions, suggesting possibly different pathways for different autonomic functions. Following uninstrumented CC, SSR returned in almost 80% of patients in whom it was absent preoperatively and this correlated significantly with improvement in functional grade. Decompressive surgery can reverse autonomic dysfunction in most of these patients.

### 212


Whole-Genome Shotgun Sequencing of Cephalosporin-Resistant Salmonella enterica Serovar Typhi

**Address:** Hinduja Hospital, Mumbai, India. Department of Microbiology, AIIMS, New Delhi, India. Department of Lab Medicine, Fortis Hospital, Mohali, India. Department of Clinical Microbiology, Christian Medical College, Vellore, India. Department of Clinical Microbiology, Christian Medical College, Vellore, India. vbalaji@cmmcvellore.ac.in. Wellcome Trust Research Laboratory and Division of Gastrointestinal Sciences, Christian Medical College, Vellore, India.

Typhoid is one of the leading causes of mortality in developing countries. Here, we report the draft genome sequences of four Salmonella enterica serovar Typhi strains isolated from bloodstream infections in a tertiary care hospital. The sequence data indicate genomes of ~4.5 Mb for all isolates, with one plasmid in each.

### 213


Determinants and Impact of Giardia Infection in the First 2 Years of Life in the MAL-ED Birth Cohort

**Address:** Division of Infectious Diseases and International Health, University of Virginia, Charlottesville. Division of Infectious Diseases, University of North Carolina-Chapel Hill. Fogarty International Center, National Institutes of Health, Bethesda, Maryland. University of Venda, Thohoyandou, South Africa. Clinical Research Unit and Institute of Biomedicine, Federal University of Ceará, Fortaleza, Brazil. Christian Medical College, Vellore, India. Asociacion Benefica PRISMA, Iquitos, Peru. Aga Khan University, Karachi, Pakistan. International Centre for Diarrhoeal Disease Research, Dhaka, Bangladesh. Haydom Lutheran Hospital, Haydom, Tanzania. Walter Reed AFRIMS Research Unit Nepal, Kathmandu, Nepal. Bloomberg School of Public Health, Johns Hopkins University, Baltimore, Maryland. Haukeland University Hospital.
Background: Giardia are among the most common enteropathogens detected in children in low-resource settings. We describe here the epidemiology of infection with Giardia in the first 2 years of life in the Etiology, Risk Factors, and Interactions of Enteric Infections and Malnutrition and the Consequences for Child Health and Development Project (MAL-ED), a multisite birth-cohort study. Methods.: From 2089 children, 34916 stool samples collected during monthly surveillance and episodes of diarrhea were tested for Giardia using an enzyme immunoassay. We quantified the risk of Giardia detection, identified risk factors, and assessed the associations with micronutrients, markers of gut inflammation and permeability, diarrhea, and growth using multivariable linear regression. Results.: The incidence of at least 1 Giardia detection varied according to site (range, 37.7%-96.4%) and was higher in the second year of life. Exclusive breastfeeding (HR for first Giardia detection in a monthly surveillance stool sample, 0.46 [95% confidence interval (CI), 0.28-0.75]), higher socioeconomic status (HR, 0.74 [95% CI, 0.56-0.97]), and recent metronidazole treatment (risk ratio for any surveillance stool detection, 0.69 [95% CI, 0.56-0.84]) were protective. Persistence of Giardia (consecutive detections) in the first 6 months of life was associated with reduced subsequent diarrheal rates in Naushahro Feroze, Pakistan but not at any other site. Giardia detection was also associated with an increased lactulose/mannitol ratio. Persistence of Giardia before 6 months of age was associated with a -0.29 (95% CI, -0.53 to -0.05) deficit in weight-for-age z score and -0.29 (95% CI, -0.64 to 0.07) deficit in length-for-age z score at 2 years. Conclusions.: Infection with Giardia occurred across epidemiological contexts, and repeated detections in 40% of the children suggest that persistent infections were common. Early persistent infection with Giardia, independent of diarrhea, might contribute to intestinal permeability and stunted growth.


Early Antibiotic Exposure in Low-Resource Settings is Associated with Increased Weight in The First Two Years of Life

J Pediatr Gastroenterol Nutr; 2017,
**OBJECTIVES:** The potential growth-promoting effects of antibiotics are not well understood among undernourished children in environments with high pathogen exposure. We aimed to assess whether early antibiotic exposure duration and class were associated with growth to two years of age across 8 low-resource sites in the MAL-ED birth cohort study. **METHODS:** We followed 1,954 children twice per week from birth to two years to record maternally-reported antibiotic exposures and measure anthropometry monthly. We estimated the associations between antibiotic exposure before 6 months of age and weight-for-age (WAZ) and length-for-age (LAZ) z-scores to two years. We assessed the impact of class-specific exposures and duration, and compared these results to effects of antibiotic exposures after 6 months of age. **RESULTS:** Antibiotic use before 6 months of age was associated with increased weight from 6 months to 2 years, while associations with length were less consistent across sites and antibiotic classes. Compared to unexposed children, two or more courses of metronidazole, macrolides, and cephalosporins were associated with adjusted increases in WAZ of 0.24 (95% confidence interval (CI): 0.04, 0.43), 0.23 (95% CI: 0.05, 0.42), and 0.19 (95% CI: 0.04, 0.35) from 6 months to 2 years, respectively. **CONCLUSIONS:** Antibiotic use in low-resource settings was most associated with the ponderal growth of children who had multiple exposures to antibiotics with broad spectrum and anaerobic activity in early infancy. Opportunities for rational and targeted antibiotic therapy in low resource settings may also promote short-term weight gain in children, though longer-term physical growth and metabolic impacts are unknown. This is an open access article distributed under the Creative Commons Attribution License 4.0 (CCBY), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. http://creativecommons.org/licenses/by/4.0.


Use of antibiotics in children younger than two years in eight countries: a prospective cohort study

Bull World Health Organ; 2017, 95 (1): 49-61

**Address:** Division of Infectious Diseases and International Health, University of Virginia, PO Box 801379, Carter Harrison Research Bldg MR-6, 345 Crispell Drive, Room 2520, Charlottesville, Virginia 22908-1379, United States of America (USA). Fogarty International Center, National Institutes of Health, Bethesda, USA. Christian Medical College, Vellore, India. International Centre for Diarrhoeal Disease Research, Dhaka, Bangladesh. Institute of Medicine, Tribhuvan University, Kathmandu, Nepal. Walter Reed/AFRIMS Research Unit, Kathmandu, Nepal. Aga Khan University, Karachi, Pakistan. Bloomberg School of Public Health, Johns Hopkins University, Baltimore, USA. Haydom Lutheran Hospital, Haydom, United Republic of Tanzania. Haukeland University Hospital, Bergen, Norway. Clinical Research Unit and Institute of Biomedicine, Federal University of Ceara, Fortaleza, Brazil. Foundation for the National Institutes of Health, Bethesda, USA. University of Venda, Thohoyandou, South Africa.

**OBJECTIVE:** To describe the frequency and factors associated with antibiotic use in early childhood, and estimate the proportion of diarrhoea and respiratory illnesses episodes treated with antibiotics.
**METHODS:** Between 2009 and 2014, we followed 2134 children from eight sites in Bangladesh, Brazil, India, Nepal, Pakistan, Peru, South Africa and the United Republic of Tanzania, enrolled in the MAL-ED birth cohort study. We documented all antibiotic use from mothers' reports at twice-weekly visits over the children's first two years of life. We estimated the incidence of antibiotic use and the associations of antibiotic use with child and household characteristics. We described treatment patterns for diarrhoea and respiratory illnesses, and identified factors associated with treatment and antibiotic class. **FINDINGS:** Over 1 346 388 total days of observation, 16 913 courses of antibiotics were recorded (an incidence of 4.9 courses per child per year), with the highest use in South Asia. Antibiotic treatment was given for 375/499 (75.2%) episodes of bloody diarrhoea and for 4274/9661 (44.2%) episodes of diarrhoea without bloody stools. Antibiotics were used in 2384/3943 (60.5%) episodes of fieldworker-confirmed acute lower respiratory tract illness as well as in 6608/16742 (39.5%) episodes of upper respiratory illness. Penicillins were used most frequently for respiratory illness, while antibiotic classes for diarrhoea treatment varied within and between sites. **CONCLUSION:** Repeated antibiotic exposure was common early in life, and treatment of non-bloody diarrhoea and non-specific respiratory illnesses was not consistent with international recommendations. Rational antibiotic use programmes may have the most impact in South Asia, where antibiotic use was highest.

**Rosario, D. P., Abraham, A., Rathore, S., Benjamin, S. J., Jeyaseelan, V. and Mathews, J. E.**

Digital stretching of cervix in the active phase of labour to shorten its duration: a randomised control trial

Trop Doct; 2017, 49475517703279

**Address:** 1 Registrar, Department of Obstetrics and Gynaecology, Christian Medical College, Vellore, Tamil Nadu, India. 2 Associate Professor, Department of Obstetrics and Gynaecology, Christian Medical College, Vellore, Tamil Nadu, India. 3 Lecturer, Department of Biostatistics, Christian Medical College, Vellore, Tamil Nadu, India. 4 Professor, Department of Obstetrics and Gynaecology, Christian Medical College, Vellore, Tamil Nadu, India.

An assessment of the efficacy and satisfaction of women in active labour having digital cervical stretching compared to women who did not have this intervention. Ours was a randomised controlled trial at a tertiary centre in India. Low-risk women at term with vertex presentation in active labour with ruptured membranes and cervical dilation of 4-6 cm were included. Stretching to delivery interval was 247.5 +/- 158.2 min in the intervention group and 265.5 +/- 158.4 in the control group. The mode of delivery, incidence of cervical tear, and maternal, fetal and neonatal complications were similar in both groups. The Labour and Delivery Satisfaction Index (LADSI) was similar in both groups. While no significant discomfort was perceived with stretching, it does not appear to expedite labour.

**Roy, S., Korula, A., Basu, G., Jacob, S., Varughese, S. and Tamilarasi, V.**

Immunohistochemical Glomerular Expression of Phospholipase A2 Receptor in Primary and Secondary Membranous Nephropathy: A Retrospective Study in an Indian Cohort with Clinicopathological Correlations

Nephron Extra; 2017, 7 (1): 1-9

**INT JAN TO JUN PMID:** 28409530 28413416
### CMC Scientific Research Publication for the Year 2017 (January to June)

<table>
<thead>
<tr>
<th>Address: Department of Pathology, Christian Medical College, Vellore, India. Department of Nephrology, Christian Medical College, Vellore, India.</th>
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<td><strong>BACKGROUND:</strong> Limited published literature exists on the utility and standardization of anti-phospholipase A2 receptor (anti-PLA2R) immunohistochemistry (IHC) for the diagnosis of primary membranous nephropathy (MN). The study aimed to validate anti-PLA2R IHC for the diagnosis of primary MN and clinicopathological correlations in an Indian cohort. <strong>METHODS:</strong> Subjects included patients with primary and secondary MN diagnosed between January 2012 and August 2014 with an adequate renal biopsy and at least 1 year of clinical follow-up. Anti-PLA2R IHC was performed in all cases with miscellaneous renal lesions as controls. Electron microscopy was performed in selected cases. Sensitivity and specificity of anti-PLA2R IHC to identify primary MN was evaluated. Histopathological analyses of primary and secondary MN were done with clinicopathological correlations including serum creatinine, eGFR, chronic kidney disease stage, 24-h urine protein, serum cholesterol, serum albumin, and hypertension at presentation and follow-up, using the Kruskal-Wallis test and Spearman rank correlation. A p value of ( \leq 0.05 ) was considered statistically significant. <strong>RESULTS:</strong> In 153 MN patients (99 primary, 54 secondary) and 37 miscellaneous controls, anti-PLA2R IHC differentiated primary from secondary MN with a sensitivity of 70.2% and a specificity of 96.6%. Secondary MN had increased mesangial matrix expansion compared to primary MN (p = 0.001). Severe nephrotic syndrome, impaired renal function, and hypertension were all more common in primary than in secondary MN. <strong>CONCLUSION:</strong> Anti-PLA2R IHC is a specific marker to distinguish primary MN from secondary MN.</td>
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<tr>
<th>Sabapathy, V., Herbert, F. J. and Kumar, S.</th>
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<tr>
<td>Therapeutic Application of Placental Mesenchymal Stem Cells Reprogrammed Neurospheres in Spinal Cord Injury of SCID</td>
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<td>Methods Mol Biol; 2017, 1553 91-113</td>
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<tr>
<td>Address: Centre for Stem Cell Research, A Unit of inStem Bengaluru, Christian Medical College, Bagayam, Vellore, 632002, Tamil Nadu, India. Centre for Stem Cell Research, A Unit of inStem Bengaluru, Christian Medical College, Bagayam, Vellore, 632002, Tamil Nadu, India. <a href="mailto:skumar@cmcvellore.ac.in">skumar@cmcvellore.ac.in</a></td>
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<td>Mesenchymal stromal cells (MSCs) and induced pluripotent stem cells (iPSCs) have stimulated much interest in the scientific community and hopes among the general public since their discovery in 1966 due to a variety of potential applications it has in the field of regenerative medicine. Copious amount of literature, as well as long-term animal and human clinical trials, indicates that MSCs can be successfully used for therapeutic purpose without any extreme adversities. MSCs have been isolated from adult and fetal tissues. Recently, MSCs from placenta have generated much inquisitiveness. In this article, we will demonstrate the step-by-step procedure for isolating human placental MSCs from term placenta, reprogramming of placental MSCs into iPSCs using plasmid vectors, evaluation of functional recovery in mice spinal cord injury models, and in vivo tracking of the transplanted cells.</td>
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<tr>
<th>Sabapathy, V., Sundaram, B. and Kumar, S.</th>
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</table>
### Therapeutic Application of Human Wharton Jelly Mesenchymal Stem Cells in Skin Injury of SCID

**Methods Mol Biol; 2017, 1553 115-132**

**Address:** Centre for Stem Cell Research, A Unit of inStem Bengaluru, Christian Medical College, Bagayam, Vellore, 632002, Tamil Nadu, India. Centre for Stem Cell Research, A Unit of in Stem Bengaluru, Christian Medical College, Bagayam, Vellore, 632002, Tamil Nadu, India. skumar@cmcvellore.ac.in

Mesenchymal stem cells (MSCs) are blossoming as a credible source for regenerative medical applications. The use of fetal MSCs is gaining momentum for therapeutic use. The ease of isolation, enhanced characteristics, and immunomodulation properties renders the utilization of fetal MSCs for numerous clinical applications. In this article, we will demonstrate a step-by-step protocol for isolation of Wharton's jelly MSCs (WJMSCs) from the human umbilical cord matrix, preparation of human platelet lysate, fabricating amniotic membrane scaffold and mice model to study skin regeneration using a combination of MSCs and decellularized amniotic membrane scaffold.

