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1: Agarwal S, Jangir DK, Mehrotra R, Lohani N, Rajeswari MR. A structural insight into major groove directed binding of nitrosourea derivative nimustine with DNA: a spectroscopic study. *PLoS One*. 2014 Aug 7;9(8):e104115. doi: 10.1371/journal.pone.0104115. eCollection 2014. PubMed PMID: 25101667; PubMed Central PMCID: PMC4125164.

Nitrosourea therapeutics occupies a definite place in cancer therapy but its exact mechanism of action has yet to be established. Nimustine, a chloroethyl nitrosourea derivative, is used to treat various types of malignancy including gliomas. The present work focuses on the understanding of nimustine interaction with DNA to delineate its mechanism at molecular level. Attenuated total reflection-Fourier transform infrared (ATR-FTIR) has been used to determine the binding sites of nimustine on DNA. Circular dichroism (CD) spectroscopy has been used to confirm conformational variations in DNA molecule upon nimustine-DNA interaction. Thermodynamic parameters of nimustine-DNA reaction have been calculated by isothermal titration calorimetry. Results of the present study demonstrate that nimustine is not a simple alkylating agent rather it causes major groove-directed-alkylation. Spectroscopic data suggest binding of nimustine with nitrogenous bases guanine (C6 = O6) and thymine (C4 = O4) in DNA major groove. CD spectra of nimustine-DNA complexes point toward the perturbation of native B-conformation of DNA and its partial transition into C-form. Thermodynamically, nimustine-DNA interaction is an entropy driven endothermic reaction, which suggests hydrophobic interaction of nimustine in DNA-major groove pocket. Spectral results suggest base binding and local conformational changes in DNA upon nimustine interaction. Investigation of drug-DNA interaction is an essential part of rational drug designing that also provides information about the drug's action at molecular level. Results, demonstrated here, may contribute in the development of new nitrosourea therapeutics with better efficacy and fewer side effects.

2: Agarwala S, Mandelia A, Bakhshi S, Srinivas M, Bajpai M, Gupta AK, Gupta DK, Bhatnagar V. Neuroblastoma: outcome over a 14 year period from a tertiary care referral centre in India. *J Pediatr Surg*. 2014 Aug;49(8):1280-5. doi: 10.1016/j.jpedsurg.2014.03.017. Epub 2014 Jun 30. PubMed PMID: 25092090.

PURPOSE: To evaluate the outcome of children with neuroblastoma (NB) from a tertiary care referral centre in India.

METHOD: All children with NB registered from October 1996 through July 2009 were included in the study. INSS was used for staging. All children included in the study received chemotherapy and radiation therapy appropriate for stage. Tumor resection was done when feasible. The final outcome was overall survival and it was categorized as Complete Response (CR), Partial Response (PR); No Response (NR) and Progressive Disease (PD). Analysis of three-year overall survival was done using Kaplan Meier method and Log Rank test of significance. Multivariate analysis for significance of age, site and stage was performed.

RESULTS: 144 children in the age range of 1-132months (median 36) were enrolled. Only 38 (26.4%) children were below 12months. 112 (77.8%) of the tumors were abdominal and 32 (22.2%) were extra-abdominal. Stage distribution was 1+2 in 6 (4.2%); 3 in 58 (40.3%); 4 in 68 (47.2%); 4s in 12 (8.3%). 83 (57.6%) underwent gross complete resection. At the time of last follow-up, 100 (69.4%) were alive [60 CR (41.7%); 33 PR; 7 PD/NR] and 44 (30.6%) were dead [1CR; 11PR; 32 PD/NR]. The three-year OS was 60.7% [95 CI 50.4-69.5]. The OS was 69.7% for those <12months of age [95 CI 51.8-82.0] and CR was achieved in 57.9%, while for those >12months the OS was 55.3% [95 CI 42.2-66.6] and CR was achieved in 35.8% (p=0.73). All 6 (100%) patients with Stage 1 and Stage 2 disease were alive and disease free. The OS was 71.5% for Stage 3 [95 CI 55.3-82.7] and CR was achieved in 56.9%, while for Stage 4 the OS was 35.7% [95 CI 19.3-52.4] and CR was achieved in 17.6% (p=0.001). The OS was 83.3% for 4s [95 CI 48.2-95.6] and CR was achieved

in 75%.

CONCLUSION: All the six children with Stage 1 & 2 achieved CR and were alive, while 57% of Stage 3 could achieve CR and had an OS of 71.5%. The OS (35.7%) and CR (17.6%) for Stage 4 were significantly less ($p=0.001$).

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3: Agrawal CS, Tiwari P, Mishra S, Rao A, Hadke NS, Adhikari S, Srivastava A. Interrupted abdominal closure prevents burst: randomized controlled trial comparing interrupted-x and conventional continuous closures in surgical and gynecological patients. *Indian J Surg.* 2014 Aug;76(4):270-6. doi: 10.1007/s12262-012-0611-8. Epub 2012 Aug 24. PubMed PMID: 25278649; PubMed Central PMCID: PMC4175669.

Reduction in the risk of abdominal dehiscence with application of interrupted method of laparotomy closure and comparison with risk of burst with continuous method of closure. Three hundred forty eight patients undergoing laparotomy (114-elective gynecology, 114-emergency gynecology, 120-emergency surgery) were randomized into three arms to undergo closure with continuous, interrupted-X, and Modified Smead-Jones suturing techniques. Burst abdomen occurring up to 4 weeks of operation. Twenty-nine (8.33 %) of 348 patients developed burst in the post-operative period. 19 (15.70 %) of 121 patients in continuous arm developed burst. Five of 110 (4.55 %) patients in Interrupted-X arm and 5 of 117 (4.27 %) patients in Modified Smead-Jones arm developed burst. Interrupted suturing was associated with significant reduction in risk of burst when compared with continuous closure. Important predictors of burst were Intraperitoneal sepsis, cough, uremia, and surgical site infection.

4: Akhter MS, Biswas A, Rashid H, Devi L, Behari M, Saxena R. Screening of the GPX3 gene identifies the "T" allele of the SNP -861A/T as a risk for ischemic stroke in young Asian Indians. *J Stroke Cerebrovasc Dis.* 2014 Sep;23(8):2060-8. doi: 10.1016/j.jstrokecerebrovasdis.2014.03.010. Epub 2014 Aug 8. PubMed PMID: 25126700.

BACKGROUND: Deficiency of plasma glutathione peroxidase (GPx-3) has been associated with platelet-dependent thrombosis. Single-nucleotide polymorphisms (SNPs) in the promoter region of GPX3 gene have been found associated with the risk for ischemic stroke in Caucasian populations. The aim of our present study was to evaluate the impact of genetic variations in the GPX3 gene and plasma GPx-3 antigen levels on ischemic stroke in young Asian Indians.

METHODS: One hundred patients with ischemic stroke and 200 age- and sex-matched controls were studied. Genetic analysis for the study population was done by a combination of variant screening using single-stranded conformation polymorphism and final genotyping by polymerase chain reaction-restriction fragment length polymorphism and allele-specific polymerase chain reactions. Plasma GPx-3 antigen levels were evaluated using commercial kits. Data were analyzed using genetic analysis software and statistical tools.

RESULTS: Significantly higher GPx-3 levels were observed in controls compared with patients (controls 26.37 ± 3.66 $\mu\text{g/mL}$ and patients 22.83 ± 4.57 $\mu\text{g/mL}$, $P < .001$). Only the SNP -861A/T was found associated with stroke phenotype ($P < .0001$). The SNP -568T/C was observed to significantly influence plasma GPx-3 levels ($P < .05$). The haplotype carrying the risk "T" allele of SNP -861A/T was significantly over-represented in patients with stroke ($P < .0001$).

CONCLUSIONS: The T allele of -861A/T is a risk allele for the ischemic stroke phenotype. The -861A/T and -568T/C SNPs may show a statistically significant association with both plasma GPx-3 antigen levels and the stroke phenotype in a larger sample size.

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5: Ansari MT, Kotwal PP, Rao S. Reconstruction with fibular autograft and silicone implant arthroplasty after resection of giant-cell tumour of the proximal phalanx: a case report with 18-month follow-up. *Musculoskelet Surg.* 2014 Aug;98(2):153-7. doi: 10.1007/s12306-013-0243-6. Epub 2013 Feb 1. PubMed PMID: 23371838.

Primary giant-cell tumour of phalanx is a rare entity. Only few cases are described in the literature. Giant-cell tumour of hand is reported to have high local recurrence rate. Curettage and bone grafting have been performed by few authors with limited success. Most of the cases have been treated with ray amputation. We report this case as the first reported case in the literature that has been treated with fibular autograft and silicone implant arthroplasty for giant-cell tumour of the proximal phalanx.

6: Bade G, Khan MA, Srivastava AK, Khare P, Solaiappan KK, Guleria R, Palaniyar N, Talwar A. Serum cytokine profiling and enrichment analysis reveal the involvement of immunological and inflammatory pathways in stable patients with chronic obstructive pulmonary disease. *Int J Chron Obstruct Pulmon Dis.* 2014 Aug 5;9:759-73. doi: 10.2147/COPD.S61347. eCollection 2014. PubMed PMID: 25125975; PubMed Central PMCID: PMC4130715.

Chronic obstructive pulmonary disease (COPD) is a major global health problem. It results from chronic inflammation and causes irreversible airway damage. Levels of different serum cytokines could be surrogate biomarkers for inflammation and lung function in COPD. We aimed to determine the serum levels of different biomarkers in COPD patients, the association between cytokine levels and various prognostic parameters, and the key pathways/networks involved in stable COPD. In this study, serum levels of 48 cytokines were examined by multiplex assays in 30 subjects (control, n=9; COPD, n=21). Relationships between serum biomarkers and forced expiratory volume in 1 second, peak oxygen uptake, body mass index, dyspnea score, and smoking were assessed. Enrichment pathways and network analyses were implemented, using a list of cytokines showing differential expression between healthy controls and patients with COPD by Cytoscape and GeneGo Metacore™ software (Thomson-Reuters Corporation, New York, NY, USA). Concentrations of cutaneous T-cell attracting chemokine, eotaxin, hepatocyte growth factor, interleukin 6 (IL-6), IL-16, and stem cell factor are significantly higher in COPD patients compared with in control patients. Notably, this study identifies stem cell factor as a biomarker for COPD. Multiple regression analysis predicts that cutaneous T-cell-attracting chemokine, eotaxin, IL-6, and stem cell factor are inversely associated with forced expiratory volume in 1 second and peak oxygen uptake change, whereas smoking is related to eotaxin and hepatocyte growth factor changes. Enrichment pathways and network analyses reveal the potential involvement of specific inflammatory and immune process pathways in COPD. Identified network interaction and regulation of different cytokines would pave the way for deeper insight into mechanisms of the disease process.

7: Baliyan V, Das CJ, Sharma S, Gupta AK. Diffusion-weighted imaging in urinary tract lesions. *Clin Radiol.* 2014 Aug;69(8):773-82. doi: 10.1016/j.crad.2014.01.011. Epub 2014 Feb 26. Review. PubMed PMID: 24581968.

Diffusion-weighted imaging (DWI) utilizes the signal contrast provided by the regional differences in the Brownian motion of water molecules, which is a direct reflection of the cellular micro-environment. DWI emerged as a revolutionary magnetic resonance imaging (MRI) technique in the field of stroke imaging. As far

as body imaging is concerned, DWI has come a long way from being an experimental technique to an essential element of almost all abdominal MRI examinations. This progress has been made possible by technical advancements in MRI systems, as well as a better understanding of MRI physics. DWI is quick to perform and has the potential to provide crucial information about the disease process without adding much to the total imaging time. This article provides a brief review of the basic principles of DWI with insights to the information that DWI provides in the evaluation of various diseases of the urinary tract at both 1.5 and 3 T. DWI is helpful for differentiation of various histopathological subtypes of renal cell carcinoma (RCC). Prediction of histopathological grade of RCC is also becoming possible solely based on DWI. Assessment of response to chemotherapeutic agents is possible based on the change in the ADC (apparent diffusion coefficient) value. DWI performed with high b-values increases the confidence in diagnosing prostatic carcinoma. This article highlights the emerging role of DWI in the evaluation of urinary tract lesions.

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8: Bhatt GC, Sharma T. Comment on "clinical profile and outcome of Japanese encephalitis in children admitted with acute encephalitis syndrome". *Biomed Res Int.* 2014;2014:767538. doi: 10.1155/2014/767538. Epub 2014 Aug 27. PubMed PMID: 25243178; PubMed Central PMCID: PMC4163405.

9: Bhatt K, Roychoudhury A, Bhutia O, Pandey RM. Functional Outcomes of Gap and Interposition Arthroplasty in the Treatment of Temporomandibular Joint Ankylosis. *J Oral Maxillofac Surg.* 2014 Aug 13. pii: S0278-2391(14)01319-6. doi: 10.1016/j.joms.2014.08.012. [Epub ahead of print] PubMed PMID: 25315308.

PURPOSE: Recurrence is a major concern in management of temporomandibular joint ankylosis. In this study functional outcomes of gap arthroplasty (group I) and temporalis myofascial interposition arthroplasty (group II) are compared.

MATERIALS AND METHODS: Preoperative, intraoperative, and follow-up data were noted from our departmental database. Outcome variables were postoperative mouth opening, open bite, recurrence, and facial nerve dysfunction. The χ^2 test, Fisher test, t test, 2-sample Wilcoxon rank sum test, and logistic regression analysis were used.

RESULTS: Group I comprised 207 patients, and group II comprised 55 patients. The mean age was 12.9 years (SD, 7.0 years). There were 220 nonrecurrent and 42 recurrent cases. The mean follow-up period was 3.78 years (SD, 3.0 years). In first time-operated cases, the recurrence rate was 14.7% in group I and 4.8% in group II. In recurrent cases, the recurrence rate was 34.5% and 30.8%, respectively. The differences were statistically insignificant.

CONCLUSIONS: In first-time operated temporomandibular joint ankylosis cases, both treatments are satisfactory in preventing recurrence, but the recurrence rate increases with previous recurrences.

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10: Bisoi AK, Sahu MK, Chander C N, Agarwala S, Chauhan S. Nutcracker Syndrome in a Young Female with Solitary Functional Left Ovary: A Surgical Challenge. *Ann Vasc Surg.* 2014 Aug 7. pii: S0890-5096(14)00466-X. doi: 10.1016/j.avsg.2014.07.019. [Epub ahead of print] PubMed PMID: 25108096.

Nutcracker syndrome (NCS), a rare clinical entity, when refractory to medical management warrants surgical intervention. In the following discussion, we

present a case of NCS which was managed successfully by left renal vein transposition using a decompression shunt.

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11: Biswas B, Shukla NK, Deo SV, Agarwala S, Sharma DN, Vishnubhatla S, Bakhshi S. Evaluation of outcome and prognostic factors in extraosseous Ewing sarcoma. *Pediatr Blood Cancer*. 2014 Nov;61(11):1925-31. doi: 10.1002/pbc.25095. Epub 2014 Aug 17. PubMed PMID: 25132242.

BACKGROUND: Data on extraosseous Ewing sarcoma (EES) with uniform chemotherapy protocol are minimal. We aimed to examine this aspect in our patients, identify prognostic factors and compare the same with osseous Ewing sarcoma.

PROCEDURES: A single institutional data review of patients with EES treated between June 2003 and November 2011 with uniform chemotherapy and evaluated on intent-to-treat analysis was done.

RESULTS: Of 374 patients with Ewing sarcoma, 60 (16%) were EES with median age 16 years; 20 (33%) had metastases. After median follow-up of 25 months (range: 1.7-104.4), 5-year event free survival (EFS), OS, and local-control-rate were $47.1 \pm 7.9\%$, $61.6 \pm 7.8\%$, and $77.9 \pm 8.6\%$, respectively for entire EES cohort. In multivariate analysis, hemoglobin $\leq 10\text{g/dl}$ ($P=0.03$), and white blood cell count (WBC) $>11 \times 10^9 /\text{L}$ ($P=0.009$) predicted inferior EFS for the entire EES cohort. Low hemoglobin ($P=0.05$) and high LDH ($P=0.01$) predicted inferior OS for the entire EES cohort on multivariate analysis. As compared to the cohort of skeletal primary ($n=314$), higher proportion of patients underwent surgery in the cohort of EES ($P=0.003$); EFS ($P=0.004$) and OS ($P=0.08$) were superior for patients with EES than patients with skeletal Ewing sarcoma.

CONCLUSION: These data of EES suggests that low hemoglobin and high WBC count adversely affect EFS. Overall outcome was significantly better for EES than skeletal primary tumors. *Pediatr Blood Cancer* 2014;61:1925-1931. © 2014 Wiley Periodicals, Inc.

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12: Borkar SA, Garg K, Garg M, Sharma BS. Transorbital penetrating cerebral injury caused by a wooden stick: surgical nuances for removal of a foreign body lodged in cavernous sinus. *Childs Nerv Syst*. 2014 Aug;30(8):1441-4. doi: 10.1007/s00381-014-2364-0. Epub 2014 Feb 4. PubMed PMID: 24493367.

PURPOSE: Penetrating head injury (PHI) is rare in civilian population and is mostly caused by low-velocity modes. A transorbital penetrating intracranial injury is very rare and more severe than traumatic brain injury.

METHODS: We report a rare case of transorbital penetrating cranial injury caused by a wooden stick. The surgical strategy was planned as the wooden stick was lodged in the right cavernous sinus.

RESULTS: The wooden stick was successfully removed. Patient made an uneventful recovery.

CONCLUSIONS: Transorbital penetrating injuries are uncommon form of injury and require a multidisciplinary approach. No attempt should be made to remove the foreign body without the backup of an operating room because of the possibility that the object may be tamponading an injured vessel. A careful planning and a strict adherence to basic perioperative principles can lead to a satisfactory outcome.

13: Chandran R, Mishra P, Pawar DK, Maitra S, Valakkada J. Internal jugular vein thrombosis from rhino-cerebral mucormycosis: Be careful before cannulation. *Indian J Crit Care Med*. 2014 Aug;18(8):546-7. doi: 10.4103/0972-5229.138167. PubMed PMID: 25136200; PubMed Central PMCID: PMC4134635.

14: Chaubey R, Sazawal S, Mahapatra M, Chhikara S, Saxena R. Prognostic relevance of aberrant SOCS-1 gene promoter methylation in myelodysplastic syndromes patients. *Int J Lab Hematol*. 2014 Aug 13. doi: 10.1111/ijlh.12283. [Epub ahead of print] PubMed PMID: 25123164.

INTRODUCTION: The inactivation of suppressor of cytokine signaling SOCS-1, a negative regulator of cytokine pathways, by hypermethylation was shown in hematological malignancies including Myelodysplastic Syndromes. So far, its prognostic relevance in myelodysplastic syndromes (MDS) patients has not been understood.

METHODS: Methylation status of SOCS-1 gene was analyzed in series of 100 patients using methylation-specific PCR (MS-PCR) and correlated with disease severity, progression, and survival by comparing prognostic factors such as hematological, clinical, and cytogenetics.

RESULTS: Of the total of 100 MDS patients analyzed, methylation of SOCS1 gene was found in 53% patients. Also, the frequency of patients with poor and intermediate cytogenetics was observed significantly high in methylated group ($P < 0.001$). Moreover, the patients with methylated SOCS-1 gene had significantly more frequent disease progression as compared to the patients with unmethylated SOCS-1 gene ($P < 0.006$). Both progression-free survival and median overall survival were significantly shorter in patients with methylated SOCS-1 gene when compared to the patients with unmethylated SOCS-1 gene ($P = 0.006$ & $P = 0.001$, respectively).

CONCLUSION: This study for the first time showed that the methylation of SOCS-1 gene plays an important role in the disease progression and is associated with poor survival especially among the high-risk patients. This may be due to high association between SOCS1 methylation and higher risk subtypes of MDS (such as RAEB) in this study.

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15: Choudhary A, Gulati S, Sagar R, Kabra M, Sapra S. Behavioral comorbidity in children and adolescents with epilepsy. *J Clin Neurosci*. 2014 Aug;21(8):1337-40. doi: 10.1016/j.jocn.2013.11.023. Epub 2014 Feb 8. PubMed PMID: 24629398.

This cross sectional study assessed the prevalence of behavioral comorbidity and its association with epilepsy-related factors in children and adolescents with epilepsy. One hundred consecutive patients with active epilepsy, aged 6-16 years, were screened for behavioral comorbidity using the Child Behavior Checklist and those who qualified as having behavioral comorbidity were compared with those who did not have it. Behavioral comorbidity was found in 43 of 100 participants. Being treated with antiepileptic drug polytherapy (odds ratio 6.3, 95% confidence interval 1.4-17.3, $p=0.01$) independently predicted behavioral comorbidity in the patients studied. The demonstrated high frequency of behavioral comorbidity in children with epilepsy suggests that pediatricians and pediatric neurologists should be sensitive to this fact in order to identify and manage behavioral comorbidity in children with epilepsy.

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16: Dada T, Tinwala SI, Dave V, Agarwal A, Sharma R, Wadhvani M. Effect of change in macular birefringence imaging protocol on retinal nerve fiber layer thickness parameters using GDx VCC in eyes with macular lesions. *Int Ophthalmol*. 2014 Aug;34(4):901-7. doi: 10.1007/s10792-014-9897-9. Epub 2014 Jan 28. PubMed PMID: 24469116.

This study evaluates the effect of two macular birefringence protocols (bow-tie retardation and irregular macular scan) using GDx VCC on the retinal nerve fiber layer (RNFL) thickness parameters in normal eyes and eyes with macular lesions.

In eyes with macular lesions, the standard protocol led to significant overestimation of RNFL thickness which was normalized using the irregular macular pattern protocol. In eyes with normal macula, absolute RNFL thickness values were higher in irregular macular pattern protocols with the difference being statistically significant for all parameters except for inferior average thickness. This has implications for monitoring glaucoma patients who develop macular lesions during the course of their follow-up.

17: Dhawan B, Rawre J, Ghosh A, Malhotra N, Ahmed MM, Sreenivas V, Chaudhry R. Diagnostic efficacy of a real time-PCR assay for Chlamydia trachomatis infection in infertile women in north India. *Indian J Med Res.* 2014 Aug;140(2):252-61. PubMed PMID: 25297359.

BACKGROUND & OBJECTIVES: Little is known about the prevalence of Chlamydia trachomatis infection in Indian women with infertility. To improve the diagnosis of C. trachomatis infection in developing countries, there is an urgent need to establish cost-effective molecular test with high sensitivity and specificity. This study was conducted to determine the diagnostic utility of a real time-PCR assay for detection of C. trachomatis infection in infertile women attending an infertility clinic in north India. The in house real time-PCR assay was also compared with a commercial real-time PCR based detection system.

METHOD: Endocervical swabs, collected from 200 infertile women were tested for C. trachomatis by three different PCR assays viz. in-house real time-PCR targeting the cryptic plasmid using published primers, along with omp1 gene and cryptic plasmid based conventional PCR assays. Specimens were also subjected to direct fluorescence assay (DFA) and enzyme immunoassay (EIA) Performance of in-house real time-PCR was compared with that of COBAS Taqman C. trachomatis Test, version 2.0 on all in-house real time-PCR positive sample and 30 consecutive negative samples.

RESULTS: C. trachomatis infection was found in 13.5 per cent (27/200) infertile women by in-house real time-PCR, 11.5 per cent (23/200) by cryptic plasmid and/or omp1 gene based conventional PCR, 9 per cent (18/200) by DFA and 6.5 per cent (7/200) by EIA. The in-house real time-PCR exhibited a sensitivity and specificity of 100 per cent, considering COBAS Taqman CT Test as the gold standard. The negative and positive predictive values of the in-house real time-PCR were 100 per cent. The in-house real time-PCR could detect as low as 10 copies of C. trachomatis DNA per reaction.

INTERPRETATION & CONCLUSIONS: In-house real time-PCR targeting the cryptic plasmid of C. trachomatis exhibited an excellent sensitivity and specificity similar to that of COBAS Taqman CT Test, v2.0 for detection of C. trachomatis infection in women attending an infertility clinic. In an effort to prevent Chlamydia infection associated infertility, we recommend screening of women with infertility due to C. trachomatis infection by in-house molecular method as a cost-effective solution in resource limited settings.

18: Durgapal P, Mathur SR, Kalamuddin M, Datta Gupta S, Parshad R, Julka PK, Panda SK. Assessment of Her-2/neu status using immunocytochemistry and fluorescence in situ hybridization on fine-needle aspiration cytology smears: experience from a tertiary care centre in India. *Diagn Cytopathol.* 2014 Aug;42(8):726-31. doi: 10.1002/dc.23088. Epub 2013 Dec 20. PubMed PMID: 24376261.

Breast carcinoma shows amplification/overexpression of Her-2/neu in ~20-30% of cases. The determination of Her-2/neu expression accurately is vital in clinical practice as it has significant predictive value and eligibility for anti Her-2/neu therapy. Amplification and overexpression of Her-2/neu gene is traditionally identified by fluorescence in situ hybridization (FISH) and immunohistochemistry (IHC) on tissue sections; only a few studies have evaluated feasibility of these techniques on cytological smears. One hundred cases of

breast cancer with fine-needle aspiration cytology (FNAC) samples and corresponding surgically resected specimen were selected. Immunocytochemistry (ICC) and FISH for Her-2/neu was done on FNA smears, whereas IHC was performed on corresponding tissue sections. Diagnostic accuracy of ICC was 99% when compared with IHC. Comparison of FISH results with IHC showed 100% concordance. Unlike many centers in West, FNAC is still routinely performed in developing countries like India where vast majority of breast cancer cases present as palpable lumps. The high rates of accuracy of ICC and FISH for Her-2/neu detection can make FNAC a relevant first line of investigation as a cost effective model with a rapid turn-around time, providing complete information necessary for initial management of breast cancer patients.

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19: Dwivedi S, Goel A, Khattri S, Mandhani A, Sharma P, Pant KK. Tobacco exposure by various modes may alter proinflammatory (IL-12) and anti-inflammatory (IL-10) levels and affects the survival of prostate carcinoma patients: an explorative study in North Indian population. *Biomed Res Int.* 2014;2014:158530. doi: 10.1155/2014/158530. Epub 2014 Aug 7. PubMed PMID: 25177683; PubMed Central PMCID: PMC4142285.

OBJECTIVE: Inflammation is an important hallmark of all cancers and net inflammatory response is determined by a delicate balance between pro- and anti-inflammatory cytokines, which may be affected by tobacco exposure, so the present study was designed to explore the effect of various modes of tobacco exposure on interleukin-12 (IL-12) and interleukin-10 (IL-10) inflammatory cytokine levels and survival in prostate carcinoma (PCa) patients.