### Association of rotavirus strains and severity of gastroenteritis in Indian children

**Hum Vaccin Immunother; 2017, 13 (3): 711-716**

**Address:** a Shantha Biotechnics Pvt. Ltd., Hyderabad, India. b Sanofi Pasteur, Swiftwater, PA, USA. c SMS Medical College, Jaipur, India. d Postgraduate Institute of Medical Education and Research, Chandigarh, India. e Institute of Child Health, Kolkata, India. f Kalinga Institute of Medical Sciences, Bhubaneswar, India. g School of Medical Sciences and Research, Sharda University, Noida, India. h Govt. Medical College, Goa, India. i CSM Medical University, Lucknow, India. j Kasturba Medical College, Manipal, India. k Dayanand Medical College, Ludhiana, India. l Gandhi Medical College, Hyderabad, India. m JSS Medical College and Hospital, Mysore, India. n Kempegowda Institute of Medical Sciences, Bangalore, India. o Christian Medical College, Vellore, India. p Sanofi Pasteur, Lyon, France.

Rotavirus is the leading cause of severe and dehydrating diarrhea in children aged under 5 years. We undertook this hospital-based surveillance study to examine the possible relationship between the severity of diarrhea and the various G-group rotaviruses circulating in India. Stool samples (n = 2,051) were systematically collected from 4,711 children aged <5 years admitted with severe acute gastroenteritis to 12 medical school centers from April 2011 to July 2012. Rotavirus testing was undertaken using a commercially available enzyme immunoassay kit for the rotavirus VP6 antigen (Premier Rotaclone Qualitative ELISA). Rotavirus positive samples were genotyped for VP7 and VP4 antigens by reverse-transcription polymerase chain reaction at a central laboratory. Of the stool samples tested for rotavirus antigen, 541 (26.4%) were positive for VP6 antigen. Single serotype infections from 377 stool samples were compared in terms of gastroenteritis severity. Among those with G1 rotavirus infection, very severe...
diarrhea (Vesikari score ≥ 16) was reported in 59 (33.9%) children, severe diarrhea (Vesikari score 11-15) in 104 (59.8%), moderate (Vesikari score 6-10) and mild diarrhea (Vesikari score 0-5) in 11 (6.3%). Among those with G2 infection, very severe diarrhea was reported in 26 (27.4%) children, severe diarrhea in 46 (48.4%), and moderate and mild diarrhea in 23 (24.2%). Among those with G9 infection, very severe diarrhea was reported in 47 (54.5%) children, severe diarrhea in 29 (33.6%), and moderate and mild diarrhea in 10 (11.9%). Among those with G12 infection, very severe diarrhea was reported in 9 (40.9%) children and severe diarrhea in 13 (59.1%). The results of this study indicate some association between rotavirus serotypes and severity of gastroenteritis.


Live attenuated tetravalent (G1-G4) bovine-human reassortant rotavirus vaccine (BRV-TV): Randomized, controlled phase III study in Indian infants

Vaccine; 2017, 35 (28): 3575-3581

Address: Shantha Biotechnics Pvt. Ltd., Hyderabad, India. Electronic Address: Tarun.Saluja@sanofi.com Bharati Vidyapeeth Deemed University Medical College, Pune, India. All India Institute of Medical Sciences, New Delhi, India.
Post Graduate Institute of Medical Education & Research, Chandigarh, India. King George Hospital, Visakhapatnam, India. Indira Gandhi Medical College, Shimla, India. JSS University, Mysore, India. Dr. TMA Pai Rotary Hospital, Karkala, India. J N Medical College, Belgaum, India. Padmashree Dr. D. Y. Patil Medical College & Research Center, Pune, India. KPC Medical College & Hospital, Kolkata, India. Pt. Bhagwat Dayal Sharma Post Graduate Institute of Medical Sciences, Rohtak, India. Kanchi Kamakoti Child Trust Hospital & The Child Trust Medical Research Foundation, Chennai, India. Christian Medical College, Vellore, Tamil Nadu, India. Shantha Biotechnics Pvt. Ltd., Hyderabad, India. Sanofi Pasteur, Marcy-l’Etoile, France. Sanofi Pasteur, Swiftwater, USA.

BACKGROUND: Rotavirus remains the leading cause of diarrhoea among children <5years. We assessed immunogenic non-inferiority of a tetravalent bovine-human reassortant rotavirus vaccine (BRV-TV) over the licensed human-bovine pentavalent rotavirus vaccine RV5.

METHODS: Phase III single-blind study (parents blinded) in healthy infants randomized (1:1) to receive three doses of BRV-TV or RV5 at 6-8, 10-12, and 14-16weeks of age. All concomitantly received a licensed diphtheria, tetanus, pertussis, hepatitis B, Haemophilus influenzae type b conjugate vaccine (DTwP-HepB-Hib) and oral polio vaccine (OPV). Immunogenic non-inferiority was evaluated in terms of the inter-group difference in anti-rotavirus serum IgA seroresponse (primary endpoint), and seroprotection/seroresponse rates to DTwP-HepB-Hib and OPV vaccines. Seroresponse was defined as a ≥ 4-fold increase in titers from baseline to D28 post-dose 3. Non-inferiority was declared if the difference between groups (based on the lower limit of the 95% confidence interval [CI]) was above -10%. Each subject was evaluated for solicited adverse events 7days and unsolicited & serious adverse events 28days following each dose of vaccination.

RESULTS: Of 1195 infants screened, 1182 were randomized (590 to BRV-TV; 592 to RV5). Non-inferiority for rotavirus serum IgA seroresponse was not established: BRV-TV, 47.1% (95%CI: 42.8; 51.5) versus RV5, 61.2% (95%CI: 55.8; 66.6).
56.8; 65.5); difference between groups, -14.08% (95%CI: -20.4; -7.98). Serum IgA geometric mean concentrations at D28 post-dose 3 were 28.4 and 50.1U/ml in BRV-TV and RV5 groups, respectively. For all DTwP-HepB-Hib and OPV antigens, seroprotection/seroresponse was elicited in both groups and the -10% non-inferiority criterion between groups was met. There were 16 serious adverse events, 10 in BRV-TV group and 6 in RV5 group; none were classified as vaccine related. Both groups had similar vaccine safety profiles. **CONCLUSION:** BRV-TV was immunogenic but did not meet immunogenic non-inferiority criteria to RV5 when administered concomitantly with routine pediatric antigens in infants.

**CONCLUSION:**

BRV-TV was immunogenic but did not meet immunogenic non-inferiority criteria to RV5 when administered concomitantly with routine pediatric antigens in infants.

<table>
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<th>222</th>
<th>Samuel R(1), Jacob KS(2).</th>
<th>Occupation therapy in India: focus on functional recovery and need for empowerment.</th>
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</thead>
</table>

**Address:** (1)Occupational Therapy Education and Services, Christian Medical College, Vellore, Tamil Nadu, India. (2)Department of Psychiatry, Christian Medical College, Vellore, Tamil Nadu, India.

While there have been significant advances in treatments for mental disorders over the past century, cure for many mental disorders remains elusive. The complex problems of mental illness require a multi-sectoral, multi-disciplinary and multi-dimensional approach to care. The need for focus on biopsychosocial model rather than on biomedical practise, client-centred rather than physician-oriented care, personal rather than clinical recovery, are often preached but rarely practiced. The lack of emphasis on functioning and the limited workforce and evidence base complicate issues related to the care of people with chronic mental illness in India. The role of occupational therapy in bridging the gap between symptomatic improvement and functional recovery is discussed.

DOI: 10.4103/psychiatry.IndianJPsychiatry_111_17

Conflict of interest statement: There are no conflicts of interest.

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<td>Int J Rheum Dis; 2017,</td>
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</table>

**Address:** Department of Rheumatology, Christian Medical College and Hospital, Vellore, India. Genomics and Molecular Medicine, CSIR Institute of Genomics and Integrative Biology (CSIR-IGIB), Delhi, India. Academy of Scientific and Innovative Research (AcSIR), Delhi, India. GN Ramachandran Knowledge Center for Genome Informatics, CSIR Institute of Genomics and Integrative Biology (CSIR-IGIB), Delhi, India.
Clinical diagnosis of autoinflammatory diseases requires a high degree of clinical suspicion and clinching molecular evidence to substantiate the diagnosis. This is more so in populations with low prevalence of these disorders. In this report, we describe the case of a young man from India with recurrent fever and persistent arthritis. The patient’s forefathers were of Egyptian ancestry who practiced consanguinity. Molecular genetic analysis using whole-exome sequencing suggested the presence of variants c.443A>T:p.E148V and c.442G>C:p.E148Q in the MEFV gene, earlier independently shown to be associated with familial Mediterranean fever (FMF) in a compound heterozygous state. The variants were further confirmed by capillary sequencing. This report also highlights the application of whole exome sequencing to delineate the allelic differences in the variants apart from serving as a quick genetic screening approach for autoinflammatory diseases. To the best of our knowledge, this is the first report of a compound heterozygosity for the two well-characterized variants associated with atypical FMF in a patient.

Santhanam, I., Yoganathan, S., Sivakumar, V. A., Ramakrishnamurugan, R., Sathish, S. and Thandavarayan, M.

Predictors of Outcome in Children with Status Epilepticus during Resuscitation in Pediatric Emergency Department: A Retrospective Observational Study

Ann Indian Acad Neurol; 2017, 20 (2): 142-148

**Address:** Department of Paediatric Emergency, Institute of Child Health and Hospital of Children, Madras Medical College, Chennai, Tamil Nadu, India. Department of Neurological Sciences, Christian Medical College, Vellore, Tamil Nadu, India. Department of Pediatrics, Dr. Kamakshi Memorial Hospital, Chennai, Tamil Nadu, India. Department of Pediatrics, Dr. Mehta’s Hospitals Pvt. Ltd., Chennai, Tamil Nadu, India.

**OBJECTIVES:** To study the clinical profile and predictors of outcome in children with status epilepticus (SE) during resuscitation in pediatric emergency department. **MATERIALS AND METHODS:** This retrospective study was carried out in a tertiary care teaching hospital. Admission and resuscitation data of children, aged between 1 month and 12 years, treated for SE, between September 2013 and August 2014, were extracted using a standard data collection form. Our SE management protocol had employed a modified pediatric assessment triangle to recognize and treat acute respiratory failure, cardiovascular dysfunction (CD), and subtle SE until all parameters resolved. Continuous positive airway pressure, fluid boluses based on shock etiology, inotropes, and cardiac safe anticonvulsants were the other modifications. Risk factors predicting mortality during resuscitation were analyzed using univariate and penalized logistic regression. **RESULTS:** Among 610 who were enrolled, 582 (95.4%) survived and 28 (4.6%) succumbed. Grunt odds ratio (OR): 3.747 (95% confidence interval [CI]: 1.035-13.560), retractions OR: 2.429 (95% CI: 1.036-5.698), rales OR: 10.145 (95% CI: 4.027-25.560), prolonged capillary refill time OR: 3.352 (95% CI: 1.339-8.388), and shock requiring >60 mL/kg fluids OR: 2.439 (95% CI 1.040-5.721) were associated with 2-3 times rise in mortality. Inappropriate prehospital treatment and CD were the significant predictors of mortality OR: 7.82 (95% CI 2.10-29.06) and 738.71 (95% CI: 97.11-999), respectively. Resolution of CD was associated with improved survival OR: 0.02 (95% CI: 0.003-0.17).