METHODS: 285 cancer patients and equal controls with 94 BPH (benign prostatic hyperplasia) were recruited; baseline levels of serum IL-12 and IL-10 were measured and analyzed in various tobacco exposed groups by appropriate statistical tool. Five-year survivals of patients were analyzed by Log-rank (Mantel-Cox) test (graph pad version 5).

RESULTS: The expression of serum proinflammatory (IL-12) and anti-inflammatory (IL-10) cytokines was correlated with tobacco exposed group as smokers, chewers, and alcohol users have shown significantly higher levels ($P < 0.001$) with significantly lower median survivals (27.1 months, standard error = 2.86, and 95% CI: 21.4-32.62); than nonusers. Stages III and IV of tobacco addicted patients have also shown significantly increased levels of IL-12 and IL-10.

CONCLUSIONS: IL-12 and IL-10 seem to be affected by various modes of tobacco exposure and inflammation also affects median survival of cancer patients.

20: Ganie MA, Hassan S, Nisar S, Shamas N, Rashid A, Ahmed I, Douhat S, Mudassar S, Jan VM, Rashid F. High-sensitivity C-reactive protein (hs-CRP) levels and its relationship with components of polycystic ovary syndrome in Indian adolescent women with polycystic ovary syndrome (PCOS). *Gynecol Endocrinol.* 2014 Nov;30(11):781-4. doi: 10.3109/09513590.2014.924099. Epub 2014 Aug 19. PubMed PMID: 25137507.

Abstract C-reactive protein (CRP) is a risk marker for type 2 diabetes mellitus and cardiovascular diseases. In polycystic ovary syndrome (PCOS), limited data are available on high-sensitivity C-reactive protein (hs-CRP) levels and its relationship with components of PCOS especially in Indian women. The objective was to determine serum hs-CRP concentration in adolescent women with and without PCOS and to assess possible correlations of serum hs-CRP levels with components of PCOS in Indian women. One hundred and sixty women with PCOS and sixty non-PCOS women having normal menstrual cycles were included. Clinical assessment included anthropometry, Ferriman-Gallwey (FG) score and blood pressure (BP) measurement.

Laboratory evaluation included estimation of T4, TSH, LH, FSH, total testosterone, prolactin, cortisol, 17OHP, hs-CRP, lipid profile, and insulin, and glucose after 2-h oral glucose tolerance test. Homeostasis Model Assessment Insulin resistance index (HOMA-IR) and Quantitative Insulin Sensitivity Check Index (QUICKI) and glucose intolerance was calculated. FG score, LH, FSH, total Testosterone, HOMA-IR and QUICKI were significantly different among women with or without PCOS ($p < 0.01$). Although hs-CRP levels showed a higher trend in women having PCOS, there was no significant difference between the groups ($p > 0.05$). A significant and positive correlation was found between hs-CRP and body mass index (BMI) ($r = 0.308$, $p < 0.01$) among PCOS group. The results in Indian adolescent women suggest that hs-CRP levels may not per se be associated with PCOS, rather can be related to fat mass in this subset of subjects.

21: Garg K, Gurjar HK, Chandra PS, Sharma BS. Suprasellar tuberculoma. *Br J Neurosurg.* 2014 Aug;28(4):562-3. doi: 10.3109/02688697.2013.857009. Epub 2013 Nov 8. PubMed PMID: 24199967.

Tuberculosis is among the most lethal infectious diseases. Although incidence of intracranial tuberculosis is low in developed countries, it is still rampant in the developing world. The most common location of intracranial tuberculomas in adults is the cerebral hemisphere, and in children, the posterior fossa. The suprasellar tuberculomas are extremely rare and pose a diagnostic challenge. We describe a patient with concomitant suprasellar and cerebellar tuberculoma.

22: Ghose S, Parmar T, Dada T, Vanathi M, Sharma S. A new computer-based Farnsworth Munsell 100-hue test for evaluation of color vision. *Int Ophthalmol.* 2014 Aug;34(4):747-51. doi: 10.1007/s10792-013-9865-9. Epub 2013 Oct 5. PubMed PMID: 24097078.

To evaluate a computer-based Farnsworth-Munsell (FM) 100-hue test and compare it with a manual FM 100-hue test in normal and congenital color-deficient individuals. Fifty color defective subjects and 200 normal subjects with a best-corrected visual acuity $\geq 6/12$ were compared using a standard manual FM 100-hue test and a computer-based FM 100-hue test under standard operating conditions as recommended by the manufacturer after initial trial testing. Parameters evaluated were total error scores (TES), type of defect and testing time. Pearson's correlation coefficient was used to determine the relationship between the test scores. Cohen's kappa was used to assess agreement of color defect classification between the two tests. A receiver operating characteristic curve was used to determine the optimal cut-off score for the computer-based FM 100-hue test. The mean time was 16 ± 1.5 (range 6-20) min for the manual FM 100-hue test and 7.4 ± 1.4 (range 5-13) min for the computer-based FM 100-hue test, thus reducing testing time to $< 50\%$ ($p < 0.05$). For grading color discrimination, Pearson's correlation coefficient for TES between the two tests was 0.91 ($p < 0.001$). For color defect classification, Cohen's agreement coefficient was 0.98 ($p < 0.01$). The computer-based FM 100-hue is an effective and rapid method for detecting, classifying and grading color vision anomalies.

23: Gogia V, Venkatesh P, Gupta S, Kakkar A, Garg S. Endoillumination-assisted scleral buckling: Our results. *Indian J Ophthalmol.* 2014 Aug;62(8):893-4. doi: 10.4103/0301-4738.141068. PubMed PMID: 25230970; PubMed Central PMCID: PMC4185173.

AIMS: The aim was to evaluate the long-term surgical outcomes of endoillumination assisted scleral buckling (EASB) in primary rhegmatogenous retinal detachment (RRD).

METHODS: Twenty-five eyes of 25 patients with primary RRD and proliferative vitreoretinopathy \leq C2 where any preoperative break could not be localised, were included. All patients underwent 25 gauge endoillumination assisted rhegma localisation. Successful break determination was followed by cryopexy and standard scleral buckling under surgical microscope. Anatomical and functional outcomes were evaluated at the end of 2 years.

RESULTS: At least one intraoperative break could be localized in 23 of 25 (92%) eyes. Median age of these patients was 46 years (range: 17-72). Thirteen eyes (56.52%) were phakic, 8 (34.78%) were pseudophakic and 2 (8.6%) were aphakic. Anatomical success (attachment of retina) was achieved in 22 (95.63%) of 23 eyes with EASB. All eyes remained attached at the end of 2 years. Significant improvement in mean visual acuity (VA) was achieved at the end of follow-up (1.09 ± 0.46 log of the minimum angle of resolution [logMAR]) compared with preoperative VA (1.77 ± 0.28 logMAR) ($P < 0.001$).

CONCLUSION: EASB can be considered an effective alternative to vitreoretinal surgery in simple retinal detachment cases with the added advantage of enhanced microscopic magnification and wide field illumination.

24: Golechha M, Sarangal V, Ojha S, Bhatia J, Arya DS. Anti-Inflammatory Effect of *Embllica officinalis* in Rodent Models of Acute and Chronic Inflammation: Involvement of Possible Mechanisms. *Int J Inflam*. 2014;2014:178408. doi: 10.1155/2014/178408. Epub 2014 Aug 21. PubMed PMID: 25215258; PubMed Central PMCID: PMC4158298.

Embllica officinalis, commonly known as amla in Ayurveda, is unarguably the most important medicinal plant for prevention and treatment of various ailments. The present study investigated the anti-inflammatory activity of hydroalcoholic extract of *Embllica officinalis* (HAEEO). Acute inflammation in rats was induced by the subplantar injection of carrageenan, histamine, serotonin, and prostaglandin E2 and chronic inflammation was induced by the cotton pellet granuloma. Intraperitoneal (i.p.) administration of HAEEO at all the tested doses (300, 500, and 700mg/kg) significantly ($P < 0.001$) inhibited rat paw edema against all phlogistic agents and also reduced granuloma formation. However, at the dose of 700mg/kg, HAEEO exhibited maximum anti-inflammatory activity in all experimental models, and the effects were comparable to that of the standard anti-inflammatory drugs. Additionally, in paw tissue the antioxidant activity of HAEEO was also measured and it was found that HAEEO significantly ($P < 0.001$) increased glutathione, superoxide dismutase, and catalase activity and subsequently reduced lipid peroxidation evidenced by reduced malondialdehyde. Taken all together, the results indicated that HAEEO possessed potent anti-inflammatory activity and it may hold therapeutic promise in the management of acute and chronic inflammatory conditions.

25: Goyal A, Srivastava A, Sihota R, Kaur J. Evaluation of oxidative stress markers in aqueous humor of primary open angle glaucoma and primary angle closure glaucoma patients. *Curr Eye Res*. 2014 Aug;39(8):823-9. doi: 10.3109/02713683.2011.556299. Epub 2014 Jun 9. PubMed PMID: 24912005.

PURPOSE: The present study was designed to determine the levels of antioxidant enzymes (superoxide dismutase, catalase, and glutathione peroxidase) and non-enzymatic antioxidants (vitamins C and E) in aqueous humor of primary open angle glaucoma (POAG) and primary angle closure glaucoma (PACG) patients.

MATERIALS AND METHODS: In this study, aqueous humor of POAG (n=30) and PACG (n=30) patients was obtained. For control, aqueous humor of 30 age-matched cataract patients (n=30) was collected. Activities of antioxidant enzymes and non-enzymatic antioxidants levels were measured spectrophotometrically.

RESULTS: A significant increase in superoxide dismutase (SOD) and glutathione peroxidase (GPx) activities was found in aqueous humor of POAG and PACG patients

as compared to cataract patients ($p < 0.001$). No significant changes were observed in catalase activity. The levels of vitamins C and E were significantly lower in the aqueous humor of POAG and PACG as compared to cataract patients ($p < 0.001$).

CONCLUSION: These results suggest that a significant increase in oxidative stress may play a role in the pathogenesis of POAG and PACG. Determination of oxidative stress in aqueous humor may help in understanding the course of this disease, and oxidative damage might be a relevant target for both prevention and therapy.

26: Gupta A, Agarwala S, Tandon N, Srinivas M, Bajpai M, Gupta DK, Gupta AK, Bal C, Kumar R, Bhatnagar V. Pheochromocytoma management, outcomes and the role of cortical preservation. *Indian J Pediatr.* 2014 Aug;81(8):780-4. doi: 10.1007/s12098-013-1283-5. Epub 2013 Nov 8. PubMed PMID: 24197525.

OBJECTIVES: To evaluate the management and outcome of children with pheochromocytoma and determine the role of cortex preservation in cases of bilateral disease.

METHODS: Retrospective review of children, below 12 y of age, with pheochromocytoma managed between November 2003 and December 2012 was done.

RESULTS: Twelve patients, nine boys and three girls with median age 9 y were enrolled. Eleven (92 %) had adrenal tumors and in one it was extra-adrenal. Five (42 %) had bilateral disease. Ten presented with hypertension, one with headache and one with abdominal pain and fever. All were stabilized pre-operatively with alpha and beta blockers and volume expansion. Six children with unilateral disease underwent total adrenalectomy. Out of five with bilateral disease, one child underwent bilateral total adrenalectomy and was later started on hormone replacement. Remaining four underwent total adrenalectomy on one side and partial on the other side. Post-operatively all became symptom free and normotensive and were off medications within 1 mo. Two children developed recurrence 1 mo post-operatively, one with an initial unilateral pheochromocytoma and one with paraganglionoma. At the last follow up, 10 out of 12 (83 %) were disease free while two with recurrence are still awaiting surgery.

CONCLUSIONS: Surgical resection of pheochromocytoma is effective treatment to achieve cure and prolong survival. Cortex preservation should be done in bilateral disease as risk of recurrence in such cases seems to be of lesser significance as compared to the morbidity and mortality of adrenal insufficiency and consequent lifelong hormone replacement.

PMID: 24197525 [PubMed - in process]

27: Gupta B, Ayub A, Bindra A, Gupta S, Mishra B. Distal tracheoesophageal fistula in pediatric patient - an anesthetic challenge. *Paediatr Anaesth.* 2014 Aug;24(8):886-8. doi: 10.1111/pan.12449. PubMed PMID: 25039876.

28: Gupta R, Balhara YP. Antipsychotic induced chronic recurrent oculogyric crisis in a patient with obsessive compulsive disorder. *Psychopharmacology (Berl).* 2014 Aug;231(15):3065-6. doi: 10.1007/s00213-014-3638-7. Epub 2014 Jun 8. PubMed PMID: 24908271.

29: Hari P, Hari S, Sinha A, Kumar R, Kapil A, Pandey RM, Bagga A. Antibiotic prophylaxis in the management of vesicoureteric reflux: a randomized double-blind placebo-controlled trial. *Pediatr Nephrol.* 2014 Aug 31. [Epub ahead of print] PubMed PMID: 25173357.

BACKGROUND: The benefits of long-term low-dose antibiotics in preventing urinary tract infection (UTI) and renal damage in children with primary vesicoureteric

reflux (VUR) are unclear.

METHODS: Children aged between 1 and 12 years with VUR grade I-IV and a microbiologically proven UTI were randomized into two groups to receive either antibiotic prophylaxis [2 mg/kg trimethoprim + sulfamethoxazole (TMP-SMX)] daily or placebo, respectively, for 12 months. Primary outcome was microbiologically confirmed symptomatic UTI. Intention-to-treat analysis using time-to-event data was performed.