**CONCLUSION:** Appropriate prehospital management and treatment protocol targeting resolution of CD...
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<th>Abstract</th>
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BACKGROUND: The World Health Organization (WHO) defines atypical pituitary adenomas as tumours with a MIB-1 labelling index >=3%, p53 positivity and increased mitotic activity. Although a few reports have described the clinical and radiological correlates of atypia in pituitary adenomas, its impact on postoperative outcomes is not clearly defined. METHOD: We reviewed preoperative and postoperative records of patients undergoing surgery for pituitary adenomas. Postoperative outcomes for functional adenomas (FPAs) were assessed according to contemporary definitions of remission and recurrence. For non-functional pituitary adenomas (NFPAs), extent of resection and disease progression were defined on the basis of postoperative magnetic resonance imaging. RESULTS: Of 394 patients included for analysis, 29 cases (7.4%) fulfilled criteria for atypia. Patients with atypical tumours were significantly younger than those with typical adenomas. Remission was possible in 47.4% of FPAs, and was unrelated to the presence of atypia. In NFPAs, local invasiveness was negatively associated with extent of resection (OR, 0.255; 95% CI, 0.086-0.753; p < 0.001). In 93 NFPAs followed postoperatively with serial imaging over a mean duration of 37.5 months, disease progression/recurrence was significantly associated with the presence of atypia (OR, 5.058; 95% CI, 1.273-20.098; p = 0.021) on multivariate analysis. CONCLUSIONS: Patients with atypical non-functional pituitary adenomas are at risk for postoperative recurrence and disease progression, suggesting a need for adjuvant therapy. However, only a small fraction of pituitary tumours demonstrate atypia, as defined by the WHO, limiting its clinical utility.
# Ectopic Cushing's Syndrome: A Ten Year Experience from a Tertiary Care Centre in Southern India

**Address:** = equal contribution. From: Christian Medical College, Vellore, India.

**OBJECTIVE:** Ectopic ACTH secretion is a less common cause of Cushing's syndrome, and is seen in 5 to 10% of cases with endogenous hypercortisolemia. We hereby describe our experience of patients with ectopic ACTH syndrome, who have been managed over the past 10 years at a tertiary care centre in Southern India. **METHODS:** The inpatient and outpatient records of patients from 2006 to 2015 were retrospectively reviewed. The clinical features, clinical history, biochemical values, imaging features which included radiological findings and PET scans, management, details of follow-up and outcomes were documented. We compared the biochemical findings in these patients with 20 consecutive patients with Cushing's disease (Cushing's syndrome of pituitary origin). **RESULTS:** A total of 21 patients were studied. The median age at presentation was 34 (19-55) years. Seven patients had thymic carcinoid, 7 had bronchial carcinoid, 3 had lung malignancies, 2 had medullary carcinoma thyroid, 1 patient had a pancreatic neuroendocrine tumor and one patient had an occult source of ACTH. The most common clinical features at presentation were muscle weakness (95%), hyperpigmentation (90%), facial puffiness (76%), easy bruisability (61%), edema (57%), striae (52%). Extensive acne was seen in a large number of patients (43%). Only three patients (14%) had central obesity. The median 8 am cortisol was 55.5mcg/dl (13.8 - 131), median 8am ACTH was 207pg/ml (31.1 to 703) and the median 24 hour urinary free cortisol was 2484 mcg(248 - 25,438). Basal cortisol and ACTH, as well as midnight cortisol and ACTH level were markedly higher in patients with ectopic Cushing's syndrome as compared to patients with Cushing's disease. Twelve of twenty one patients had developed life threatening infections during follow up. Nine patients had undergone surgical intervention to address the primary tumour. However, only one patient sustained a complete cure on follow up. **CONCLUSION:** In our series, ectopic Cushing's syndrome(ECS) was most commonly seen in association with intrathoracic tumors such as bronchial or thymic carcinoid. Hyperpigmentation and proximal myopathy were frequent, while central obesity was uncommon. Early and rapid control of hypercortisolemia was important in order to prevent life threatening infections and metabolic complications.

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**Dementia and the International Classification of Diseases-11 (Beta Version)**

**Address:** Department of Psychiatry, JSS Medical College Hospital, JSS University, Mysore, Karnataka.
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<th><strong>CMC SCIENTIFIC RESEARCH PUBLICATION FOR THE YEAR 2017 (JANUARY TO JUNE)</strong></th>
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<td>India. Department of Psychiatry, Christian Medical College, Vellore, Tamil Nadu, India. Department of Psychiatry, Medical College, Thrisur, Kerala, India. President, Indian Psychiatric Society, IRSHA, Pune, Maharashtra, India. President Elect, Indian Psychiatric Society, St. Marthas Hospital, Bengaluru, Karnataka, India. Division of Schizophrenia and Psychopharmacology, Asha Hospital, Hyderabad, Telangana, India. General Secretary, Indian Psychiatric Society Clinic Brain, Kolkata, West Bengal, India. Treasurer, Brain Psycho Clinic and De Addiction Centre, Indian Psychiatric Society, Surat, Gujarat, India. President, Indian Psychiatric Society, IRSHA, Pune, Maharashtra, India. President Elect, Indian Psychiatric Society, St. Marthas Hospital, Bengaluru, Karnataka, India. Division of Schizophrenia and Psychopharmacology, Asha Hospital, Hyderabad, Telangana, India. General Secretary, Indian Psychiatric Society Clinic Brain, Kolkata, West Bengal, India. Treasurer, Brain Psycho Clinic and De Addiction Centre, Indian Psychiatric Society, Surat, Gujarat, India.</td>
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<th><strong>231</strong></th>
<th>Sato, T., Jose, J., Allai, A., El-Mawardy, M., Tolg, R., Richardt, G. and Abdel-Wahab, M.</th>
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<tr>
<td><strong>Effect of strut distribution on neointimal coverage of everolimus-eluting bioresorbable scaffolds: an optical coherence tomography study</strong></td>
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<td>J Thromb Thrombolysis; 2017,</td>
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<td><strong>Address:</strong> Heart Center, Segeberger Kliniken GmbH, Academic Teaching Hospital of the Universities of Kiel, Lubeck and Hamburg, Am Kurpark 1, 23795, Bad Segeberg, Germany. Cardiology, Tachikawa General Hospital, Nagaoka, Japan. Christian Medical College Hospital, Vellore, India. Heart Center, Segeberger Kliniken GmbH, Academic Teaching Hospital of the Universities of Kiel, Lubeck and Hamburg, Am Kurpark 1, 23795, Bad Segeberg, Germany. <a href="mailto:mohamed.abdel-wahab@segebergerkliniken.de">mohamed.abdel-wahab@segebergerkliniken.de</a>.</td>
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The thick struts of bioresorbable vascular scaffolds (BRS) are associated with changes in wall shear stress and contribute to neointimal proliferation. We aimed to evaluate the relationship between the BRS strut distribution and the neointimal proliferation. 50 lesions underwent optical coherence tomography, 12 months after BRS implantation. Scaffold area and neointimal thickness were evaluated in each cross-sectional area (CSA). Scaffold eccentricity was defined as follows: (maximum diameter - minimum diameter) x 100/maximum diameter. CSAs of BRS were divided into four quadrants. The maximal neointimal thickness (Maximal-NIT), Minimal-NIT and the number of struts in each quadrant were measured. The number of struts were classified as 1, 2, 3 and >/= 4. Furthermore, the mean-NIT acquired in each quadrant was divided by the average-NIT of all struts in the same CSA, which was defined as the unevenness score. In addition, Maximal-NIT minus Minimal-NIT was divided by the average-NIT of all struts in the same CSA, which was defined as heterogeneity of neointimal proliferation. There was a significant difference in the association between the number of struts and not only the unevenness score (no. of strut = 1 (N = 440), unevenness score 1.04 +/- 0.34; 2 (N = 696), 0.98 +/- 0.27; 3 (N = 994), 0.96 +/- 0.23; >/=4 (N = 1202), 1.04 +/- 0.22; P < 0.01) but also Maximal-NIT and Minimal-NIT. Furthermore, a significant correlation was observed between scaffold eccentricity in each CSA and the heterogeneity of neointimal proliferation in the same CSA (N = 892, R = 0.38, p = 0.01). Crowding of struts is associated with increased neointimal proliferation after BRS implantation. The scaffold eccentricity causes heterogeneity of neointimal proliferation. |

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<th><strong>232</strong></th>
<th>Sato, T., Jose, J., El-Mawardy, M., Sulimov, D. S., Tolg, R., Richardt, G. and Abdel-Wahab, M.</th>
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<tr>
<td><strong>Predictors of acute scaffold recoil after implantation of the everolimus-eluting bioresorbable scaffold: an optical coherence tomography assessment in native coronary arteries</strong></td>
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INT – INTERNATIONAL; NAT – NATIONAL; PMID: PUBMED ID; PMCID: PUBMED CENTRAL ID
This study investigated the predictors of acute recoil after implantation of everolimus-eluting BRS based on optical coherence tomography (OCT). Thirty-nine patients (56 scaffolds) were enrolled. Acute absolute recoil by quantitative coronary angiography was defined as the difference between the mean diameter of the last inflated balloon (X) and the mean lumen diameter of BRS immediately after balloon deflation (Y). Acute percent recoil was defined as (X - Y) x 100/X. Plaque eccentricity (PE) and plaque composition (PC) were assessed by OCT. PC was classified into two different types: calcific (score = 1), fibrous and lipid (score = 0). Based on the mean acute scaffold recoil value of the present study, scaffolds were divided into two groups: the low acute recoil group (LAR, n = 34) and the high acute recoil group (HAR, n = 22). Acute percent and absolute recoil were 6.4 +/- 3.0 % and 0.19 +/- 0.11 mm. PE, PC score and scaffold/artery ratio were significantly higher in HAR than in LAR. In multivariate logistic regression analysis, PE > 1.49, PC score (score 1) and scaffold/artery ratio >1.07 were significant positive predictors for the occurrence of acute scaffold recoil (OR 10.7, 95 % CI 2.2 - 51.4, p < 0.01; OR 5.6, 95 % CI 1.9 - 22.0, p = 0.04; OR 12.4, 95 % CI 2.6 - 65.4, p < 0.01, respectively). Acute recoil of BRS is influenced by BRS sizing as well as OCT-derived plaque characteristics.

Neointimal response to everolimus-eluting bioresorbable scaffolds implanted at bifurcating coronary segments: insights from optical coherence tomography

Heterogeneity of neointimal thickness is observed after drug-eluting stents implantation in bifurcation lesions (BL). We evaluated the vascular response of everolimus-eluting bioresorbable scaffold (BRS) struts deployed at BL using optical coherence tomography (OCT). 50 patients (64 scaffolds) underwent follow-up OCT after BRS implantation. Cross-sectional areas of each BL with a side branch more than 1.5 mm were analyzed using OCT every 200 microm. All images were divided into three regions according to shear stress: the 1/2 circumference of the vessel opposite to the ostium (OO), the vessel wall adjacent to the
ostium (AO) and the side-branch ostium (SO). The %uncovered strut and the averaged neointimal thickness (NIT) were calculated. Overall, there were significant differences in both NIT and %uncovered strut among the three regions (OO, 119.2 +/- 68.5 mum vs. AO, 94.2 +/- 35.7 mum vs. SO, 80.5 +/- 41.4 mum, p = 0.03; OO, 0.4 % vs. AO, 1.4 % vs. SO, 4.8 %, p = 0.02). Scaffolds were divided into two groups: a large-ratio side-branch group (LRSB; n = 32) and a small-ratio side-branch group (SRSB; n = 32), based on the median value of the ratio of the diameter of side branch ostium (Ds) to that of the main branch (Dm). In the LRSB alone, there were significant differences in both NIT and %uncovered strut among the three regions (OO, 128.0 +/- 61.1 mum vs. AO, 97.3 +/- 34.3 mum vs. SO, 75.9 +/- 39.4 mum, p < 0.01; OO, 0.3 % vs. AO, 2.3 % vs. SO, 8.7 %, p < 0.01). After BRS implantation in BL, neointimal response was pronounced at the vessel wall opposite to the side branch ostium, especially in those with large side branches.


Musculoskeletal oncogenic osteomalacia-An experience from a single centre in South India
J Orthop; 2017, 14 (1): 184-188

Address: Department of Endocrinology, Christian Medical College, Vellore, India. Department of Orthopedics, Christian Medical College, Vellore, India. Department of Nuclear Medicine, Christian Medical College, Vellore, India. Department of Pathology, Christian Medical College, Vellore, India.

BACKGROUND: Oncogenic osteomalacia is an acquired form of hypophosphatemic osteomalacia where the tumour resection may lead to cure of the disease. Tumours originating from the musculoskeletal region form an important subgroup of oncogenic osteomalacia. METHODS: This was a retrospective study conducted at a tertiary care centre in south India where we analyzed the hospital records of all the patients with musculoskeletal oncogenic osteomalacia from January 2010-April 2016. RESULTS: A total number of 73 patients were diagnosed to have adult onset hypophosphatemic osteomalacia out of which 13 patients (M: F = 6:7; mean age: 45.38 +/- 18.23 years) with musculoskeletal oncogenic osteomalacia were included in the study. Common presenting symptoms were bony pains, proximal myopathy and fractures. Mean duration of symptoms from the initial hospital visit was 58.46 +/- 64.48 months. The initial mean fibroblast growth factor (FGF) 23 levels being 828.86 +/- 113.22 RU/ml (Normal range: 22-91). Imaging modalities used for localization of the tumour: DOTATATE PET/CT (8 patients), FDG PET/CT (3 patients), 1 patient (Both DOTATATE PET/CT and FDG PET/CT) and whole body Tc 99 m Red blood cell (RBC) blood pool scintigraphy (2 patients). 9 patients underwent surgery and all achieved remission. 4 patients denied surgical consent. CONCLUSION: Musculoskeletal oncogenic osteomalacia is a major subgroup of oncogenic osteomalacia which need more extensive whole body imaging for the localization of the tumour. Surgical excision often leads to remission of the disease.

Satyaraddi, A., Shetty, S., Kapoor, N., Cherian, K. E., Naik, D., Thomas, N. and Paul, T. V.

Performance of risk assessment tools for predicting osteoporosis in south Indian rural elderly men
Osteoporosis in elderly men is an under-recognized problem. In the current study, we intend to look at the performance of two risk assessment tools [OSTA and MORES] for the diagnosis of osteoporosis. Osteoporosis was seen in 1/4th of elderly men at spine and 1/6th of them at femoral neck. Both risk assessment tools were found to have good sensitivity in predicting osteoporosis at spine and femoral neck with good area under curve (AUC). **PURPOSE:** This study attempts to look at the performance of osteoporosis self-assessment tool for Asians (OSTA) and male osteoporosis risk estimation score (MORES) for predicting osteoporosis in south Indian rural elderly men. **METHODS:** Five hundred and twelve men above 65 years of age from a south Indian rural community were recruited by cluster random sampling. All subjects underwent detailed clinical, anthropometric, and bone mineral density measurement at lumbar spine and femoral neck using dual-energy X-ray absorptiometry scan. A T score $\leq -2.5$ was diagnostic of osteoporosis. Scores for OSTA and MORES were calculated at various cut offs, and their sensitivities and specificities for predicting osteoporosis were derived. **RESULTS:** The prevalence of osteoporosis was found to be 16% at femoral neck and 23% at spine. OSTA with a cut-off value of $\leq 2$ predicted osteoporosis with a sensitivity and specificity at lumbar spine of 94 and 17% and at femoral neck of 99 and 18%. The area under ROC curve for OSTA index for spine was 0.716 and for femoral neck was 0.778. MORES with a cut-off value of $\geq 6$ predicted osteoporosis at spine with a sensitivity of 98% and specificity of 15%, and at femoral neck, they were 98 and 13%, respectively. The area under ROC curve for MORES for spine was 0.855 and for femoral neck was 0.760. **CONCLUSION:** OSTA and MORES were found to be useful screening tools for predicting osteoporosis in Indian elderly men. These tools are simple, easy to perform, and cost effective in the context of rural Indian setting.
The residual terminal bowel after pull-through surgery for anorectal malformation has been reported to cause urinary complications. We report two boys where residual bowel has fistulated postoperatively into the alimentary tract causing metabolic and septic complication in one and a large pelvic mass with urinary and rectal obstruction in the other.

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<td>Utility of Loop-mediated Isothermal Amplification Assay, Polymerase Chain Reaction, and ELISA for Diagnosis of Leptospirosis in South Indian Patients</td>
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<td>J Glob Infect Dis; 2017, 9 (1): 3-7</td>
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<tr>
<td></td>
<td>Address: Department of Clinical Microbiology, Christian Medical College, Vellore, Tamil Nadu, India. Department of Medicine, Christian Medical College, Vellore, Tamil Nadu, India. Viral and Rickettsial Diseases Department, Infectious Diseases Directorate, Naval Medical Research Center, Silver Spring, MD 20910, USA.</td>
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<td></td>
<td>BACKGROUND: Leptospirosis is a zoonotic disease which requires laboratory diagnosis for confirmation.</td>
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<td>MATERIALS AND METHODS: In this study serum samples from adults with acute undifferentiated fever (duration ≤15 days) were tested for IgM antibodies to Leptospira by ELISA, PCR for rrs gene and loop-mediated isothermal amplification (LAMP) assay for LipL32 and LipL41. RESULTS: Among the 150 sera tested, three were positive by PCR, LAMP and IgM ELISA/modified Faines' criteria, two by only PCR; seven only by LAMP assay and forty fulfilled modified Faine's criteria (illness clinically compatible and IgM ELISA positive for leptospirosis). Clinical correlation revealed renal compromise, low platelet count and severe jaundice were significantly related to leptospirosis (P &lt; 0.05). CONCLUSION: This study suggests that LAMP assay could be useful for diagnosis of leptospirosis during the 1st week of illness whereas IgM ELISA forms the mainstay of diagnosis from the 2nd week onward. Further studies especially community based, comparing ELISA, PCR, LAMP, culture and microscopic agglutination test are required to evaluate the veracity of these findings.</td>
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<th>239</th>
<th>Senthivelkumar, T. and Chandy, B. R.</th>
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<td>Paraplegia and transtibial amputation: successful ambulation after dual disability: a retrospective case report</td>
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<td>Spinal Cord Ser Cases; 2017, 3 16039</td>
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<td>Address: Physiotherapy Unit, Department of Physical Medicine &amp; Rehabilitation, Christian Medical College, Vellore, India. Department of Physical Medicine &amp; Rehabilitation, Christian Medical College, Vellore, India.</td>
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<td>INTRODUCTION: This is a single-subject case report. The objective is to describe the unique rehabilitation outcome of an individual with motor complete T12 paraplegia and a right transtibial amputation. This study was conducted at the Department of Physical Medicine and Rehabilitation of Christian Medical College in India. CASE PRESENTATION: A 42-year-old policeman presented to our...</td>
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**CMC SCIENTIFIC RESEARCH PUBLICATION FOR THE YEAR 2017 (JANUARY TO JUNE)**

| Comparison of Two Low-cost Methods of Cooling Neonates with Hypoxic Ischemic Encephalopathy |
| **Address:** Department of Neonatology, Christian Medical College and Hospital, Vellore, Tamil Nadu, India. Department of Biostatistics, Christian Medical College and Hospital, Vellore, Tamil Nadu, India. |
| **BACKGROUND:** Several low-cost methods are used in resource-limited settings to provide therapeutic hypothermia in asphyxiated neonates. There is inadequate data about their efficacy and safety. This is a retrospective study comparing two low-cost cooling methods-frozen gel packs (FGP) and phase changing material (PCM). **RESULTS:** There were 23 babies in FGP and 45 babies in the PCM group. Induction time was significantly shorter with FGP than PCM (45 vs. 90 minutes; p-value < 0.001). Proportion of temperature readings outside the target range was significantly higher (9.8% vs. 3.8%; p-value < 0.001) and fluctuation of core body temperature was wider (standard deviation of target temperature 0.4 degrees C vs. 0.28 degrees C) in the FGP group, compared with PCM group. **CONCLUSION:** Both FGP and PCM are effective and safe, comparable with standard servo-controlled cooling equipment. PCM has the advantage of better maintenance of target temperature with less nursing input, when compared with FGP. |

| **Shankar, C., Nabarro, L. E. B., Anandan, S. and Veeraraghavan, B.** |
| Minocycline and Tigecycline: What Is Their Role in the Treatment of Carbapenem-Resistant Gram-Negative Organisms? |
| **Address:** Department of Clinical Microbiology, Christian Medical College and Hospital, Vellore, India. |
| Carbapenem-resistant organisms are increasingly common worldwide, particularly in India and are associated with high mortality rates especially in patients with severe infection such as bacteremia. Existing drugs such as carbapenems and polymyxins have a number of disadvantages, but remain the mainstay of treatment. The tetracycline class of antibiotics was first produced in the 1940s. Minocycline, tetracycline derivative, although licensed for treatment of wide range of infections, has not been considered for treatment of multidrug-resistant organisms until recently and needs further in vivo studies. Tigecycline, a derivative of minocycline, although with certain disadvantages, has been frequently used in |
the treatment of carbapenem-resistant organisms. In this article, we review the properties of minocycline and tigecycline, the common mechanisms of resistance, and assess their role in the management of carbapenem-resistant organisms.

| Draft genome of a hypervirulent Klebsiella quasipneumoniae subsp. similipneumoniae with novel sequence type ST2320 isolated from a chronic liver disease patient |
| J Glob Antimicrob Resist; 2017, 9 30-31 |
| INT | JAN TO JUN | | Address: Department of Clinical Microbiology, Christian Medical College, Vellore 632 004, Tamil Nadu, India. School of Bio Sciences and Technology, VIT University, Vellore, Tamil Nadu, India. Department of Clinical Microbiology, Christian Medical College, Vellore 632 004, Tamil Nadu, India. Electronic Address: vbalaji@cmcvellore.ac.in. |

| Effect of prophylactic or therapeutic administration of paracetamol on immune response to DTwP-HepB-Hib combination vaccine in Indian infants |
| Vaccine; 2017, 35 (22): 2999-3006 |
| INT | JAN TO JUN | | Address: Shantha Biotechnics Private Limited - A Sanofi Company, Hyderabad, India. Electronic Address: arijit.sil@sanofi.com. Dept. of Pediatrics, JSS Medical College, Mysore, India. Shantha Biotechnics Private Limited - A Sanofi Company, Hyderabad, India. Sanofi Pasteur, Swiftwater, USA. Sanofi Pasteur, Marcy-l’Etoile, France. Dept. of Pediatrics, SBKS MI & RC, Sumandeep Vidyapeeth, Vadodara, India. Dept. of Pediatrics, KLE University’s, Jawaharlal Nehru Medical College, Belagavi, India. Dept. of Pediatrics, Maulana Azad Medical College, Delhi, India. Dept. of Pediatrics, Institute of Child Health, Kolkata, India. Dept. of Pediatrics, Bharati Vidyapeeth Deemed University Medical College, Pune, India. Dept. of Pediatrics, Christian Medical College, Ludhiana, India. Dept. of Pediatrics, Christian Medical College, Vellore, India. Dept. of Community Medicine, School of Public Health, Post Graduate Institute of Medical Education & Research, Chandigarh, India. Dept. of Pediatrics, Sawai Man Singh Medical College, Jaipur, India. Dept. of Pediatrics, Topiwala National Medical College and BYL Nair Ch. Hospital, Mumbai, India. |
| BACKGROUND: Vaccination is considered as the most cost effective method for preventing infectious diseases. Low grade fever is a known adverse effect of vaccination. In India, it is a common clinical practice to prescribe paracetamol either prophylactically or therapeutically to manage fever. Some studies have shown that paracetamol interferes with antibody responses following immunization. This manuscript reports the outcome of a post hoc analysis of data from a clinical trial of a pentavalent vaccine in Indian infants where paracetamol was not used or was used either as prophylaxis or for treatment of fever. |
### METHODS:
Pre and post vaccine antibody levels against Diphtheria, Tetanus, Pertussis, Hepatitis B, Haemophilus influenzae type B were assessed in no paracetamol and paracetamol groups. The paracetamol group was further divided into prophylactic and treatment groups. **RESULTS:** Similar rates of seroprotection/seroresponse for anti-D, anti-T, anti-wP, anti-PT, anti-HBs and anti-PRP were observed in all the groups. There was no clear tendency for difference in percentage seroprotection/seroresponse and geometric mean (GM) titers in any of the groups. **CONCLUSION:** The study found no evidence that paracetamol usage either as prophylactic or for treatment impact immunological responses to DTwP-HepB-Hib combination vaccine. [Clinical trial registry of India (study registration number CTRI/2012/08/002872)].

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<td>Impact of maternal antibodies and infant gut microbiota on the immunogenicity of rotavirus vaccines in African, Indian and European infants: protocol for a prospective cohort study</td>
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<td>BMJ Open; 2017, 7 (3): e016577</td>
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**INTRODUCTION:** Gastroenteritis is the leading cause of morbidity and mortality among young children living in resource-poor settings, majority of which is attributed to rotavirus. Rotavirus vaccination can therefore have a significant impact on infant mortality. However, rotavirus vaccine efficacy in Sub-Saharan Africa and Southeast Asia is significantly lower than in high-income countries. Maternally derived antibodies, infant gut microbiota and concomitant oral polio vaccination have been proposed as potential reasons for poor vaccine performance in low-income settings. The overall aim of this study is to compare the role of maternally derived antibodies and infant gut microbiota in determining immune response to rotavirus vaccine in high-income and low-income settings, using the same vaccine and a similar study protocol. **METHODS AND ANALYSIS:** The study is an observational cohort in three countries-Malawi, India and UK. Mothers will be enrolled in third trimester of pregnancy and followed up, along with infants after delivery, until the infant completes two doses of oral rotavirus vaccine (along with routine immunisation). The levels of prevaccination maternally derived rotavirus-specific antibodies (IgG) will be correlated with infant seroconversion and antibody titres, 4 weeks after the second dose of rotavirus vaccine. Both within-country and between-country comparisons of gut microbiome will be carried out between children who seroconvert and those who do not. The impact of oral polio vaccine coadministration on rotavirus vaccine response will be studied in Indian infants. **ETHICS AND DISSEMINATION:** Ethical approvals have been obtained from Integrated Research Application System (IRAS, NHS ethics) in UK, College of Medicine Research and Ethics Committee (COMREC) in Malawi and Institutional Review Board (IRB), Christian Medical College, Vellore in India. Participant recruitment and follow-up is ongoing at all three sites. Analysis of data, followed by publication of the results, is expected in 2018.
"Flying-saucer in the pelvis" sign: An equivalent of "pelvic Mickey mouse" sign

Indian J Urol; 2017, 33 (2): 173-174

**Address:** Department of Urology, Christian Medical College and Hospital, Vellore, Tamil Nadu, India.

Isolated bilateral inguinal vesical hernia with urinary bladder as the only content is very rare. "Pelvic Mickey mouse" sign is a radiological sign described classically for bilateral inguinal vesical hernia on transverse axial imaging. Another imaging finding of a "Flying-saucer in the pelvis" sign seen on conventional intravenous urography is being presented.