RESULTS: A total of 93 children (66.7 % boys) with a median age of 4.6 years were enrolled in this study; VUR grade III-IV was present in 73.1 % of these children. At least one symptomatic UTI occurred in ten (21.3 %) patients receiving antibiotic prophylaxis and in three (6.5 %) patients receiving placebo [hazard ratio in antibiotic group 3.9; 95 % confidence interval (CI) 1- 14; log rank test $P=0.02$). Compared to the group receiving placebo, the antibiotic group had a 14.8 % increased risk for developing UTI (95 % CI 1-28; $P=0.03$). Of the total number of episodes of UTI, 58.3 % of those in the antibiotic group were caused by TMP-SMX-resistant bacteria compared to 20 % in the placebo group ($P=0.15$). A renal scan at 12 months revealed that six of 37 (16.2 %) patients in the antibiotic group and seven of 43 (16.3 %) patients in the placebo group had new or worsening of pre-existing scar.

CONCLUSIONS: Long-term antibiotic prophylaxis with TMP-SMX is associated with increased risk of symptomatic UTI compared to placebo in children with grade I-IV VUR.

30: Jain D, Mathur SR, Iyer VK. Cell blocks in cytopathology: a review of preparative methods, utility in diagnosis and role in ancillary studies. *Cytopathology*. 2014 Aug 11. doi: 10.1111/cyt.12174. [Epub ahead of print] PubMed PMID: 25113785.

The cell block (CB) is a routine procedure in cytopathology that has gained importance because of its pivotal role in diagnosis and ancillary studies. There is no precise review in the published literature that deals with the various methods of preparation of CB, its utility in diagnosis, immunocytochemistry (ICC) or molecular testing, and its drawbacks. An extensive literature search on CB in cytology using internet search engines was performed for this review employing the following keywords: cell block, cytoblock, cytology, cytopathology, methods, preparation, fixatives, diagnostic yield, ancillary and molecular studies. Ever since its introduction more than a century ago, the CB technique has undergone numerous modifications to improve the quality of the procedure; however, the overall principle remains the same in each method. CBs can be prepared from virtually all varieties of cytological samples. In today's era of personalized medicine, cytological specimens, including CBs, augment the utility of cytological samples in analysing the molecular alterations as effectively as surgical biopsies or resection specimens. With the availability of molecular targeted therapy for many cancers, a large number of recent studies have used cytological material or CBs for molecular characterization. The various techniques of CB preparation with different fixatives, their advantages and limitations, and issues of diagnostic yield are discussed in this review.

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31: Jain D. Steatohepatic hepatocellular carcinoma: a metabolic syndrome associated carcinoma. *Histopathology*. 2014 Aug 11. doi: 10.1111/his.12479. [Epub ahead of print] PubMed PMID: 25110038.

I have read the article of Shibahara et al (1) with interest and congratulate authors for another study on steatohepatic hepatocellular carcinoma (SH-HCC) and its association with clinical features. Authors have found over 30% cases of SH-HCC during a period of 5 years in Japanese patients and found this particular

variant with relatively small size of the tumor, more invasive properties but better histologic differentiation though of no prognostic significance in multivariate analysis. Authors have compared their data with patients of western origin from the original 2 papers of Salomao et al(2,3) and found out higher frequency of SH-HCC possibly due to high incidence of metabolic conditions. However I have failed to understand why authors have not compared and quoted our observations on a fairly large number of explant livers with SH-HCC over a span of 7 years from India. This article is protected by copyright. All rights reserved.

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32: Janjanam J, Singh S, Jena MK, Varshney N, Kola S, Kumar S, Kaushik JK, Grover S, Dang AK, Mukesh M, Prakash BS, Mohanty AK. Comparative 2D-DIGE proteomic analysis of bovine mammary epithelial cells during lactation reveals protein signatures for lactation persistency and milk yield. PLoS One. 2014 Aug 11;9(8):e102515. doi: 10.1371/journal.pone.0102515. eCollection 2014. PubMed PMID: 25111801; PubMed Central PMCID: PMC4128602.

Mammary gland is made up of a branching network of ducts that end with alveoli which surrounds the lumen. These alveolar mammary epithelial cells (MEC) reflect the milk producing ability of farm animals. In this study, we have used 2D-DIGE and mass spectrometry to identify the protein changes in MEC during immediate early, peak and late stages of lactation and also compared differentially expressed proteins in MEC isolated from milk of high and low milk producing cows. We have identified 41 differentially expressed proteins during lactation stages and 22 proteins in high and low milk yielding cows. Bioinformatics analysis showed that a majority of the differentially expressed proteins are associated in metabolic process, catalytic and binding activity. The differentially expressed proteins were mapped to the available biological pathways and networks involved in lactation. The proteins up-regulated during late stage of lactation are associated with NF- κ B stress induced signaling pathways and whereas Akt, PI3K and p38/MAPK signaling pathways are associated with high milk production mediated through insulin hormone signaling.

33: John J, Kawade A, Rongsen-Chandola T, Bavdekar A, Bhandari N, Taneja S, Antony K, Bhatnagar V, Gupta A, Kabra M, Kang G. Active surveillance for intussusception in a phase III efficacy trial of an oral monovalent rotavirus vaccine in India. Vaccine. 2014 Aug 11;32 Suppl 1:A104-9. doi: 10.1016/j.vaccine.2014.03.036. PubMed PMID: 25091662.

BACKGROUND: Post licensure studies have identified an increased risk of intussusception following vaccination with currently licensed rotavirus vaccines, raising safety concerns generic to all rotavirus vaccines. We describe the surveillance for intussusception in a phase III clinical trial with an oral monovalent rotavirus vaccine developed from the neonatal 116E strain.

METHODS: Using broad screening criteria and active surveillance, the incidence of intussusception between 6 weeks and 2 years of age was measured in 4532 children who received three doses of vaccine and 2267 children who received a placebo in the clinical trial. Possible intussusceptions were evaluated with a screening ultrasonogram. An independent intussusception case adjudication committee reviewed all intussusceptions and graded them on Brighton Collaboration criteria for diagnostic certainty.

RESULTS: We identified twenty-three intussusceptions on ultrasound from 1361 evaluated sentinel events. Eleven were of level 1 diagnostic certainty as determined by the independent intussusception case adjudication committee. None required surgical intervention, and the earliest identified intussusception was at 36 days following the third dose in a placebo recipient. Among vaccine

recipients the first event of intussusception occurred 112 days after the third dose. The incidence of ultrasound-diagnosed intussusception was 200/100,000 child-years (95% CI, 120, 320) among those receiving the vaccine and 141/100,000 child-years (95% CI, 50, 310) among those receiving the placebo. The incidence rate of confirmed intussusception among vaccine recipients was 94/100,000 child-years (95% CI, 41, 185) and 71/100,000 child-years (95% CI, 15, 206) among those receiving the placebo.

CONCLUSION: In this licensure study, 23 cases of intussusception were identified through an active surveillance system, but there was no temporal association with rotavirus vaccination. The use of active surveillance with broad criteria intended for ensuring safety of children participating in a trial, identified several transient intussusceptions that were of doubtful clinical significance.

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34: Joshi R, Tripathi M, Gupta P, Gupta YK. Effect of clobazam as add-on antiepileptic drug in patients with epilepsy. *Indian J Med Res.* 2014 Aug;140(2):209-15. PubMed PMID: 25297352.

BACKGROUND & OBJECTIVES: The use of clobazam in epilepsy has increased since its introduction in 1975. However, it has not been audited for its overall usefulness in Indian set up. The present study was aimed to evaluate usage pattern, retention rate, effectiveness and tolerability of clobazam during routine practice in an outpatient epilepsy clinic of a tertiary care hospital in New Delhi, India.

METHODS: This study was performed on the patients prescribed antiepileptic medication who had clobazam as last added drug in their treatment regimen during October 2010 - March 2012. These patients were followed up for two OPD visits. The primary points evaluated were retention rate, percentage of seizure-free patients and reasons for discontinuing clobazam.

RESULTS: Of the 417 consecutive patients, 132 (31.7%) were on clobazam treatment for more than four years (median 6 yr, range 4-15 yr). No seizure for previous 12 months was considered as seizure free and was observed in 151 (36.2%) patients. There was no improvement in seizure control in 32 (7.7%) patients. A decrease in seizure severity without any change in seizure frequency was observed in 76 (18.2%) patients. Clobazam was discontinued by 15 (3.6%) patients due to complaints like drowsiness (13), fatigue/tiredness (8), headache (6), poor memory (6), irritable behaviour (5), abdominal pain (3) and dizziness (3).

INTERPRETATION & CONCLUSIONS: Our results provide valuable information about the clinical use of clobazam as add-on antiepileptic drug therapy in the management of patients with epilepsy.

PMID: 25297352 [PubMed - in process]

35: Kakkar A, Kumar A, Jha P, Goyal N, Mallick S, Sharma MC, Suri A, Singh M, Kale SS, Julka PK, Sarkar C, Suri V. Meningeal hemangiopericytomas: a clinicopathological study with emphasis on MGMT (O(6)-methylguanine-DNA methyltransferase) promoter methylation status. *Neuropathology.* 2014 Aug;34(4):333-42. doi: 10.1111/neup.12107. Epub 2014 Feb 12. PubMed PMID: 24521400.

Meningeal hemangiopericytomas (HPCs) are aggressive dural-based tumors, for which no prognostic or predictive marker has been identified. Gross total resection is treatment of choice, but not easily achieved; hence, alkylating agents like temozolomide (TMZ) are now being tried. O(6)-methylguanine-DNA methyltransferase (MGMT) promoter methylation has proven prognostic and predictive value in glioblastomas. This study evaluates MGMT promoter methylation in meningeal HPCs to determine its role in HPC oncogenesis and its association with patient

outcome. Meningeal HPCs diagnosed between 2002 and 2011 were retrieved and clinicopathological features reviewed. MGMT promoter methylation status was assessed by methylation-specific polymerase chain reaction (MSP) and immunohistochemistry (IHC) for MGMT protein. HPCs accounted for 1.1% of all CNS tumors. Forty cases were analyzed; the majority were adults (mean age=41.4 years). Seventy percent were primary and 30% were recurrent tumors; 60% were grade II and 40% were grade III. MGMT promoter methylation was identified in 45% of cases, including Grade II (54.2%) and Grade III (31.3%) (P=0.203). Promoter methylation was significantly (P=0.035) more frequent in primary (57.1%) than in recurrent (16.7%) tumors. No correlation was noted between MGMT promoter methylation by MSP and MGMT protein expression by IHC, or with progression-free survival. Thus, a significant proportion of HPCs demonstrate MGMT promoter methylation, suggesting possible susceptibility to TMZ. As promoter methylation is more frequent in primary tumors, TMZ may serve as a therapeutic option in residual primary tumors. Epigenetic inactivation of MGMT in HPCs necessitates the assessment of prognostic and predictive value of MGMT promoter methylation in HPCs in larger clinical trials.

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36: Kapil U, Bhadoria AS. Television viewing and overweight and obesity amongst children. *Biomed J.* 2014 Aug 28. doi: 10.4103/2319-4170.125654. [Epub ahead of print] PubMed PMID: 25163497.

37: Kaur J, Roy S, Mallick SR, Mathur S, Sharma A, Bhasker S, Mohanti BK. Squamous cell carcinoma of larynx in an 8-year-old child: successful management with chemo-radiation. *Pediatr Blood Cancer.* 2014 Aug;61(8):1481-3. doi: 10.1002/pbc.24952. Epub 2014 Jan 22. PubMed PMID: 24453121.

Incidence of laryngeal squamous cell cancer (SCC) in childhood is rare, more so in children below 10 years of age. Due to the rarity of the disease and nonspecific symptoms diagnosis often gets delayed. Treatment is challenging and demands expert multi-modality care. We describe the clinico-pathologic findings and management of laryngeal cancer with chemo-radiation in an 8-year-old male. After 18 months of completion of treatment the child is in complete remission clinically and radiologically. This report aims at increasing awareness of head and neck SCC in paediatric population and also underscores the importance of multi-modality care in managing such cases.

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38: Khandelwal P, Sinha A, Hari P, Bansal VK, Dinda AK, Bagga A. Outcomes of renal transplant in patients with anti-complement factor H antibody-associated hemolytic uremic syndrome. *Pediatr Transplant.* 2014 Aug;18(5):E134-9. doi: 10.1111/petr.12273. Epub 2014 May 12. PubMed PMID: 24814615.

Atypical HUS associated with anti-CFH autoantibodies is an uncommon illness associated with high risk of progression to end-stage renal disease. Disease relapses after transplantation, observed in one-third cases, often lead to graft loss. We report four patients with anti-CFH antibody-associated HUS who underwent renal transplantation 16-62 months from initial presentation. Two patients each received organs from deceased and living-related donors. Anti-CFH antibody titers were monitored during the illness and following transplantation. All patients received two doses of IV rituximab before or after transplantation; three patient each received 1-2 g/kg of IV immunoglobulin or underwent 2-5 sessions of plasma exchanges. The use of therapeutic plasma exchange, IV immunoglobulin, and

rituximab in two cases enabled two-third reduction in anti-CFH antibody titers before transplantation. At 5- to 26-month follow-up, all patients showed satisfactory graft function without recurrence of HUS. This is the first report of patients with anti-CFH antibody-associated HUS who underwent living-related renal transplantation. Clearance of anti-CFH antibody by therapeutic plasma exchange and adjuvant immunosuppression aimed at decreasing antibody levels may enable successful transplantation and recurrence-free survival.