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<th>246</th>
<th>Singh, O., Mukherjee, P. and Devasia, A.</th>
<th>NAT</th>
<th>JAN TO JUN</th>
<th>PMID:28469309</th>
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<td>The negative pyelogram in urinary obstruction</td>
<td>Indian J Urol; 2017, 33 (2): 169-170</td>
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<td><strong>Address:</strong> Department of Urology, Christian Medical College and Hospital, Vellore, Tamil Nadu, India.</td>
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<tr>
<td>A case of chronic ureteral obstruction secondary to radiation-related ureteral stricture producing a classic &quot;negative pyelogram&quot; on intravenous urography is presented.</td>
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<th>247</th>
<th>Singh, O., Muthukrishna Pandian, R. and Sudhakar Kekre, N.</th>
<th>INT</th>
<th>JAN TO JUN</th>
<th>PMID:27816602</th>
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<td>Alkaptonuric Ochronosis</td>
<td>Urology; 2017, 100 e3-e4</td>
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<td><strong>Address:</strong> Department of Urology, Christian Medical College and Hospital, Vellore, Tamilnadu, India. Electronic <strong>Address:</strong> <a href="mailto:dronkarsingh@gmail.com">dronkarsingh@gmail.com</a> Department of Urology, Christian Medical College and Hospital, Vellore, Tamilnadu, India.</td>
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<td>Alkaptonuria is a rare autosomal recessive disorder of tyrosine metabolism. Deficiency of homogentisate 1,2 dioxygenase results in accumulation of oxidized homogentisic acid in the connective tissues of the skin, eyes and ears, musculoskeletal system, and cardiac valves, and in urolithiasis. Excretion of excessive homogentisic acid in urine causes dark-colored urine on exposure to air. We present a case of alkaptonuria with multiple system involvement, who presented with lower urinary tract symptoms secondary to vesical and prostatic calculi.</td>
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<th>248</th>
<th>Sivaraju, L., Mani, S., Prabhu, K., Daniel, R. T. and Chacko, A. G.</th>
<th>INT</th>
<th>JAN TO JUN</th>
<th>PMID:27137997</th>
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<td>Three-dimensional computed tomography angiographic study of the vertebral artery in patients with congenital craniovertebral junction anomalies</td>
<td>Eur Spine J; 2017, 26 (4): 1028-1038</td>
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### Purpose
To describe vertebral artery (VA) course at the C0-C1-C2 complex in patients with congenital bony craniovertebral junction (CVJ) anomalies.

### Methods
We studied the course of 169 VAs in 86 patients with congenital bony CVJ anomalies [basilar invagination (42), os odontoideum (33), and irreducible atlantoaxial dislocation (11)]. Occipitalized atlas occurred in 41 patients (30 complete and 11 partial). Using axial, coronal and sagittal three-dimensional computed tomography (3D-CT) angiograms, we traced the VA bilaterally at the CVJ and correlated the course to the presence or absence of occipitalization of the atlas.

### Results
Of the 73 arteries associated with occipitalization of atlas, all had an abnormal course—58 (78.4%) coursed through a canal within the C0-C1 fused complex and 15 (20.3%) coursed below the C1 posterior arch, and it was absent unilaterally in one patient. There were 96 arteries associated with a non-occipitalized atlas and only 15 (15.3%) were abnormal—eight coursed below the C1 posterior arch, four coursed above the C1 arch in the absence of a C1 foramen transversarium, one passed through a canal in C0-C1 and two arteries were absent unilaterally. Sixty vertebral arteries (34 on the right and 26 on the left side) had a redundant loop situated at a distance of >5 mm from the C1 lateral mass in patients with os odontoideum and irreducible atlantoaxial dislocation.

### Conclusions
In occipitalization of the atlas, the VA course is usually abnormal—typically passing through a canal within the C0-C1 fused complex or below the C1 arch. A redundant VA loop is more likely to be seen in os odontoideum and irreducible atlantoaxial dislocation. Careful study of the vertebral artery course with 3D CT angiography is mandatory while contemplating CVJ realignment surgery in congenital anomalies of the CVJ.

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**249 Sivaraju, L., Moorthy, R. K., Jeyaseelan, V. and Rajshekhar, V.**

Routine placement of subdural drain after bbur hole evacuation of chronic and subacute subdural hematoma: a contrarian evidence based approach

Neurosurg Rev; 2017,

**Address:** Department of Neurological Sciences, Christian Medical College, Vellore, Tamilnadu, 632004, India. ranjith@cmcvellore.ac.in. Department of Biostatistics, Christian Medical College, Vellore, Tamilnadu, India.

The objective of this paper was to evaluate whether available evidence supporting placement of subdural drain placement after evacuation of chronic subdural haematoma (CSDH) is applicable to a cohort of patients managed by us. In this observational cohort study, clinical follow-up was obtained in 166 patients who underwent bbur hole evacuation of CSDH without placement of subdural drain followed by 3 days of bed rest. The primary outcome studied was recurrence requiring reoperation. Factors predicting recurrence were also analysed. We compared the patient characteristics and management protocols in our cohort with that in reports supporting drain placement to determine whether such evidence is relevant to our patient group. The mean age of our patients was 58 +/- 17 years (range, 1 to 89 years). Sixteen of
### CMC SCIENTIFIC RESEARCH PUBLICATION FOR THE YEAR 2017 (JANUARY TO JUNE)

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| The 166 (9.6%) patients presented with symptomatic recurrence. The median time to reoperation for recurrence (15 of 16 patients) after the primary procedure was 17 days (range, 2 to 68 days). Antiplatelet and anticoagulant therapy was the only factor that was significantly associated with recurrence (p = 0.01). There were no infective or non-infective complications in our patient cohort. Our patient cohort and outcomes differed from those reporting drain placements in the following parameters: they were a decade younger, all patients received bed rest for 3 days after surgery and the recurrence rate was similar to that reported in the drained groups but significantly less than that reported in the non-drained groups. Routine placement of drain following Burr hole evacuation of CSDH should only be done after careful comparison of the patient cohort under consideration and those reporting superior outcomes with drains. Evidence-based medicine supports such an approach. | [Sonbare, D. J. (2017)](https://www.ncbi.nlm.nih.gov/pubmed/28257322) **Organ Failure and Infection in Necrotizing Pancreatitis: What Are the Predictors of Mortality?** Ann Surg; 2017, Address: Christian Medical College and Hospital Vellore, Tamil Nadu, India.


| 252 | Srivastava, A. and Shaji, R. V. | [Srivastava, A. and Shaji, R. V. (2017)](https://www.ncbi.nlm.nih.gov/pubmed/27909215) **Cure for thalassemia major - from allogeneic hematopoietic stem cell transplantation to gene therapy** Haematologica; 2017, 102 (2): 214-223 Address: Department of Haematology & Centre for Stem Cell Research (a unit of inStem, Bengaluru), Christian Medical College, Vellore- 632004, Tamil Nadu, India aloks@cmcvellore.ac.in Department of Haematology & Centre for Stem Cell Research (a unit of inStem, Bengaluru), Christian Medical College, Vellore- 632004, Tamil Nadu, India. Allogeneic hematopoietic stem cell transplantation has been well established for several decades as gene replacement therapy for patients with thalassemia major, and now offers very high rates of cure for patients who have access to this therapy. Outcomes have improved tremendously over the last decade, even in high-risk patients. The limited data available suggests that the long-term outcome is also excellent, with a >90% survival rate, but for the best results, hematopoietic stem cell transplantation should be offered early, before any end organ damage occurs. However, access to this therapy is limited in more than half the patients by the lack of suitable donors. Inadequate hematopoietic stem cell transplantation services and the high cost of therapy are other reasons for this limited access, particularly
in those parts of the world which have a high prevalence of this condition. As a result, fewer than 10% of eligible patients are actually able to avail of this therapy. Other options for curative therapies are therefore needed. Recently, gene correction of autologous hematopoietic stem cells has been successfully established using lentiviral vectors, and several clinical trials have been initiated. A gene editing approach to correct the beta-globin mutation or disrupt the BCL11A gene to increase fetal hemoglobin production has also been reported, and is expected to be introduced in clinical trials soon. Curative possibilities for the major hemoglobin disorders are expanding. Providing access to these therapies around the world will remain a challenge.

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<th>Author(s)</th>
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<th>Volume</th>
<th>Pages</th>
<th>PMID</th>
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Pre-admission antibiotics for suspected cases of meningococcal disease

Cochrane Database Syst Rev; 2017, 6 CD005437

BACKGROUND: Meningococcal disease can lead to death or disability within hours after onset. Pre-admission antibiotics aim to reduce the risk of serious disease and death by preventing delays in starting therapy before confirmation of the diagnosis.

OBJECTIVES: To study the effectiveness and safety of pre-admission antibiotics versus no pre-admission antibiotics or placebo, and different pre-admission antibiotic regimens in decreasing mortality, clinical failure, and morbidity in people suspected of meningococcal disease.


SELECTION CRITERIA: Randomised controlled trials (RCTs) or quasi-RCTs comparing antibiotics versus placebo or no intervention, in people with suspected meningococcal infection, or different antibiotics administered before admission to hospital or confirmation of the diagnosis.

DATA COLLECTION AND ANALYSIS: Two review authors independently assessed trial quality and extracted data from the search results. We calculated the risk ratio (RR) and 95% confidence interval (CI) for dichotomous data. We included only one trial and so did not perform data synthesis. We assessed the overall quality of the evidence using the GRADE approach.

MAIN RESULTS: We found no RCTs comparing pre-admission antibiotics versus no pre-admission antibiotics or placebo. We included one open-label, non-inferiority RCT with 510 participants, conducted during an epidemic in Niger, evaluating a single dose of intramuscular ceftriaxone versus a single dose of intramuscular long-acting (oily) chloramphenicol. Ceftriaxone was not inferior to chloramphenicol in reducing mortality (RR 1.21, 95% CI 0.57 to 2.56; N = 503; 308 confirmed meningococcal meningitis; 26 deaths; moderate-quality evidence), clinical failures (RR 0.83, 95% CI 0.32 to 2.15; N = 477; 18 clinical failures; moderate-quality evidence), or neurological sequelae (RR 1.29, 95% CI 0.63 to 2.62; N = 477; 29 with sequelae; low-quality evidence). No adverse effects of treatment were reported. Estimated treatment costs were similar. No data were available on disease burden due to sequelae.