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39: Khunger M, Kumar U, Roy HK, Tiwari AK. Dysplasia and cancer screening in 21st century. *APMIS*. 2014 Aug;122(8):674-82. doi: 10.1111/apm.12283. Epub 2014 Jun 7. Review. PubMed PMID: 24910362.

Cancer is the second leading cause of death in the United States, and is projected to overtake cardiovascular diseases as the number one cause of mortality in adults within a decade. Cancer screening offers an opportunity to detect cancer precursor lesions at early stages, and hence preemptively manage and prevent development of frank cancers. Despite tremendous technological advances over last decade, which allow us to study genomic/epigenomic and proteomic profile of cells with unprecedented details, it has been difficult to develop non-invasive biomarkers with high sensitivity and specificity that can have clinical applications. Dysplasia, which requires histopathological examination of the tissue, remains the best marker of propensity to develop cancer, and hence the best available surrogate biomarker. However, procuring tissues for detection of dysplasia is highly invasive and economically unviable for most visceral malignancies. Therefore, there is emphasis on developing circulating biomarkers through a consortium approach where high-performing biomarkers in basic research are tested in large collaborative clinical settings to assess their clinical efficacy. In this review, we have discussed fundamental principles of cancer screening, difficulties in developing novel and effective biomarkers, continuing reliance on dysplasia as best available surrogate marker for cancer screening, as well as briefly highlighted newer screening modalities.

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40: Konanki R, Gulati S, Saxena R, Gupta AK, Seith A, Kumar A, Saxena A, Kabra M, Kalra V, Lakshmy R. Profile of prothrombotic factors in Indian children with ischemic stroke. *J Clin Neurosci*. 2014 Aug;21(8):1315-8. doi: 10.1016/j.jocn.2013.10.030. Epub 2014 Jan 27. PubMed PMID: 24629397.

This study was undertaken in view of paucity of data regarding the profile of prothrombotic factors in children with ischemic stroke. Sixty-four children with ischemic stroke were prospectively evaluated for prothrombotic factors over a 2 year period. The blood samples were analyzed for protein C (PC), protein S (PS), activated protein C resistance (APCR), factor V Leiden (FVL), anti-thrombin-III (AT-III), lipoprotein (a) [Lp(a)], lupus anticoagulant (LA), anti-cardiolipin antibodies (aCL) immunoglobulin (Ig) M and IgG, homocysteine, and methylenetetrahydrofolate reductase (MTHFR) at least 3 months after the onset of stroke. At least one prothrombotic factor was identified in 45.3% children (29/64). These included hyperhomocysteinemia (11/64), PC deficiency (9/64), aCL (8/64), PS deficiency (5/64), APCR (3/64), AT-III deficiency (2/64) and LA (1/64). Multiple factors were coexistent in 17.2% (11/64). The prevalence of PC deficiency, PS deficiency and co-existence of multiple abnormalities observed were similar to the published literature. Elevated Lp(a) and APCR were less prevalent. FVL and MTHFR were not seen in any of the study children. Forty-five percent of children had at least one prothrombotic abnormality. Hyperhomocysteinemia, PC deficiency, aCL and PS deficiency were the most frequent

prothrombotic abnormalities.

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41: Kumar A, Das S, Purkait B, Sardar AH, Ghosh AK, Dikhit MR, Abhishek K, Das P. Ascorbate Peroxidase, a Key Molecule Regulating Amphotericin B Resistance in Clinical Isolates of *Leishmania donovani*. *Antimicrob Agents Chemother*. 2014 Oct;58(10):6172-84. doi: 10.1128/AAC.02834-14. Epub 2014 Aug 11. PubMed PMID: 25114128.

Amphotericin B (AmB), a polyene macrolide, is now a first-line treatment of visceral leishmaniasis cases refractory to antimonials in India. AmB relapse cases and the emergence of secondary resistance have now been reported. To understand the mechanism of AmB, differentially expressed genes in AmB resistance strains were identified by a DNA microarray and real-time reverse transcriptase PCR (RT-PCR) approach. Of the many genes functionally overexpressed in the presence of AmB, the ascorbate peroxidase gene from a resistant *Leishmania donovani* strain (LdAPx gene) was selected because the gene is present only in *Leishmania*, not in humans. Apoptosis-like cell death after exposure to AmB was investigated in a wild-type (WT) strain in which the LdAPx gene was overexpressed and in AmB-sensitive and -resistant strains. A higher percentage of apoptosis-like cell death after AmB treatment was noticed in the sensitive strain than in both the resistant isolate and the strain sensitive to LdAPx overexpression. This event is preceded by AmB-induced formation of reactive oxygen species and elevation of the cytosolic calcium level. Enhanced cytosolic calcium was found to be responsible for depolarization of the mitochondrial membrane potential and the release of cytochrome c (Cyt c) into the cytosol. The redox behavior of Cyt c showed that it has a role in the regulation of apoptosis-like cell death by activating metacaspase- and caspase-like proteins and causing concomitant nuclear alterations, as determined by terminal deoxynucleotidyltransferase-mediated dUTP-biotin nick end labeling (TUNEL) and DNA fragmentation in the resistant strain. The present study suggests that constitutive overexpression of LdAPx in the *L. donovani* AmB-resistant strain prevents cells from the deleterious effect of oxidative stress, i.e., mitochondrial dysfunction and cellular death induced by AmB.

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42: Kumar A, Krishna G, Singh PK, Garg A, Sharma BS. Spontaneously Disappearing Pineal Region Mass: A Rare Manifestation of Vein of Galen Malformation. *Indian J Pediatr*. 2014 Aug 8. [Epub ahead of print] PubMed PMID: 25103014.

43: Kumar B, Gupta SK, Nag TC, Srivastava S, Saxena R, Jha KA, Srinivasan BP. Retinal neuroprotective effects of quercetin in streptozotocin-induced diabetic rats. *Exp Eye Res*. 2014 Aug;125:193-202. doi: 10.1016/j.exer.2014.06.009. Epub 2014 Jun 18. PubMed PMID: 24952278.

The aim of the present study was to evaluate the effects of Quercetin (Qctn), a plant based flavonol, on retinal oxidative stress, neuroinflammation and apoptosis in streptozotocin-induced diabetic rats. Qctn treatment (25- and 50 mg/kg body weight) was given orally for six months in diabetic rats. Retinal glutathione (GSH) and antioxidant enzymes [superoxide dismutase (SOD) and catalase (CAT)] were estimated using commercially available assays, and inflammatory cytokines levels [tumor necrosis factor- α (TNF- α), Interleukin-1 β (IL-1 β)] were estimated by ELISA method. Immunofluorescence and western blot studies were performed for nuclear factor kappa B (NF- κ B), caspase-3, glial fibrillary acidic protein (GFAP) and aquaporin-4 (AQP4) expressions. Structural

changes were evaluated by light microscopy. In the present study, retinal GSH levels and antioxidant enzyme (SOD and CAT) activities were significantly decreased in diabetic group as compared to normal group. However, in Qctn-treated rats, retinal GSH levels were restored close to normal levels and positive modulation of antioxidant enzyme activities was observed. Diabetic retinas showed significantly increased expression of pro-inflammatory cytokines (TNF- α and IL-1 β) as compared to that in normal retinas, while Qctn-treated retinas showed significantly lower levels of cytokines as compared to diabetic retinas. Light microscopy showed significantly increased number of ganglion cell death and decreased retinal thickness in diabetic group compared to those in normal retina; however, protective effect of Qctn was seen. Increased apoptosis in diabetic retina is proposed to be mediated by overexpression of NF-kB and caspase-3. However, Qctn showed inhibitory effects on NF-kB and caspase-3 expression. Microglia showed upregulated GFAP expression, and inflammation of Müller cells resulted in edema in their endfeet and around perivascular space in nerve fiber layer in diabetic retina, as observed through AQP4 expression. However, Qctn treatments inhibited diabetes-induced increases in GFAP and AQP4 expression. Based on these findings, it can be concluded that bioflavonoids, such as Qctn can be effective for protection of diabetes induced retinal neurodegeneration and oxidative stress.

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44: Kumar L, Iqbal N, Mookerjee A, Verma RK, Sharma OD, Batra A, Pramanik R, Gupta R. Complete response after autologous stem cell transplant in multiple myeloma. *Cancer Med.* 2014 Aug;3(4):939-46. doi: 10.1002/cam4.257. Epub 2014 Apr 29. PubMed PMID: 24777883.

We evaluated long-term outcome of patients achieving complete response (CR) after autologous stem cell transplantation (ASCT) for multiple myeloma. Between April 1990 and June 2012 191 patients underwent ASCT. The median age was 53 years (range, 26-68 years), 135 were men. Pretransplant, patients received induction therapy with VAD (vincristine, doxorubicin, dexamethasone; n = 77), novel agents (n = 92), or alkylating agent-based, (n = 22); 43% received more than one line of induction regimen. Response to transplant was defined as per EBMT criteria. The median follow-up for the entire group was 85 months (range, 6-232.5 months). Following transplant 109 (57.1%) patients achieved CR. Median progression-free survival (PFS) for patients with CR was higher compared to those with VGPR and PR, (107 vs. 18 vs. 18 months, P < 0.001). Number of lines of therapy pretransplant (one or two vs. more than two lines of therapy (P < 0.001), and absolute lymphocyte count of $\leq 3000/\text{cmm}$ were predictors of superior PFS. Median overall survival (OS) for patients with CR was higher, (204 months), compared to those with VGPR (71.5 months, P < 0.001) and PR (51.5 months, P < 0.001), respectively. On Cox regression analysis, patients who received one line of induction therapy pretransplant (hazard ratio, HR 2.154, P < 0.001) and those with absolute lymphocyte count of $\leq 3000/\text{mm}^3$ (HR 0.132, P < 0.001) had superior PFS. For overall survival, induction treatment up to one line (HR 2.403, P < 0.004) and Hb > 7.1 G/dL at diagnosis (HR 4.756, P < 0.01) were associated with superior outcome. On landmark analysis at 12 months, PFS and OS continued to remain superior for patients attaining CR. Achievement of CR post transplant is associated with longer OS and PFS. Among complete responders, those who receive one line of induction therapy pretransplant have superior outcome.

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45: Kumar N, Yadav C, Raj R, Anand S. How to interpret postoperative X-rays after total knee arthroplasty. *Orthop Surg.* 2014 Aug;6(3):179-86. doi:

10.1111/os.12123. PubMed PMID: 25179351.

Today, total knee arthroplasty (TKA) is one the most commonly performed surgeries worldwide. The purpose of this article is to review the appearance of normal post-TKA roentgenographs and describe the correct sequence for their interpretation. It is unwise to depend solely on patients' symptoms when diagnosing TKA complications because serial radiographs can foresee failures well before they manifest clinically. Ideal post-TKA radiographs comprise whole lower extremity anteroposterior and lateral views taken under weight bearing conditions along with a skyline view of the patellofemoral joint. Among other things, weight bearing exposes the true alignment, ligamentous laxity and polyethylene wear. On the basis of follow-up of our TKA cases, we have drawn up a protocol for assessing postoperative X-ray films after TKAs. Following the proposed sequence, surgeon can easily decide how to proceed with follow-up and foresee complications. Careful interpretation of postoperative radiographs after TKA is essential to careful monitoring of patients and implant survival.

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46: Kumar N, Kaur G, Kanga U, Tandon N, Caillat-Zucman S, Mehra NK. Association of PTPN22+1858C/T polymorphism with Type 1 diabetes in the North Indian population. *Int J Immunogenet.* 2014 Aug;41(4):318-23. doi: 10.1111/iji.12129. Epub 2014 Jun 10. PubMed PMID: 24913133.

A nonsynonymous SNP +1858C/T (rs2476601) in the protein tyrosine phosphatase, nonreceptor type 22 (PTPN22) gene leading to Arg 620 Trp substitution is known to be associated with susceptibility to type 1 diabetes (T1D) and several other autoimmune diseases. We studied this polymorphism in 145 T1D patients and 210 healthy controls from North India. The minor allele +1858T was observed to be significantly increased among patients as compared to healthy controls (2.76% vs 0.5%, $P = 0.027$, OR = 5.93; 95% CI = 1.4-24.8). The association was also observed at the level of heterozygous C/T genotype (5.5% vs 0.95%, $P = 0.026$, OR = 6.07; 95% CI = 1.43-25.6). The T allele and C/T genotype were predominantly found among patients who were positive for both glutamic acid decarboxylase 65 (GAD65) and insulin antigen 2 (IA2) autoantibodies and showed significantly increased frequencies (10%, $P = 0.034$, OR = 11.67; 95% CI = 1.58-84.1 and 20%, $P = 0.031$, OR = 13.0; 95% CI = 1.66-97.5, respectively) as compared to patients negative for these autoantibodies (0.95% and 1.9%, respectively). The results suggest that the PTPN22+1858T allele is positively associated with T1D in the North Indian population.

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47: Kumar R, Mohan N, Upadhyay AD, Singh AP, Sahu V, Dwivedi S, Dey AB, Dey S. Identification of serum sirtuins as novel noninvasive protein markers for frailty. *Aging Cell.* 2014 Aug 7. doi: 10.1111/acel.12260. [Epub ahead of print] PubMed PMID: 25100619.

Frailty has emerged as a major health issue among older patients. A consensus on definition and diagnosis is yet to be achieved. Various biochemical abnormalities have been reported in frailty. Activation of sirtuins, a conserved family of NAD-dependent proteins, is one of the many mimics of calorie restriction which improves lifespan and health in experimental animals. In this cross-sectional study, we assessed the circulating sirtuin levels in 119 (59.5%) nonfrail and 81 (40.5%) frail individuals, diagnosed by Fried's criteria. Serum SIRT1, SIRT2, and SIRT3 were estimated by surface plasmon resonance (SPR) and Western blot. Serum sirtuins level in mean±SD; SIRT1 (nonfrail -4.67 ± 0.48 ng/μL; frail -

3.72 ± 0.48 ng/μL; P < 0.0001), SIRT2 (nonfrail - 15.18 ± 2.94 ng/μL; frail - 14.19 ± 2.66 ng/μL; P = 0.016), and SIRT3 (nonfrail-7.72 ± 1.84 ng/μL; frail - 6.12 ± 0.97 ng/μL; P < 0.0001) levels were significantly lower among frail patients compared with the nonfrail. In multivariable regression analysis, lower SIRT1 level were significantly associated with frailty after adjusting age, gender, diabetes mellitus, hypertension, cognitive status (Mini Mental State Examination scores) and number of comorbidities. For detecting the optimum diagnostic cutoff value a ROC analysis was carried out. The area under curve for SIRT1 was 0.9037 (cutoff - 4.29 ng/μL; sensitivity - 81.48%; specificity - 79.83%) and SIRT3 was 0.7988 (cutoff - 6.61 ng/μL; sensitivity - 70.37%; specificity - 70.59%). This study shows that lower circulating SIRT1 and SIRT3 levels can be distinctive marker of frailty.

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48: Kumar S, Gupta V, Srivastava N, Gupta V, Mishra S, Mishra S, Natu Shankar M, Roy U, Chandra A, Negi MP, Kumar S. Resistin 420C/G gene polymorphism on circulating resistin, metabolic risk factors and insulin resistance in adult women. *Immunol Lett.* 2014 Aug 1. pii: S0165-2478(14)00149-7. doi: 10.1016/j.imlet.2014.07.009. [Epub ahead of print] PubMed PMID: 25088792.

OBJECTIVE: To investigate the frequency association between resistin gene polymorphism with its circulating levels, metabolic risk factor and insulin resistance in adult women.

DESIGN: Totally 615 subjects were enrolled for the study, 305 women were with metabolic syndrome and 310 women were without metabolic syndrome according to NCEP-ATP III criteria. Fasting circulatory level of resistin, insulin, plasma glucose and lipid profiles were estimated along with calculation of insulin resistance. Resistin 420C/G promoter region polymorphism was done by RFLP method. **RESULTS:** Variant genotype (CC vs CG+GG) (p<0.001: OR=2.22: 95% CI=1.60-3.10) of 420C/G resistin gene polymorphism was less frequently observed in control population. Further dividing subjects into two groups according to absence (Resistin -1) or presence (Resistin-2) of the G allele, significantly high levels of triglyceride (p<0.001), plasma glucose (p=0.012), systolic blood pressure (p<0.001), diastolic blood pressure (p<0.001), waist hip ratio (p<0.001), body mass index (p<0.001) and resistin (p<0.001), were observed in resistin-2 group. **CONCLUSION:** Present study shows that 420C/G polymorphism of resistin gene directly correlated to its high circulating level and metabolic risk factors, specifically markers of obesity and atherosclerosis, so it may have an important role in the development of metabolic syndrome and cardio metabolic diseases.

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49: Lodha R, Shah N, Mohari N, Mukherjee A, Vajpayee M, Singh R, Singla M, Saini S, Bhatnagar S, Kabra SK. Immunologic effect of zinc supplementation in HIV-infected children receiving highly active antiretroviral therapy: a randomized, double-blind, placebo-controlled trial. *J Acquir Immune Defic Syndr.* 2014 Aug 1;66(4):386-92. doi: 10.1097/QAI.0000000000000191. PubMed PMID: 24798767.

BACKGROUND: We conducted this study to assess the immunologic effect of daily 20 mg zinc supplementation for 24 weeks in HIV-infected children older than 6 months receiving highly active antiretroviral therapy (ART).

METHODS: Fifty-two HIV-infected children older than 6 months in whom ART was initiated were randomized to receive either 20 mg of zinc or placebo for a period of 24 weeks. Children underwent clinical examination, anthropometry, and

laboratory evaluations: CD4% and count, viral load, and serum zinc level at baseline, 12 weeks, and 24 weeks. The primary outcome evaluated was CD4% value at the end of 12 and 24 weeks of study intervention in the enrolled children.

RESULTS: Of 52 children enrolled, 49 completed the study. The median CD4% value rose from 10% to 23% at 12 weeks and to 24.5% at 24 weeks in the zinc group, whereas in the placebo group, the value rose from 11% to 20% at 12 weeks and to 22% at 24 weeks ($P = 0.188$ for comparison between the zinc and the placebo group at 12 wk and $P = 0.3$ for comparison at 24 wk). The median (interquartile range) log reductions in the viral load at 12 weeks in the 2 arms were similar at 12 ($P = 0.84$) and 24 weeks ($P = 0.43$).

CONCLUSIONS: Supplementation of 20 mg zinc daily for 24 weeks did not have any statistically significant effect on the increase in CD4%, decrease in viral load, anthropometric indices, and morbidity profile in HIV-infected children started on ART.

50: Malhotra R, Kiran Kumar GN, K Digge V, Kumar V. The clinical and radiological evaluation of the use of an allograft-prosthesis composite in the treatment of proximal femoral giant cell tumours. *Bone Joint J.* 2014 Aug;96-B(8):1106-10. doi: 10.1302/0301-620X.96B8.33611. PubMed PMID: 25086128.

Giant cell tumour is the most common aggressive benign tumour of the musculoskeletal system and has a high rate of local recurrence. When it occurs in proximity to the hip, reconstruction of the joint is a challenge. Options for reconstruction after wide resection include the use of a megaprosthesis or an allograft-prosthesis composite. We performed a clinical and radiological study to evaluate the functional results of a proximal femoral allograft-prosthesis composite in the treatment of proximal femoral giant cell tumour after wide resection. This was an observational study, between 2006 and 2012, of 18 patients with a mean age of 32 years (28 to 42) and a mean follow-up of 54 months (18 to 79). We achieved excellent outcomes using Harris Hip Score in 13 patients and a good outcome in five. All allografts united. There were no complications such as infection, failure, fracture or resorption of the graft, or recurrent tumour. Resection and reconstruction of giant cell tumours with proximal femoral allograft-prosthesis composite is a better option than using a prosthesis considering preservation of bone stock and excellent restoration of function. A good result requires demanding bone banking techniques, effective measures to prevent infection and stability at the allograft-host junction.

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51: Mitra S, Nayak PK, Sahoo J, Mathew A, Padma A, Kamalanathan S, Agrawal S. Predictors for antenatal insulin requirement in gestational diabetes. *Gynecol Endocrinol.* 2014 Aug;30(8):565-8. doi: 10.3109/09513590.2014.911274. Epub 2014 May 14. PubMed PMID: 24828607.

The purpose of this study was to identify pre-gestational and gestational factors predicting subsequent insulin requirement in patients with gestational diabetes mellitus (GDM). Maternal parameters were compared between mothers achieving glycemic control with or without the addition of antenatal insulin therapy (AIT). Insulin was required only in 8/83 (10%) patients for glycemic control. Those who needed insulin had a stronger family history of diabetes and higher first hour plasma glucose along with multiple (>1) abnormal values during oral glucose tolerance test (OGTT) in univariate analysis ($p < 0.05$). The first hour plasma glucose value of ≥ 9.72 mmol/l predicted requirement of AIT in GDM mothers with a sensitivity of 100% and specificity of 73%. However, only positive family history of diabetes mellitus among first degree relatives and multiple abnormal values in OGTT were independent predictors for antenatal insulin requirement in regression analysis.

52: Mohan T, Bhatnagar S, Gupta DL, Rao DN. Current understanding of HIV-1 and T-cell adaptive immunity: progress to date. *Microb Pathog.* 2014 Aug;73:60-9. doi: 10.1016/j.micpath.2014.06.003. Epub 2014 Jun 12. PubMed PMID: 24930593.

The cellular immune response to human immunodeficiency virus (HIV) has different components originating from both the adaptive and innate immune systems. HIV cleverly utilizes the host machinery to survive by its intricate nature of interaction with the host immune system. HIV evades the host immune system at innate and adaptive, allows the pathogen to replicate and transmit from one host to another. Researchers have shown that HIV has multipronged effects especially on the adaptive immunity, with CD4(+) cells being the worst affected T-cell populations. Various analyses have revealed that, the exposure to HIV results in clonal expansion and excessive activation of the immune system. Also, an abnormal process of differentiation has been observed suggestive of an alteration and blocks in the maturation of various T-cell subsets. Additionally, HIV has shown to accelerate immunosenescence and exhaustion of the overtly activated T-cells. Apart from causing phenotypic changes, HIV has adverse effects on the functional aspect of the immune system, with evidences implicating it in the loss of the capacity of T-cells to secrete various antiviral cytokines and chemokines. However, there continues to be many aspects of the immune-pathogenesis of HIV that are still unknown and thus required further research in order to convert the malaise of HIV into a manageable epidemic.

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53: Mohanty D, Dalal AK, Garg PK. Moderate Intra-abdominal Free Fluid on Computed Tomogram in Patients with Blunt Trauma Abdomen: Time to Shun Non-operative Approach. *World J Surg.* 2014 Aug 15. [Epub ahead of print] PubMed PMID: 25123182.

54: Mohanty D, Kumar A, Dalal AK. Ideal technique of incisional hernia repair: the quest continues. *Indian J Surg.* 2014 Aug;76(4):340. doi: 10.1007/s12262-013-1000-7. Epub 2013 Nov 6. PubMed PMID: 25278666; PubMed Central PMCID: PMC4175675.

55: Morey V, Sankineani SR, Kumar R. Multifocal metachronous giant cell tumour in bilateral upper limb: a rare case presentation. *Musculoskelet Surg.* 2014 Aug;98(2):165-9. doi: 10.1007/s12306-012-0223-2. Epub 2012 Sep 19. PubMed PMID: 22990983.

Giant cell tumour (GCT) of bone is a benign but locally aggressive tumour and accounts for 20 % of all benign bone tumours and 5 % of all bone tumours. Multicentric GCT of bone is a rare entity and has increased prevalence of involvement of the small bones of hands and feet in multicentric GCT. The clinical behaviour in multicentric GCTs tends to be aggressive as in recurrent GCTs. En-bloc resection remains the most successful surgical technique for treating both multicentric and solitary lesions. We report a 14-year-old female patient presenting with metachronous benign GCT located at the right proximal humerus and subsequent lesions in left hand and left proximal humerus. The case was treated with multimodality therapy including en-bloc resection along with bisphosphonate therapy over a period of 5 years.

56: Muhammad Aslam MK, Kumaresan A, Sharma VK, Tajmul M, Chhillar S, Chakravarty AK, Manimaran A, Mohanty TK, Srinivasan A, Yadav S. Identification of putative fertility markers in seminal plasma of crossbred bulls through differential proteomics. *Theriogenology.* 2014 Aug 28. pii: S0093-691X(14)00454-3. doi:

10.1016/j.theriogenology.2014.08.007. [Epub ahead of print] PubMed PMID: 25258256.

Sub-fertility is a major problem in crossbred bulls leading to disintegration of breeding systems and huge economic loss. Identification of some potential biomarkers to determine the latent fertility of bulls accurately has long been the interest of researchers. In this study, we analyzed the proteome of seminal plasma (SP) from bulls with varying fertility to identify the fertility-associated proteins. The proteomic profile of high- and low-fertile bulls was compared by two-dimensional difference gel electrophoresis and differentially expressed proteins were identified through matrix-assisted laser desorption/ionization-time of flight/mass spectrometry. Out of the 18 differentially expressed proteins ($P < 0.05$), 9 were overexpressed in SP of high-fertile bulls and 9 were overexpressed in SP of low-fertile bulls. The differential expressions ranged from 1.5- to 5.5-fold between the two groups, where protection of telomeres-1 protein (POT1) was highly overexpressed (2.9-fold) in high-fertile group and prostaglandin E2 receptor EP3 (PTGER3) was highly abundant (5.5-fold) in low-fertile group. The protein interaction network was elucidated using STRING software tool, and the functional bioinformatics analysis was done using Blast2Go software. Most of the differentially expressed proteins were found to be involved in cellular processes and biological regulation with binding and catalytic function. It is inferred that the expression of certain proteins in the SP varied with bull fertility, and concurrent appraisal of their expression along with other fertility assays may help in determining bull fertility.

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57: Mukherjee A, Sharma P, Karunanithi S, Dhull VS, Kumar R. Lymphoma and tuberculosis: temporal evolution of dual pathology on sequential 18F-FDG PET/CT. Clin Nucl Med. 2014 Aug;39(8):736-7. doi: 10.1097/RLU.0000000000000368. PubMed PMID: 24566399.

Tuberculosis can often be seen in patients undergoing chemotherapy for lymphoma, especially in endemic countries. As both tuberculosis and lymphoma can lead to hypermetabolic lesions of F-FDG PET/CT, a diagnostic dilemma often ensues. We present the sequential F-FDG PET/CT images of a 22-year-old female patient with Hodgkin lymphoma who developed tuberculosis and later relapse of lymphoma. These images present the temporal evaluation of the dual pathology on F-FDG PET/CT.