AUTHORS’ CONCLUSIONS: We found no reliable evidence to support the use of pre-admission antibiotics for suspected cases of non-severe meningococcal disease. Moderate-quality evidence from one RCT indicated that single intramuscular injections of ceftriaxone and long-acting chloramphenicol were equally effective, safe, and economical in reducing serious outcomes. The choice between these antibiotics should be based on affordability, availability, and patterns of antibiotic resistance. Further RCTs comparing different pre-admission antibiotics, accompanied by intensive supportive measures, are ethically justified in people with less severe illness, and are needed to provide reliable evidence in different clinical settings.
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<th>Study Question</th>
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<td>256</td>
<td>Sudheesh, S. and Boaz, R. J.</td>
<td>Degrees of Deficiency: Doctors and Vitamin D</td>
<td>Department of Community Medicine, Christian Fellowship Hospital, Orissa, India. Department of Urology, Christian Medical College, Vellore, Tamil Nadu, India.</td>
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<td>There was no increase in the risk of adverse perinatal outcomes following PGD and IVF cycles.</td>
<td>Although the analysis was adjusted for a number of important confounders, the data set had no information on confounders such as smoking, body mass index and the medical history of women during pregnancy to</td>
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<td>257</td>
<td>Sunkara, S. K., Antonisamy, B., Selliah, H. Y. and Kamath, M. S.</td>
<td>Pre-term birth and low birth weight following preimplantation genetic diagnosis: analysis of 88 010 singleton live births following PGD and IVF cycles</td>
<td>Queen’s Hospital, Barking Havering Redbridge University Hospitals NHS Trust, Essex, UK <a href="mailto:sksunkara@hotmail.com">sksunkara@hotmail.com</a> <a href="mailto:Sesh.sunkara1@nhs.net">Sesh.sunkara1@nhs.net</a> Christian Medical College Hospital, Vellore, Tamil Nadu, India.</td>
<td>STUDY QUESTION: Is PGD associated with the risk of adverse perinatal outcomes such as pre-term birth (PTB) and low birth weight (LBW)? SUMMARY ANSWER: There was no increase in the risk of adverse perinatal outcomes of PTB, and LBW following PGD compared with autologous IVF.</td>
<td>WHAT IS KNOWN ALREADY: Pregnancies resulting from ART are associated with a higher risk of pregnancy complications compared with spontaneously conceived pregnancies. The possible reason of adverse obstetric outcomes following ART has been attributed to the underlying infertility itself and embryo specific epigenetic modifications due to the IVF techniques. It is of interest whether interventions such as embryo biopsy as performed in PGD affect perinatal outcomes.</td>
<td>Anonymous data were obtained from the Human Fertilization and Embryology Authority (HFEA), the statutory regulator of ART in the UK. The HFEA has collected data prospectively on all ART performed in the UK since 1991. Data from 1996 to 2011 involving a total of 88 010 singleton live births were analysed including 87 571 following autologous stimulated IVF +/- ICSI and 439 following PGD cycles. PARTICIPANTS/MATERIALS, SETTING, METHODS: Data on all women undergoing either a stimulated fresh IVF +/- ICSI treatment cycle or a PGD cycle during the period from 1996 to 2011 were analysed to compare perinatal outcomes of PTB and LBW among singleton live births. Logistic regression analysis was performed adjusting for female age category, year of treatment, previous IVF cycles, infertility diagnosis, number of oocytes retrieved, whether IVF or ICSI was used and day of embryo transfer. MAIN RESULTS AND THE ROLE OF CHANCE: There was no increase in the risk of PTB and LBW following PGD versus autologous stimulated IVF +/- ICSI treatment, unadjusted odds of PTB (odds ratio (OR) 0.68, 95% CI: 0.46-0.99) and LBW (OR 0.56, 95% CI: 0.39-0.92) and LBW (OR 0.58, 95% CI: 0.38-0.88). LIMITATIONS, REASONS FOR CAUTION: Although the analysis was adjusted for a number of important confounders, the data set had no information on confounders such as smoking, body mass index and the medical history of women during pregnancy to</td>
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allow adjustment. There was no information on the stage of embryo at biopsy, whether blastomere or trophoderm biopsy. WIDER IMPLICATIONS FOR THE FINDINGS: The demonstration that PGD is not associated with higher risk of PTB and LBW provides reassurance towards its current expanding application. STUDY FUNDING/COMPETING INTERESTS: No funding was obtained. There are no competing interests to declare.

| 258 | Suryawanshi, M., Karnik, S. and Roy, S. | INT | JAN TO JUN | PMID: 28658768 |
| Address: | Assistant Professor, Department of Pathology, Christian Medical Hospital, Vellore, Tamil Nadu, India. Consultant Oncopathologist and Renal Histopathologist, Department of Pathology, Ruby Hall Clinic, Pune, Maharashtra, India. | |

**INTRODUCTION:** Primary glomerular disease presenting with adult onset nephrotic syndrome are a major cause of chronic renal failure worldwide. The spectrum of renal disease presenting with nephrotic syndrome has undergone a gradual change globally over the course of time. However, there still exist regional differences in the incidence of primary glomerular diseases causing adult onset nephrotic syndrome. **AIM:** To observe the spectrum of renal diseases presenting with adult onset nephrotic syndrome with comparative analysis of changing trends over the last five decades with regards to Western and Indian literature. **MATERIALS AND METHODS:** Subjects included patients with age of 18-80 years presenting with nephrotic syndrome. Renal biopsies with immunofluoroscence studies were performed in all patients. Baseline clinical parameters of serum urea, creatinine, albumin, globulin, cholesterol, 24 hour urine protein and urine microscopy were recorded. Descriptive statistics was used and results were expressed as frequencies, percentages, and mean+/−standard deviation. **RESULTS:** A total of 227 patients (72% males) were included for the study. Primary glomerular diseases formed 74.01% of total cases and majority of patients included males in the 4th decade. Minimal Change Disease (MCD) (15.8%) including its variants was the most common primary glomerular disease for adult onset of nephrotic syndrome followed by Mesangial proliferative Glomerulonephritis (MSGN) (13.2%). Membranous nephropathy and Type I Membranoproliferative Glomerulonephritis (MPGN) individually accounted for 12.3% of patients. Focal and Segmental Glomerulosclerosis (FSGS) accounted for only 11% of patients. Although, increased incidence of FSGS has been observed worldwide, there exist important regional differences in primary glomerular diseases in Indian population. MCD remains a major glomerular disease for adult onset nephrotic syndrome in different parts of India. **CONCLUSION:** Our study over three years represents important data of regional variations of primary glomerular diseases presenting with adult onset nephrotic syndrome.

| 259 | Susmitha Wils, K., Devasahayam, S. R., Manivannan, M. and Mathew, G. | INT | JAN TO JUN | PMID: 27841700 |
| --- | Force model for laparoscopic graspers: implications for virtual simulator design | Minim Invasive Ther Allied Technol; 2017, 26 (2): 97-103 | |

**INT – INTERNATIONAL; NAT – NATIONAL; PMID: PUBMED ID; PMCID: PUBMED CENTRAL ID**
INTRODUCTION: Laparoscopic graspers limit haptic perception, which in turn leads to tissue damage. Using virtual simulators to train surgeons in handling these instruments would ensure safer grasp. The design of a laparoscopic virtual simulator with force feedback depends on effective implementation of the grasper force model. **OBJECTIVE:** To develop a laparoscopic grasper tip force model theoretically from grasper mechanics and validate the same experimentally during laparoscopic pinching. **MATERIALS AND METHODS:** We developed a force model for double and single jaw action graspers using grasper mechanics. For experimental validation, the handle angle and the forces at the tip and the handle of the instrumented graspers during laparoscopic pinching of porcine abdominal tissues were measured. The intra-class correlation coefficient (ICC) between experimental and calculated tip force was calculated. **RESULT:** Excellent ICC (ICC > = 0.8, p <.001) between calculated and experimental tip force was obtained for both graspers for all grasped tissues. Mean absolute forces for all trials while using double and single jaw action graspers were ((FTc = 1.7N, FTe = 1.8N) and (FTc = 2.2N, FTe = 2.8N)) for gall bladder, ((FTc = 3.4N, FTe = 4.4N) and (FTc = 3.3N, FTe = 3.4N)) for liver and ((FTc = 4.2N, FTe = 4.5N) and (FTc = 2.3N, FTe = 2.6N)) for spleen, respectively. **CONCLUSION:** The proposed model may be used for the design of laparoscopic pinching action in a virtual simulator with force feedback and also for better ergonomic design of laparoscopic graspers.

**Address:** a Department of Bioengineering, Christian Medical College Vellore, Tamil Nadu, India. 
b Department of Biotechnology, Indian Institute of Technology Madras, Tamil Nadu, India. 
c Department of Applied Mechanics, Indian Institute of Technology Madras, Tamil Nadu, India. 
d Medical Sciences Group, University of Pelita Harapan Medical Sciences, Tangerang, Indonesia.

**INTRODUCTION:** Spoligotyping is a valuable genotyping tool to study the genetic diversity and molecular epidemiology of *Mycobacterium tuberculosis* (M. tb). The aim of this study was to analyse different spoligotype patterns of M. tb strains isolated from patients with tuberculosis from different parts of India. **MATERIALS AND METHODS:** A total of 163 M. tb isolates were spoligotyped between January 2014 and January 2015. About 47% (n = 77) were from patients with extrapulmonary tuberculosis; of these, 10 were MDR, and seven were Pre-XDR. Of the 86 M. tb isolates from patients with pulmonary tuberculosis, 25 were MDR, and 25 were Pre-XDR. **RESULTS:** We found 61 spoligo patterns, 128 clusters in the spoligotype data base (spoldb4 data base) with spoligo international type (SIT) number and 35 true unique isolates. The most pre-dominant spoligotype was EAI lineage (56), followed by Beijing (28), CAS (20), T(9), U(7), X(3), H(3), BOVIS_1 BCG(1) and LAM(1). **CONCLUSION:** Although our study identified EAI, CAS and Beijing strain lineages as pre-dominant, we also found a large number of orphan strains (20%) in our study. Beijing strains were more significantly associated with MDR TB than CAS and EAI.

**Address:** Department of Clinical Microbiology, Christian Medical College, Vellore, India. Department of Bacteriology, National Institute for Research in Tuberculosis, Chennai, India.

**OBJECTIVE:** Spoligotyping is a valuable genotyping tool to study the genetic diversity and molecular epidemiology of *Mycobacterium tuberculosis* (M. tb). The aim of this study was to analyse different spoligotype patterns of M. tb strains isolated from patients with tuberculosis from different parts of India. **MATERIALS AND METHODS:** A total of 163 M. tb isolates were spoligotyped between January 2014 and January 2015. About 47% (n = 77) were from patients with extrapulmonary tuberculosis; of these, 10 were MDR, and seven were Pre-XDR. Of the 86 M. tb isolates from patients with pulmonary tuberculosis, 25 were MDR, and 25 were Pre-XDR. **RESULTS:** We found 61 spoligo patterns, 128 clusters in the spoligotype data base (spoldb4 data base) with spoligo international type (SIT) number and 35 true unique isolates. The most pre-dominant spoligotype was EAI lineage (56), followed by Beijing (28), CAS (20), T(9), U(7), X(3), H(3), BOVIS_1 BCG(1) and LAM(1). **CONCLUSION:** Although our study identified EAI, CAS and Beijing strain lineages as pre-dominant, we also found a large number of orphan strains (20%) in our study. Beijing strains were more significantly associated with MDR TB than CAS and EAI.

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lineages. Further studies on large sample sizes would help to clearly describe the epidemiology of M. tb in India.

**261**


Clinicopathological Study of 18 Cases of Inflammatory Myofibroblastic Tumors with Reference to ALK-1 Expression: 5-Year Experience in a Tertiary Care Center

J Pathol Transl Med; 2017, 51 (3): 255-263

**Address:** Department of General Pathology, Christian Medical College and Hospital, Vellore, India. Department of Paediatric Surgery, Christian Medical College and Hospital, Vellore, India. Department of Thoracic Surgery, Christian Medical College and Hospital, Vellore, India.

**BACKGROUND:** Inflammatory myofibroblastic tumor is a histopathologically distinctive neoplasm of children and young adults. According to World Health Organization (WHO) classification, inflammatory myofibroblastic tumor is an intermediate-grade tumor, with potential for recurrence and rare metastasis. There are no definite histopathologic, molecular, or cytogenetic features to predict malignant transformation, recurrence, or metastasis.

**METHODS:** A 5-year retrospective study of histopathologically diagnosed inflammatory myofibroblastic tumors of various anatomic sites was conducted to correlate anaplastic lymphoma kinase-1 (ALK-1) expression with histological atypia, multicentric origin of tumor, recurrence, and metastasis. Clinical details of all the cases were noted from the clinical work station. Immunohistochemical stains for ALK-1 and other antibodies were performed. Statistical analysis was done using Fisher exact test.

**RESULTS:** A total of 18 cases of inflammatory myofibroblastic tumors were found during the study period, of which 14 were classical. The female:male ratio was 1:1 and the mean age was 23.8 years. Histologically atypical (four cases) and multifocal tumors (three cases, multicentric in origin) were noted. Recurrence was noted in 30% of ALK-1 positive and 37.5% of ALK-1 negative cases, whereas metastasis to the lung, liver, and pelvic bone was noted in the ALK-1 positive group only.

**CONCLUSIONS:** Overall, ALK-1 protein was expressed in 55.6% of inflammatory myofibroblastic tumors. There was no statistically significant correlation between ALK-1 expression, tumor type, recurrence and metastasis. However, ALK-1 immunohistochemistry is a useful diagnostic aid in the appropriate clinical and histomorphologic context.

**262**

Thakkar, K., Mariappan, R. and Nair, B. R.

Detection and management of intraoperative seizure with bispectral index monitoring in a paralyzed patient

Neurol India; 2017, 65 (Supplement): S100-S101

**Address:** Department of Anaesthesia, Christian Medical College, Vellore, Tamil Nadu, India. Department of Neurological Sciences, Christian Medical College, Vellore, Tamil Nadu, India.

**263**

Therakathu, J., Yadav, V. K., Keshava, S. N., Gibikote, S., Chavan, G. B. and Shroff, M.

The current status of pediatric radiology in India: A conference-based survey

**INT** JAN TO JUN PMID: 28415158

**NAT** JAN TO JUN PMID: 28281505

**NAT** JAN TO JUN PMID: 28515591
Indian J Radiol Imaging; 2017, 27 (1): 73-77

**Address:** Department of Radiology, Christian Medical College, Vellore, Tamil Nadu, India.
Department of Diagnostic Imaging, The Hospital for Sick Children, Toronto, Canada.

**INTRODUCTION:** Like most other developing countries, India has a large proportion of children among its population. However, the facilities for adequate treatment of this large population is inadequate. The development of pediatric radiology as a subspecialty is still at an infant stage in India. The goal of our study was to assess the awareness about the current status of pediatric radiology in India.

**MATERIALS AND METHODS:** A questionnaire was handed over to all attendees of a pediatric radiology conference to assess their opinion regarding the adequacy of pediatric training and practice in India. The questionnaire consisted of 10 multiple-choice and two descriptive questions. Descriptive statistical methods were used for analyzing the results.

**RESULTS:** Eighty-one out of 400 delegates responded to the questionnaire. Among these 81 respondents, 50 (61.7%) felt that exposure to pediatric cases during postgraduate course was inadequate. Sixty-three out of 81 (77.7%) respondents thought that specialized training is required for practicing pediatric radiology, and 79 respondents (97%) felt that the number of such training programmes should increase. Forty-five out of 81 respondents (55.5%) were interested in pursuing pediatric radiology as a career.

**CONCLUSION:** According to the opinion of the respondents of our survey, pediatric radiology remains an underdeveloped specialty in India. Considering the proportion of the population in the pediatric age and the poor health indicators in this age group, elaborate measures, as suggested, need to be implemented to improve pediatric radiology training and the care of sick children in India.

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**264**

Thirumal Kumar, D., Lavanya, P., George Priya Doss, C., Tayubi, I. A., Naveen Kumar, D. R., Francis Yesurajan, I., Siva, R. and Balaji, V.

A Molecular Docking and Dynamics Approach to Screen Potent Inhibitors Against Fosfomycin Resistant Enzyme in Clinical Klebsiella pneumoniae

J Cell Biochem; 2017,

**Address:** School of Biosciences and Technology, VIT University, Vellore, 632014, India. Department of Clinical Microbiology, Christian Medical College, Vellore, 632004, India. Faculty of Computing and Information Technology, King Abdulaziz University, Rabigh, 21911, Saudi Arabia.

Klebsiella pneumoniae, BA6753 was cultured from a patient in the Clinical Microbiology Laboratory of Christian Medical College. K. pneumoniae, BA6753 has a multidrug resistance plasmid encoding novel FosA variant-7, fosfomycin resistance enzyme. Minimal side effects and a wide range of bactericidal activity of fosfomycin have resulted in its expanded clinical use that prompts the rise of fosfomycin-resistant strains. At present, there are no effective inhibitors available to conflict the FosA-mediated fosfomycin resistance. To develop effective FosA inhibitors, it is crucial to understand the structural and dynamic properties of resistance enzymes. Hence, the present study focuses on the identification of potent inhibitors that can effectively bind to the fosfomycin resistance enzyme, thus predispose the target to...
inactivate by the second antibiotic. Initially, a series of active compounds were screened against the resistant enzyme, and the binding affinities were confirmed using docking simulation analysis. For efficient activity, the binding affinity of the resistance enzyme ought to be high with the inhibitor than the fosfomycin drug. Consequently, the enzyme-ligand complex which showed higher binding affinity than the fosfomycin was employed for subsequent analysis. The stability of the top scoring enzyme-ligand complex was further validated using molecular dynamics simulation studies. On the whole, we presume that the compound 19583672 demonstrates a higher binding affinity for the resistance enzyme comparing to other compounds and fosfomycin. We believe that further enhancement of the lead compound can serve as a potential inhibitor against resistance enzyme in drug discovery process. J. Cell. Biochem. 9999: 1-7, 2017. (c) 2017 Wiley Periodicals, Inc.

**265**

| Thomas, B. P., Raveendran, S., Pallapati, S. R. and Anderson, G. A. |
| Augmented hamate replacement arthroplasty for fracture-dislocations of the proximal interphalangeal joints in 12 patients |
| J Hand Surg Eur Vol; 2017, 1753193417707381 |

Address: Paul Brand Centre for Hand Surgery & Peripheral Nerve Surgery, Christian Medical College & Hospital, Vellore, India.

We report clinical outcomes in 12 patients with hemi-hamate replacement arthroplasty combined with volar plate arthroplasty. The volar plate was reattached using trans-osseous sutures to reconstruct the ligament-box complex after hamate grafting to augment the stability of the proximal interphalangeal joint. Ten patients had improved joint movement from a mean of 14 degrees before surgery to a mean of 77 degrees at a minimum follow-up of 2 years. Grip strength and pain of the affected hand and patient-rated hand and wrist scores were improved in these 10 patients. Two patients had poor results. One patient developed ankylosis, and one patient had resorption of the grafted bone. We conclude that the augmented hamate replacement arthroplasty is useful in treating chronic proximal interphalangeal joint fracture-dislocations. LEVEL OF EVIDENCE: IV.

**266**

| Tk, A., Singhal, H., P, S. Premkumar, Acharya, M., M, S. Kamath and George, K. |
| Local endometrial injury in women with failed IVF undergoing a repeat cycle: A randomized controlled trial |

Address: Reproductive Medicine Unit, Christian Medical College Hospital, Vellore, India. Department of Biostatistics, Christian Medical College Hospital, Vellore, India. Reproductive Medicine Unit, Christian Medical College Hospital, Vellore, India. Electronic Address: dockamz@gmail.com Reproductive Medicine Unit, Bangalore Baptist Hospital, Bangalore.

**OBJECTIVE:** To evaluate the effectiveness of local endometrial injury in women undergoing in vitro fertilization (IVF) with at least one previous unsuccessful attempt. STUDY DESIGN: Randomized controlled trial. Recruited women were randomized into two groups. In group A (pipelle group), women underwent
pipelle biopsy twice in the luteal phase in the cycle prior to IVF. In group B (control), women did not undergo any intervention prior to IVF. The primary outcome was clinical pregnancy rate. The secondary outcomes included live birth, miscarriage, multiple pregnancy and preterm delivery rates. **RESULTS:** One hundred and eleven women were included in the study with 55 in the pipelle group and 56 in the control arm. The baseline clinical characteristics were similar in both groups. The clinical pregnancy rates were not significantly different between pipelle and control group (34.09% vs. 27.65%; Odds ratio, OR 1.35, 95% confidence interval, CI 0.55-3.30). The live birth (31.81% vs. 25.53%; OR 1.36, 95% CI 0.55-3.39), multiple pregnancy (33.33% vs. 61.54%; OR 0.31, 95% CI 0.07-1.47), miscarriage (6.66% vs. 7.69%; OR 0.86, 95% CI 0.05-15.23) and preterm delivery rates (35.71% vs. 66.66%; OR 0.28, 95% CI 0.05-1.4) were also not significantly different between the two groups. **CONCLUSION:** Current study did not find any improvement in IVF success rates following endometrial injury in woman undergoing IVF after previous failed attempt.

**267**
Trowbridge, P., P., D., Premkumar, P. S. and Varghese, G. M.
Prevalence and risk factors for scrub typhus in South India
Trop Med Int Health; 2017, 22 (5): 576-582

**Address:** Spectrum Health Center for Integrative Medicine, Grand Rapids, MI, USA.
Tufts Medical Center/Tufts University, Boston, MA, USA. Christian Medical College, Vellore, India.

**OBJECTIVE:** To determine the prevalence and risk factors of scrub typhus in Tamil Nadu, South India. **METHODS:** We performed a clustered seroprevalence study of the areas around Vellore. All participants completed a risk factor survey, with seropositive and seronegative participants acting as cases and controls, respectively, in a risk factor analysis. After univariate analysis, variables found to be significant underwent multivariate analysis. **RESULTS:** Of 721 people participating in this study, 31.8% tested seropositive. By univariate analysis, after accounting for clustering, having a house that was clustered with other houses, having a fewer rooms in a house, having fewer people living in a household, defecating outside, female sex, age >60 years, shorter height, lower weight, smaller body mass index and smaller mid-upper arm circumference were found to be significantly associated with seropositivity. After multivariate regression modelling, living in a house clustered with other houses, female sex and age >60 years were significantly associated with scrub typhus exposure. **CONCLUSIONS:** Overall, scrub typhus is much more common than previously thought. Previously described individual environmental and habitual risk factors seem to have less importance in South India, perhaps because of the overall scrub typhus-conducive nature of the environment in this region.

**268**
Vadivelu, M., Rathore, S., Benjamin, S. J., Abraham, A., Belavendra, A. and Mathews, J. E.
Randomized controlled trial of the effect of amniotomy on the duration of spontaneous labor
Int J Gynaecol Obstet; 2017,

**Address:** Department of Obstetrics and Gynaecology, Christian Medical College, Vellore, Tamilnadu, India. Department of Biostatistics, Christian Medical College, Vellore, Tamilnadu, India.
OBJECTIVE: To investigate the effect of amniotomy on the duration of spontaneous labor. METHODS: In the present randomized controlled trial, women in spontaneous labor with singleton pregnancies presenting at a tertiary teaching hospital in South India between August 1, 2014, and October 31, 2015, were randomized in a 1:1 ratio to undergo amniotomy or conservative management. The primary outcome was the duration of labor. Per-protocol analyses were performed and the duration of labor was compared between the groups of patients. RESULTS: There were 144 patients randomized to each group. The median duration of labor was 235 minutes (interquartile range 117-355) in the amniotomy group and 364 minutes (interquartile range 201-580) in the conservative management group (P<0.001). CONCLUSION: Amniotomy was associated with a shorter duration of labor in comparison with conservative management in patients with singleton pregnancies experiencing spontaneous labor. Clinical Trials Registry-India: (CTRI) (CTRI/2014/12/005264).

ATP-binding cassette transporter expression in acute myeloid leukemia: association with in vitro cytotoxicity and prognostic markers
Pharmacogenomics; 2017, 18 (3): 235-244
Address: Department of Haematology, Christian Medical College, Vellore, India.
Cytogenetics Unit, Christian Medical College, Vellore, India.
INTRODUCTION: Drug resistance and relapse are considered to be the major reasons for treatment failure in acute myeloid leukemia (AML). There is limited data on the role of ABC transporter expression on in vitro sensitivity to cytarabine (Ara-C) and daunorubicin (Dnr) in primary AML cells. PATIENTS & METHODS: RNA expression levels of 12 ABC transporters were analyzed by real-time quantitative PCR in 233 de novo adult acute myeloid leukemia patients. Based on cytarabine or Dnr IC50, the samples were categorized as sensitive, intermediate and resistant. Role of candidate ABC transporter RNA expression on in vitro cytotoxicity, treatment outcome post therapy as well as the influence of various prognostic markers on ABC transporter expression were analyzed. RESULTS: Expression of ABCC3 and ABCB6 were significantly higher in Dnr-resistant samples when compared with Dnr-sensitive samples. Increased ABCC1 expression was associated with poor disease-free survival in this cohort of patients. CONCLUSION: This comprehensive analysis suggests ABCC1, ABCC3, ABCB6 and ABCA5 as probable targets which can be modulated for improving chemotherapeutic responses.

270 Varghese, S. S., Sasidharan, B., Manipadam, M. T., Paul, M. J. and Backianathan, S.
Radiotherapy in Phyllodes Tumour
Address: Associate Physician, Department of Radiation Oncology, Christian Medical College, Vellore, Tamil Nadu, India. Associate Professor, Department of Radiation Oncology, Christian Medical College, Vellore.
INTRODUCTION: Phyllodes Tumour (PT) of the breast is a relatively rare breast neoplasm (<1%) with diverse range of pathology and biological behaviour. AIM: To describe the clinical course of PT and to define the role of Radiotherapy (RT) in PT of the breast. MATERIALS AND METHODS: Retrospective analysis of hospital data of patients with PT presented from 2005 to 2014 was done. Descriptive statistics was used to analyze the results. Simple description of data was done in this study. Age and duration of symptoms were expressed in median and range. Percentages, tables and general discussions were used to understand the meaning of the data analyzed. RESULTS: Out of the 98 patients, 92 were eligible for analysis. The median age of presentation was 43 years. A total of 64/92 patients were premenopausal. There was no side predilection for this tumour but 57/92 patients presented as an upper outer quadrant lump. Fifty percent of the patients presented as giant (10 cm) PT. The median duration of symptoms was 12 months (range: 1-168 months). A 60% of patients had Benign (B), 23% had Borderline (BL) and 17% had malignant (M) tumours. The surgical treatment for benign histology included Lumpectomy (L) for 15%, Wide Local Excision (WLE) for 48%, and Simple Mastectomy (SM) for 37%. All BL and M tumours were treated with WLE or SM. There was no recurrence in B and BL group when the margin was >/=1 cm. All non-metastatic M tumours received adjuvant RT irrespective of their margin status. Total 3/16 patients with M developed local recurrence. All non-metastatic M tumours received adjuvant RT irrespective of their margin status. Total 3/16 patients with M developed local recurrence. Total 6/16 M patients had distant metastases (lung or bone). Our median duration of follow up was 20 months (range: 1-120 months). CONCLUSION: Surgical resection with adequate margins (>1 cm) gave excellent local control in B and BL tumours. For patients with BL PT, local radiotherapy is useful, if margins are close or positive even after the best surgical resection. There is a trend towards improved local control with adjuvant radiotherapy for malignant PT. Metastatic malignant PT has a poor outcome.