58: Paliwal D, Panda SK, Kapur N, Varma SP, Durgapal H. Hepatitis E virus (HEV) protease: a chymotrypsin-like enzyme that processes both non-structural (pORF1) and capsid (pORF2) protein. J Gen Virol. 2014 Aug;95(Pt 8):1689-700. doi: 10.1099/vir.0.066142-0. Epub 2014 May 2. PubMed PMID: 24795447.

Hepatitis E virus (HEV), a major cause of acute viral hepatitis across the world, is a non-enveloped, plus-strand RNA virus. Its genome codes three proteins, pORF1 (multifunctional polyprotein), pORF2 (capsid protein) and pORF3 (multi-regulatory protein). pORF1 encodes methyltransferase, putative papain-like cysteine protease, helicase and replicase enzymes. Of these, the protease domain has not been characterized. On the basis of sequence analysis, we cloned and expressed a protein covering aa 440-610 of pORF1, expression of which led to cell death in *Escherichia coli* BL-21 and Huh7 hepatoma cells. Finally, we expressed and purified this protein from *E. coli* C43 cells (resistant to toxic proteins). The refolded form of this protein showed protease activity in gelatin zymography. Digestion assays showed cleavage of both pORF1 and pORF2 as observed previously. MS revealed digestion of capsid protein at both the N and C termini. N-terminal sequencing of the ~35 kDa methyltransferase, ~35 kDa replicase and ~56 kDa pORF2

proteins released by protease digestion revealed that the cleavage sites were alanine15/isoleucine16, alanine1364/valine1365 in pORF1 and leucine197/valine198 in pORF2. Specificity of these cleavage sites was validated by site-directed mutagenesis. Further characterization of the HEV protease, carried out using twelve inhibitors, showed chymostatin and PMSF to be the most efficient inhibitors, indicating this protein as a chymotrypsin-like protease. The specificity was further confirmed by cleavage of the chymotrypsin-specific fluorogenic peptide N-succinyl-Leu-Leu-Val-Tyr-7-amido-4-methylcoumarin. Mutational analysis of the conserved serine/cysteine/histidine residues suggested that H443 and C472/C481/C483 are possibly the active site residues. To our knowledge, this is the first direct demonstration of HEV protease and its function.

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59: Prakash S, Mandal P. Is the DSM-5 position on dhat syndrome justified? *Asian J Psychiatr*. 2014 Aug 27. pii: S1876-2018(14)00194-4. doi: 10.1016/j.ajp.2014.08.006. [Epub ahead of print] PubMed PMID: 25218121.

60: Raj D, Kabra SK, Lodha R. Childhood Obesity and Risk of Allergy or Asthma. *Immunol Allergy Clin North Am*. 2014 Nov;34(4):753-765. doi: 10.1016/j.iac.2014.07.001. Epub 2014 Aug 29. Review. PubMed PMID: 25282288.

The simultaneous increment in the prevalence of obesity and allergic diseases suggests a possible link between them. This review focuses on the consequences of obesity on allergic diseases, especially asthma in children and adolescents, and evaluates the available evidence on the possible mechanisms. Obesity is related more strongly to nonatopic than atopic asthma, suggesting non-eosinophilic inflammation and Th1 polarization. Among other allergic diseases, the association is more consistent with eczema compared to allergic rhinitis/rhinoconjunctivitis. The mechanisms of asthma in obese individuals could involve mechanical effects of obesity on lung function, adipokines-mediated inflammation, shared factors (diet, genetics, sedentary lifestyle) and comorbidities.

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61: Ranjan R, Jain D, Singh L, Iyer VK, Sharma MC, Mathur SR. Differentiation of histoplasma and cryptococcus in cytology smears: a diagnostic dilemma in severely necrotic cases. *Cytopathology*. 2014 Aug 13. doi: 10.1111/cyt.12180. [Epub ahead of print] PubMed PMID: 25123524.

OBJECTIVE: The correct identification of fungal organisms is important for the appropriate clinical management of patients. It becomes difficult in necrotic smears when the tissue response is not clearly discernible. It is difficult to distinguish between histoplasma and cryptococcus in severely necrotic cases, where both appear as variably sized clear refractile haloes.

METHODS: Four cases of adrenal necrotic histoplasma infection were studied and the morphology was compared with that of non-necrotic histoplasmosis and cases of cryptococcal infection. Eleven cases were analysed in fine needle aspiration cytology (FNAC) smears. Ziehl-Neelsen (ZN) stain was performed to exclude tuberculosis in necrotic smears. A clinical and serology correlation was performed where available.

RESULTS: Necrotic cases of histoplasma infection revealed negative refractile clear haloes similar to those of cryptococcus. Histoplasma showed methylene blue-stained organisms in ZN stains, whereas the cryptococcus cases were negative. Similar methylene blue-stained organisms were seen in non-necrotic

histoplasma infection.

CONCLUSION: As a result of morphological overlap between cryptococcus and histoplasma, the distinction between the two fungi can be difficult in many cases. ZN staining appears to have a role in the differentiation of these fungi in severely necrotic cases. This observation needs to be validated on a larger number of cases with complete correlation with clinical, serology and treatment records.

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62: Rewari V, Sinha R, Ramachandran R, Trikha A. Termination of paroxysmal supraventricular tachycardia with remifentanyl in a parturient with tachycardia-induced cardiomyopathy. *Int J Obstet Anesth.* 2014 Aug;23(3):295-6. doi: 10.1016/j.ijoa.2014.03.008. Epub 2014 Mar 27. PubMed PMID: 24910352.

63: Rizwan SA, Kant S, Goswami K, Rai SK, Misra P. Correlates of Intention to Use Condom among Male Migrant Factory Workers in Northern India. *J Clin Diagn Res.* 2014 Aug;8(8):JC05-8. doi: 10.7860/JCDR/2014/8278.4714. Epub 2014 Aug 20. PubMed PMID: 25302221; PubMed Central PMCID: PMC4190743.

OBJECTIVE: Consistent condom use among high-risk groups, which in turn are dependant on favourable condom use intention is important for the success of HIV/AIDS prevention programmes. We aimed to determine intention to use condom and delineate their correlates in a sample of male migrant workers in northern India. MATERIALS AND METHODS: This was a cross-sectional facility based survey conducted in 2011. Inclusion criteria were: male migrant workers aged ≥ 18 years, who were born outside Haryana, who had moved to current location after 15 years of age, who had worked in the current factory for at least one year and who were able to give valid consent. Face-to-face interviews were conducted with semi-structured questionnaire. Since this analysis was a secondary objective of a larger migrant study, sample size was not calculated separately. Intention to use condom was measured on a five point Likert scale and expressed as a linear score (higher the score more unfavourable the intention). A linear regression analysis was performed to identify factors independently associated with unfavourable intention.

RESULTS: Mean (SD) score for intention to use condom was 10.4 (3.4). Unfavourable intention was associated with men who had migrated to greater number of places, who had lesser HIV/AIDS knowledge, who had never used condom and who had not used condom at last non-spousal sex. The model had an adjusted R-square value of 0.63 and was statistically significant ($F = 41.9, p < 0.001$).

CONCLUSION: Male migrant workers had unfavourable intention to use condom. This intention could be favourably modified by behaviour change communication through already existing targeted intervention platforms, focussing attention on groups with higher mobility, lower education, lower HIV/AIDS knowledge and inconsistent condom use.

64: Rohner F, Zimmermann M, Jooste P, Pandav C, Caldwell K, Raghavan R, Raiten DJ. Biomarkers of nutrition for development--iodine review. *J Nutr.* 2014 Aug;144(8):1322S-1342S. doi: 10.3945/jn.113.181974. Epub 2014 Jun 25. Review. PubMed PMID: 24966410; PubMed Central PMCID: PMC4093988.

The objective of the Biomarkers of Nutrition for Development (BOND) project is to provide state-of-the-art information and service with regard to selection, use, and interpretation of biomarkers of nutrient exposure, status, function, and effect. Specifically, the BOND project seeks to develop consensus on accurate assessment methodologies that are applicable to researchers (laboratory/clinical/surveillance), clinicians, programmers, and policy makers

(data consumers). The BOND project is also intended to develop targeted research agendas to support the discovery and development of biomarkers through improved understanding of nutrient biology within relevant biologic systems. In phase I of the BOND project, 6 nutrients (iodine, vitamin A, iron, zinc, folate, and vitamin B-12) were selected for their high public health importance because they typify the challenges faced by users in the selection, use, and interpretation of biomarkers. For each nutrient, an expert panel was constituted and charged with the development of a comprehensive review covering the respective nutrient's biology, existing biomarkers, and specific issues of use with particular reference to the needs of the individual user groups. In addition to the publication of these reviews, materials from each will be extracted to support the BOND interactive Web site (http://www.nichd.nih.gov/global_nutrition/programs/bond/pages/index.aspx). This review represents the first in the series of reviews and covers all relevant aspects of iodine biology and biomarkers. The article is organized to provide the reader with a full appreciation of iodine's background history as a public health issue, its biology, and an overview of available biomarkers and specific considerations for the use and interpretation of iodine biomarkers across a range of clinical and population-based uses. The review also includes a detailed research agenda to address priority gaps in our understanding of iodine biology and assessment.

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65: Roy KK, Subbaiah M, Kumar S, Sharma JB, Singh N. Feto-maternal outcome in pregnancies complicated by isolated fetal congenital complete heart block. *J Obstet Gynaecol.* 2014 Aug;34(6):492-4. doi: 10.3109/01443615.2014.914480. Epub 2014 May 15. PubMed PMID: 24830484.

A retrospective analysis of eleven pregnancies complicated by isolated fetal congenital complete heart block (CCHB) in anti-SSA/Ro antibody positive women was carried out at a tertiary hospital in India to study the perinatal outcome. The mean gestational age at the time of detection of fetal CCHB was 24.5 ± 3.1 weeks. Six mothers were asymptomatic; two had Sjögren's syndrome and three had systemic lupus erythematosus. Oral dexamethasone was given to all the patients after the diagnosis was made. There was one case of intrauterine death. Seven (63.6%) neonates needed a permanent pacemaker. There was no significant difference in the perinatal outcome in asymptomatic women with fetal CCHB and in women with connective tissue disorder and fetal CCHB. To conclude, fetal CCHB is associated with high morbidity but the presence of underlying connective disorder in the mother does not worsen the prognosis of the affected neonate.

66: Sampath Kumar V, Marimuthu K, Subramani S, Sharma V, Bera J, Kotwal P. Prospective randomized trial comparing open reduction and internal fixation with minimally invasive reduction and percutaneous fixation in managing displaced intra-articular calcaneal fractures. *Int Orthop.* 2014 Aug 20. [Epub ahead of print] PubMed PMID: 25139716.

PURPOSE: Managing displaced intra-articular calcaneal fractures remains controversial. A prospective randomised trial was undertaken to compare open reduction and internal fixation (ORIF) with minimally invasive reduction and percutaneous fixation (MIRPF).

METHODS: Forty-five displaced intra-articular calcaneal fractures were randomised to undergo either ORIF (n=23) or MIRPF (n=22). Patients were followed up clinically and radiologically for a minimum of one year postoperatively. The primary outcome measure was wound-healing complication. Functional outcome was assessed using Creighton Nebraska Health Foundation (CNF) scale, and radiological

outcome was assessed using plain radiographs and computed tomography (CT) scans. RESULTS: Of the 23 heels in the ORIF group, seven (30%) had wound-healing problems, compared with none in the MIRPF group ($p=0.005$). There was no statistically significant difference in radiological outcomes between groups, as measured by Böhler's angle, Gissane's angle and Score Analysis of Verona (SAVE). Median time to return to work was two weeks earlier ($p=0.004$), and the functional outcome score (CNF scale) at one year of follow-up was better ($p=0.013$) following MIRPF compared with ORIF. CONCLUSION: MIRPF is associated with fewer wound-healing problems, better functional outcome and earlier return to work compared with ORIF.

67: Saxena M, Behari M, Kumaran SS, Goyal V, Narang V. Assessing speech dysfunction using BOLD and acoustic analysis in parkinsonism. *Parkinsonism Relat Disord.* 2014 Aug;20(8):855-61. doi: 10.1016/j.parkreldis.2014.04.024. Epub 2014 May 9. PubMed PMID: 24857769.

INTRODUCTION: Speech dysfunction is often associated with parkinsonism (Parkinson's disease (PD), Multiple System Atrophy (MSA), and Progressive Supranuclear Palsy (PSP)), along with characteristic motor features. Any or all of the following i.e. respiratory, phonatory, resonatory, or articulatory components of speech production may be affected. Articulatory imprecision, repetition of syllables (tachyphrenia), and tremor of oropharyngeal structures add to speech unintelligibility. We studied acoustics using spectrogram and its correlation with BOLD activation during voice/speech production across these subjects.

METHODS: BOLD studies were conducted on 108 subjects (29 PD, 20 MSA and 19 PSP and 40 controls) on 1.5 T MR scanner using 130 dynamics. Active phase involved acquisition (10 volumes each) of audible reading of visually presented bi-syllabic meaningful Hindi simple words (5 types of non-nasal stop consonant categories, i.e. namely velars, palatals, retroflexes, dentals, bilabials and one nasal stop consonant) with interleaved silence during baseline. The subjects' voice samples were analyzed for acoustic parameters, namely formant frequencies of the adjoining vowels, voice onset time (VOT), and intensities using spectrogram. Correlation of BOLD activation in different brain areas with acoustic parameters was evaluated.