271 Varghese, V., Saravana Kumar, G. and Krishnan, V.
Effect of various factors on pull out strength of pedicle screw in normal and osteoporotic cancellous bone models

Med Eng Phys; 2017, 40 28-38

Address: Biomedical Devices and Technology, IIT Madras, Chennai 600036, India. Electronic Address: vicky.varghese@gmail.com Department of Engineering Design, IIT Madras, Chennai 600036, India. Electronic Address: ggsaravana@iitm.ac.in Spinal Disorder Surgery Unit, Department of orthopedics, Christian Medical College, Vellore 632004, Tamil Nadu, India. Electronic Address: venkateshortho1@cmcvellore.ac.in

Pedicle screws are widely used for the treatment of spinal instability by spine fusion. Screw loosening is a major problem of spine fusion, contributing to delayed patient recovery. The present study aimed to understand the factor and interaction effects of density, insertion depth and insertion angle on pedicle screw pull out strength and insertion torque. A pull out study was carried out on rigid polyurethane foam blocks representing osteoporotic to normal bone densities according to the ASTM-1839 standard. It was
found that density contributes most to pullout strength and insertion torque. The interaction effect is significant (p < 0.05) and contributes 8% to pull out strength. Axial pullout strength was 34% lower than angled pull out strength in the osteoporotic bone model. Insertion angle had no significant effect (p > 0.05) on insertion torque. Pullout strength and insertion torque had no significant correlation (p > 0.05) in the case of the extremely osteoporotic bone model.

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Venkatramani, V., Kumar, S., Chandrasingh, J., Devasia, A. and Kekre, N. S.

Perioperative complications and postoperative outcomes of partial nephrectomy for renal cell carcinoma: Does indication matter?

Indian J Urol; 2017, 33 (2): 140-143

**Address:** Department of Urology, Christian Medical College, Vellore, Tamil Nadu, India.

**INTRODUCTION:** The aim of the study was to determine whether perioperative complications and postoperative outcomes varied with the indication of partial nephrectomy (PN). **MATERIALS AND METHODS:** We reviewed data of 184 consecutive PN for suspected renal cell carcinoma operated between January 2004 and December 2013. Complications using the Clavien-Dindo classification were compared between surgeries for absolute indications (chronic renal failure, bilateral tumors, or solitary kidney), those for relative indications (comorbid illnesses with the potential to affect renal function) and elective indications (patients without risk factors). Complex tumors were defined as size >7 cm, multiple, hilar, and endophytic tumors. **RESULTS:** Patients with an absolute indication had larger tumors (P = 0.001) and tumors of a higher pathological T-stage (P = 0.03). Minor complications (Clavien 1 and 2) occurred in 25.4% patients in the elective arm versus over 40% in the other arms (P = 0.049). Major complications (Clavien 3+) were less common in the elective arm (3.2% cases vs. 12.7% in the relative arm and 13.8% in the absolute arm) with a trend to significance (P = 0.09). On multivariate analysis, absolute indication (odds ratio [OR] = 2.4, P = 0.04) and surgery for a complex renal mass (OR = 2.5 times, P = 0.03) remained significant predictors of minor complications. Major complications were more common in the relative (OR = 5.5, P = 0.057) and absolute indication arm (OR = 5.231, P = 0.051) with a trend toward significance. **CONCLUSIONS:** Elective indication was associated with fewer complications than PN for relative or absolute indications.

### 273

Verghese, V. P.

Introducing rubella vaccine into the national immunisation schedule


**Address:** Professor, Pediatric Infectious Diseases, Department of Paediatrics, Christian Medical College, Vellore, Tamil Nadu, India.

### 274

Verma, S., Thakur, P., Md, N. K., Cherian, K. E., Hephzibah, J. and Paul, T. V.

**VISUAL VIGNETTE**

**PMID:** 28469302

**PMID:** 28303838

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<td>Vettiyil, G., Punnen, A. and Kumar, S.</td>
<td>An Unusual Association of Chronic Recurrent Multifocal Osteomyelitis, Pyoderma Gangrenosum, and Takayasu Arteritis</td>
<td>Christian Medical College and Hospital Vellore, Pediatric Unit II. Christian Medical College and Hospital Vellore, Child Health II, Assistant Professor, Department of Pediatrics. Christian Medical College, Pediatrics, Department of Pediatrics, Christian Medical College, Vellore, India. <a href="mailto:sathishkumar@cmcvellore.ac.in">sathishkumar@cmcvellore.ac.in</a></td>
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<td>276</td>
<td>Vig, T., Bindra, M. S., Kumar, R. M. and Alexander, S.</td>
<td>Gastric Glomus Tumour Misdiagnosed as Gastric Carcinoid: An Unfamiliar Entity with Aids to Diagnosis and Review of Literature</td>
<td>Assistant Professor, Department of Pathology, Christian Medical College and Hospital, Vellore, Tamil Nadu, India. Associate Professor, Department of Pathology, Christian Medical College and Hospital, Vellore, Tamil Nadu, India. Professor, Department of Nephrology, Christian Medical College and Hospital, Vellore, Tamil Nadu, India.</td>
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<td>277</td>
<td>Wankhar, S., Kota, A. A. and Selvaraj, D.</td>
<td>A versatile stretch sensor for measuring physiological movement using a centre loaded, end-supported load cell</td>
<td></td>
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Acquisition of movement of some body parts can provide important physiological information. In clinical practice as well as for research purposes different types of sensors such as piezoelectric crystals, conductive rubber and optical displacement sensors are used for such measurements. Each of these sensors is associated with its problems. This paper discusses the use of a stretch sensor constructed using a small metal bar, approximately the size of a zipper slider that can be sewn into a fabric in the form of a belt. A combination of elastic, and Velcro material attached to the metal bar, provides a sensor that is capable of linear, steady state measurement as well as rapid response detecting slow and fast movement of the target. Incorporating the sensor in an elastic belt, allows measurement of physiological movements such as respiratory chest movements, abdominal and limb movements. This paper also discusses the potential use of the novel stretch sensor in measuring change in calf circumference during different manoeuvres, making it a useful assessment tool for calf venous function.

**Address:**

- a Department of Bioengineering, Christian Medical College, Vellore, India.
- b Department of Vascular Surgery, Christian Medical College, Vellore, India.


Issues in antifungal stewardship: an opportunity that should not be lost

**Address:**

- Department of Clinical Microbiology and Immunology, Sir Ganga Ram Hospital, Rajinder Nagar, New Delhi 110060, India. Department of Medical Microbiology, PGIMER, Chandigarh, India. Studies in Supportive Care, Radboud UMC, The Netherlands. Department of Medical Microbiology & Infectious Diseases, Division of Infection & Immunity, School of Medicine, Cardiff University, UK. Rajendra Institute of Medical Sciences, Ranchi, India. Department of Medical Microbiology, Lady Hardinge Medical College, New Delhi, India. Department of Infectious Diseases, Christian Medical College, Vellore, India. P. D. Hinduja Hospital, Mumbai, India. G. B. Pant Institute of Post Graduate Medical Education & Research, New Delhi, India. (Pan Max) Microbiology, Saket, New Delhi, India. ESIPGIMSR, New Delhi, India. Surgical Gastroenterology & Liver Transplantation, Sir Ganga Ram Hospital, New Delhi, India. Infectious Diseases & Tropical Medicine, Apollo Hospitals, Infectious Diseases, Sri Ramachandra Medical College & Research Institute, Infectious Diseases, MGR Medical University, Chennai, India. BLK Centre for Bone Marrow Transplant, New Delhi, India. Medanta (The Medicity), Medanta Institute of Critical Care and Anesthesiology, Gurgaon, Haryana, India. Department of Critical Care Medicine, Fortis-Escorts Hospital, Faridabad, Haryana, India. Apex Regional STD Teaching Training & Research Centre, Vardhman Mahavir Medical College, Safdarjung Hospital, New Delhi, India.

Many countries have observed an increase in the incidence of invasive fungal infections (IFIs) over the past two decades with emergence of new risk factors and isolation of new fungal pathogens. Early diagnosis and appropriate antifungal treatment remain the cornerstones of successful outcomes. However,
due to non-specific clinical presentations and limited availability of rapid diagnostic tests, in more than half of cases antifungal treatment is inappropriate. As a result, the emergence of antifungal resistance both in yeasts and mycelial fungi is becoming increasingly common. The Delhi Chapter of the Indian Association of Medical Microbiologists (IAMM-DC) organized a 1 day workshop in collaboration with BSAC on 10 December 2015 in New Delhi to design a road map towards the development of a robust antifungal stewardship programme in the context of conditions in India. The workshop aimed at developing a road map for optimizing better outcomes in patients with IFIs while minimizing unintended consequences of antifungal use, ultimately leading to reduced healthcare costs and prevention development of resistance to antifungals. The workshop was a conclave of all stakeholders, eminent experts from India and the UK, including clinical microbiologists, critical care specialists and infectious disease physicians. Various issues in managing IFIs were discussed, including epidemiology, diagnostic and therapeutic algorithms in different healthcare settings. At the end of the deliberations, a consensus opinion and key messages were formulated, outlining a step-by-step approach to tackling the growing incidence of IFIs and antifungal resistance, particularly in the Indian scenario.


Drug poisoning in the community among children: a nine years' experience from a tertiary care center in south India


**Address:** a Department of Pharmacology and Clinical Pharmacology, Christian Medical College, Vellore, Tamil Nadu, India. b Paediatric Emergency, Department of Paediatrics, Christian Medical College, Vellore, Tamil Nadu, India. c Child Health 2, Department of Paediatrics, Christian Medical College, Vellore, Tamil Nadu, India.

**OBJECTIVES:** This study was performed to determine the incidence, demographic distribution, types and outcomes across various drug poisonings among children from south India. **METHODS:** This retrospective study included children less than 16 years who presented to the Pediatric Emergency Department with drug poisoning from the 1st of October 2004 to the 30th of September 2013. **RESULTS:** Out of the total 997 poisoning cases, 366 (36.71%) were contributed by drugs; mainly antiepileptics, central nervous system depressants, psychotropics, analgesic-antipyretics and natural drugs. Males and children of < 5 years were mostly affected. Although many children developed complications and required intensive care unit admissions, the total mortality rate was less than 1%. The incidence of drug poisoning showed a decreasing trend over the last 4 years. **CONCLUSION:** This study for the first time gives an elaborative insight into pediatric drug poisoning over a nine-year period from a Pediatric Emergency Department tertiary care center in south India.

**Yoganathan, S., Sudhakar, S. V., Arunachal, G., Thomas, M., Subramanian, A., George, R. and Danda, S.**

Menkes disease and response to copper histidine: An Indian case series

Ann Indian Acad Neurol; 2017, 20 (1): 62-68

**Address:** Department of Neurological Sciences, Christian Medical College, Vellore, Tamil Nadu, India. Department of Radiodiagnosis, Christian Medical College, Vellore, Tamil Nadu, India.
BACKGROUND: Menkes disease (MD) is an X-linked recessive neurodegenerative disorder caused by mutations in ATP7A gene. Depending on the residual ATP7A activity, manifestation may be classical MD, occipital horn syndrome, or distal motor neuropathy. Neurological sparing is expected in female carriers. However, on rare occasions, females may manifest with classical clinical phenotype due to skewed X-chromosome inactivation, X-autosome translocation, and XO genotype. Here, we describe a small series of probands with MD and their response to copper histidine therapy. This series also includes a female with X-13 translocation manifesting neurological symptoms. METHODS: The clinical profile, laboratory and radiological data, and follow-up of four children with MD were collected from the hospital database and are being presented. RESULTS: All the four children in our series had developmental delay, recurrent respiratory tract infections, hair and skeletal changes, axial hypotonia, tortuous vessels on imaging, low serum copper, ceruloplasmin, and elevated lactate. Fetal hypokinesia and fetal growth retardation were present in two cases. Failure to thrive was present in three children and only one child had epilepsy. Subcutaneous copper histidine was administered to all children. The average time lapse in the initiation of treatment was 20.3 months, and average duration of follow-up was 14.3 months. CONCLUSION: We conclude that copper histidine therapy is beneficial in reversing the skin and hair changes, improving appendicular tone, socio-cognitive milestones, and improving weight gain, and immunity. Early diagnosis and management of MD are essential to have a better clinical outcome. More research is needed to explore and devise new strategies in the management of patients with MD.

Zachariah, S. M., Oommen, S. P., Padankatti, C. S., Grace, H. and Glory, L.
Dysmorphism in Non-Syndromic Autism: A Cross-Sectional Study
Indian Pediatr; 2017,

Address: Developmental Paediatrics Unit, Christian Medical College and Hospital, Vellore, India. Correspondence to: Dr Susan Mary Zachariah, Developmental Paediatrics Unit, Christian Medical College, Vellore, India. suz.mary@gmail.com

OBJECTIVE: To determine the effect of association of dysembryogenesis (manifested by presence of dysmorphic markers) on the developmental profile of autistic children. METHODS: 26 autistic children were classified into complex autism (if they had specific dysmorphic markers) or essential autism (in the absence of dysmorphic markers) using the Miles Autism Dysmorphology Measure (ADM). The developmental abilities (Griffith's Mental Development Scales) and the clinical severity (Childhood Autism Rating Scale) of both groups were compared. The prevalence of dysmorphic markers was also determined in 140 non-autistic controls. RESULTS: Children with complex autism had poorer development (General Quotient 29.4 vs 34.0, P=0.06) and earlier onset of autistic symptoms (18 vs 24 mo, P=0.05). Dysmorphic markers were significantly more in autistic children compared to normal children (27% vs 10%, P=0.002). CONCLUSIONS: Dysembryogenesis may contribute to the clinical heterogeneity of autistic children.
CMC SCIENTIFIC RESEARCH PUBLICATION FOR THE YEAR 2017 (JANUARY TO JUNE)

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