RESULTS: Voice intensity was significantly lowered, while VOTs were delayed in these patients as compared to healthy controls. All acoustic parameters were significantly affected for nasal consonants. BOLD activation correlated positively in primary motor cortex to VOTs, while F2 formants to activation of supplementary motor area.

CONCLUSION: The differences in the acoustic quality of various stop consonants in patients may be helpful in differentiating these three parkinsonian disorders.

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68: Sethi S, Malik MA, Goswami S, Saxena P, Srivastava A, Kashyap S, Pushker N, Bajaj MS, Bakhshi S, Kaur J. Expression of P-glycoprotein in human retinoblastoma and its clinical significance. *Tumour Biol.* 2014 Aug 31. [Epub ahead of print] PubMed PMID: 25173639.

Retinoblastoma is the most common malignant intraocular tumor of childhood. Drug resistance and relapses are major problems with chemotherapy, which is regarded as the mainstay of globe preserving treatment in retinoblastoma. P-glycoprotein (P-gp) expression has been reported to be associated with chemoresistance and poor prognosis in various malignancies. We analyzed P-gp expression in

retinoblastoma specimens, enucleated either primarily or after neoadjuvant chemotherapy by immunohistochemistry and immunoblotting, and correlated with the histopathological findings. Variables were statistically analyzed by Fischer's exact and chi-square tests. Tumor tissues were collected from enucleated eyes of 24 children. Fifteen of these were primarily enucleated (group I), and nine (group II) had received chemotherapy prior to enucleation. P-gp was expressed in 4/15 (26.7 %) eyes in group I and in 5/9 (55.6 %) eyes in group II. P-gp was highly expressed in group II as compared to group I. There was no correlation between P-gp expression and tumor differentiation, invasion, or laterality. In conclusion, there was markedly high expression of P-gp in eyes with retinoblastoma enucleated after chemotherapy. This may possibly play a role in chemoresistance or it may be that chemotherapy might have induced high expression. These findings may have important implications for the treatment of retinoblastoma patients but need further prospective investigations in a larger patient population.

69: Shankar H, Kumar N, Rao DN, Chandhiok N, Sandhir R, Kriplani A, Dhaliwal L, Sehgal R, Jindal VL, Maithi L, Kandpal S, Kumar A, Kurra S. Comparison of haematological and biochemical changes between non-anaemic and anaemic primigravid women in a north Indian population to establish normative values. *J Obstet Gynaecol*. 2014 Aug 25;1-4. [Epub ahead of print] PubMed PMID: 25153118.

Pregnancy is accompanied by several haemodynamic, biochemical and haematological changes, which may lead to severe problems, if they are not suitably addressed. The current study highlights the haematological and biochemical differences observed in anaemic (AP) and non-anaemic primigravida (NAP), at their 2nd trimester, in a north Indian population. There were significant differences ($p < 0.05$) in the body weight and body temperature of NAP compared with AP. A significant decrease ($p < 0.001$) in haematological parameters including haemoglobin, haematocrit, erythrocyte count, MCH and MCHC, was observed in AP; however, MCV was found significantly higher ($p = 0.038$). Many biochemical parameters viz. potassium, albumin, total protein and calcium levels were significantly reduced ($p < 0.01$) in AP, except alkaline phosphatase whose level was found significantly increased ($p < 0.01$). The findings of the study suggest that haematological and biochemical changes take place in anaemia during pregnancy. Further, the results obtained shall be used for establishing normative values for similar populations.

70: Sharma N, Pratap A, Bajpai M. Rectal pouch index: a prognostic indicator for constipation after surgery for high and intermediate anorectal malformations. *Eur J Pediatr Surg*. 2014 Aug;24(4):332-6. doi: 10.1055/s-0033-1347296. Epub 2013 May 17. PubMed PMID: 23686665.

Background and Introduction Constipation following posterior sagittal anorectoplasty (PSARP) is common. We correlated the dimensions of rectal pouch before PSARP with the postoperative bowel habit. Classical PSARP was modified with tapering of rectal pouch by plication of its walls thus preserving the internal sphincter because we believe that this preserves continence and lead to better results. It was observed that a distinct relationship exists between the preoperative size of the rectal pouch and constipation. **Aim** The aim of this study is to correlate the dimensions of preoperative rectal pouch with postoperative constipation. **Materials and Methods** PSARP was performed (n: 45) in anorectal malformations using an indigenous muscle stimulator. Before PSARP, a distal cologram via high sigmoid colostomy was performed. All the distal cologram were performed by a single senior radiologist and the pressure was kept constant between 15 and 20 cm of water while filling to rule out the confounding factor

related to incomplete filling. Rectum index was calculated as follows: The maximum radiological diameter of the rectum within the pelvis in the sagittal plane was multiplied by the maximum diameter of the rectum in the frontal plane. The result of this calculation was divided by the product of multiplying the distance between the ischial spines and the distance between the posterior surface of the pubic symphysis and the anterior surface of the last sacral vertebrae. Results Symptomatic constipation requiring treatment developed in 25 patients (48%). None of these patients had anal stenosis or stricture. Constipation was managed by dietary measures and laxatives. Fifteen patients (60%) had grade 1 constipation and responded favorably. Eight and two patients had grades 2 and 3 constipation, respectively. Those patients who had a rectal pouch index of less than 0.8 had mild constipation grades 0 and 1, whereas those in whom the rectal pouch index was more than 0.8 had severe degrees of constipation (grades 2 and 3). Conclusion Measuring the rectal pouch index can help in identifying the group which is likely to develop constipation after PSARP. These patients can be put on bowel training early on, after the colostomy closure, instead of waiting.

Georg Thieme Verlag KG Stuttgart · New York.

71: Sharma P, Jain TK, Parida GK, Karunanithi S, Patel C, Sharma A, Thulkar S, Julka PK, Bal C, Kumar R. Diagnostic accuracy of integrated (18)F-FDG PET/CT for restaging patients with malignant germ cell tumours. *Br J Radiol*. 2014 Aug;87(1040):20140263. doi: 10.1259/bjr.20140263. Epub 2014 Jun 4. PubMed PMID: 24896199; PubMed Central PMCID: PMC4112389.

OBJECTIVE: Evaluation of utility of fluorine-18 fludeoxyglucose ((18)F-FDG) positron emission tomography/CT (PET/CT) for restaging patients with primary malignant germ cell tumours (GCTs).

METHODS: Data of 92 patients (age, 31.94 ± 10.1 years; male/female, 86/6) with histopathologically confirmed malignant GCTs (gonadal, 88; mediastinal, 4; seminomatous, 47 and non-seminomatous, 45) who underwent (18)F-FDG PET/CT for restaging (suspected recurrence/post-therapy evaluation) were retrospectively analysed. Two experienced nuclear medicine physicians reviewed the PET/CT images in consensus, qualitatively and semi-quantitatively [maximum standardized uptake value (SUVmax)]. Histopathology (if available) and clinical/imaging/biochemical follow-up (minimum of 6 months) were employed as the reference standard.

RESULTS: (18)F-FDG PET/CT was interpreted as positive in 59 and negative in 33 patients. Local disease was seen in 5, nodal disease in 50 and distant metastasis in 22 patients. PET/CT was true positive in 49, false positive in 10, true negative in 30 and false negative in 3 patients. (18)F-FDG PET/CT showed sensitivity, specificity, positive predictive value, negative predictive value and accuracy of 94.2%, 75.0%, 83.0%, 90.9% and 85.8% overall; 90.0%, 74.0%, 72.0%, 90.9% and 80.8% in seminomatous GCT; and 96.8%, 76.9%, 91.1%, 90.9% and 91.1% in non-seminomatous GCT, respectively. Difference in PET/CT accuracy for seminomatous and non-seminomatous GCTs was not significant (p = 0.263). PET/CT demonstrated disease in 13 patients with negative/equivocal conventional imaging findings and in 9 patients with normal tumour markers. No site- or histology-based difference was seen in SUVmax.

CONCLUSION: (18)F-FDG PET/CT demonstrates high diagnostic accuracy for restaging patients with malignant GCTs. It has comparable diagnostic performance in both seminomatous and non-seminomatous malignant GCTs.

ADVANCES IN KNOWLEDGE: The present article demonstrates high diagnostic accuracy of (18)F-FDG PET/CT for restaging both seminomatous and non-seminomatous malignant GCTs in a large patient population.

72: Sharma P, Mukherjee A, Karunanithi S, Nadarajah J, Gamanagatti S, Khan SA, Bal C, Kumar R. 99mTc-Methylene diphosphonate SPECT/CT as the one-stop imaging modality for the diagnosis of osteoid osteoma. *Nucl Med Commun*. 2014 Aug;35(8):876-83. doi: 10.1097/MNM.0000000000000134. PubMed PMID: 24751704.

PURPOSE: The aim of this study was to evaluate the utility of Tc-methylene diphosphonate (Tc-MDP) single-photon emission tomography (SPECT)/computed tomography (CT) for the diagnosis of osteoid osteoma and compare the same with three-phase planar bone scintigraphy (BS) and CT alone.

MATERIALS AND METHODS: Data of 31 patients (age: 20.6±13.2 years; male: 80.6%) who had undergone Tc-MDP BS with SPECT/CT for clinically and/or radiographically suspected osteoid osteoma were retrospectively evaluated. Planar BS images were analyzed by an experienced nuclear medicine physician. CT images were evaluated by an experienced radiologist. SPECT/CT images were evaluated by the nuclear medicine physician and radiologist in consensus. On the basis of the diagnostic confidence the interpreters used a scoring scale of 1-3, in which 1 is negative for osteoid osteoma, 2 is equivocal, and 3 is positive for osteoid osteoma. For the calculation of sensitivity, specificity, and predictive values for planar BS, CT, and SPECT/CT an interpretive score of 2 or higher was taken as positive for osteoid osteoma. Receiver operating characteristic curve analysis was performed and the area under the curve was calculated and compared. Histopathology and microbiology/clinical imaging follow-up was used as the reference standard.

RESULTS: There were nine equivocal lesions on planar BS and five equivocal lesions on CT, but none on SPECT/CT. The sensitivity, specificity, and accuracy of SPECT/CT were all 100%; those of CT were 77.8, 92.3, and 83.8% and those of planar BS were 100, 38.4, and 74.1%, respectively. On comparison, the area under the curve of SPECT/CT was significantly larger than that of planar BS (1.00 vs. 0.761; P=0.005) and CT (1.00 vs. 0.872; P=0.044). However, no significant difference was seen between planar BS and CT (0.761 vs. 0.872; P=0.236).

CONCLUSION: Tc-MDP SPECT/CT shows excellent diagnostic accuracy for osteoid osteoma and can be used as a one-stop imaging modality for the same. It is superior to planar BS and CT alone for the diagnosis of suspected osteoid osteoma.

73: Sharma S, Sharma G, Hote M, Devagourou V, Kesari V, Arava S, Airan B, Ray R. Light and electron microscopic features of surgically excised left atrial appendage in rheumatic heart disease patients with atrial fibrillation and sinus rhythm. *Cardiovasc Pathol*. 2014 Aug 6. pii: S1054-8807(14)00083-0. doi: 10.1016/j.carpath.2014.07.008. [Epub ahead of print] PubMed PMID: 25216788.

INTRODUCTION: There are few studies comparing the pathology of the remodeled substrate in patients of rheumatic heart disease with atrial fibrillation (AF) and normal sinus rhythm (NSR).

METHODS: The study group comprised 30 patients with rheumatic heart disease undergoing mitral valve replacement. Excised left atrial appendages of these patients [17 with persistent AF and 13 NSR (control group)] were subjected to light and electron microscopic examination.

RESULTS: The histopathological findings of the myocardium were characterized by cardiomyocyte hypertrophy (CH), nuclear enlargement (NE), perinuclear clearing (PC), sarcoplasmic vacuolation (SV), fibrosis, and inflammation in the patients with AF and NSR. NE (17/17 vs. 4/13; P=.004), PC (17/17 vs. 4/13; P=.004), SV (17/17 vs. 9/13; P=.06), and fibrosis (15/17 vs. 3/13; P=.001) were all significantly more common in patients with AF. Inflammatory cells were observed in 9/17 patients of AF as compared to 1 in NSR patients (9/17 vs. 1/13; P=.02). CH was common in the patients with AF as compared with those in NSR (17/17 vs. 10/13; P=.103). In AF patients, electron microscopy revealed cardiomyocytes with depletion of the contractile elements (Z-bands), glycogen particle accumulation,

and an increase in mitochondria. Cells severely affected by AF showed loss of contractile elements with extensive areas of SV, presence of myelin figures, and mitochondrial aggregates. Majority of AF cases showed extensive fibrosis in the form of collagen bundles in the interstitium.

CONCLUSION: The left atrial substrate in AF as compared with NSR, in rheumatic heart disease patients, is associated with significant degenerative remodeling and ongoing inflammation that is associated with extensive fibrosis.

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74: Sharma S, Logani A, Shah N. Comparative efficacy of photo-activated disinfection and calcium hydroxide for disinfection of remaining carious dentin in deep cavities: a clinical study. *Restor Dent Endod.* 2014 Aug;39(3):195-200. doi: 10.5395/rde.2014.39.3.195. Epub 2014 Jun 26. PubMed PMID: 25110643; PubMed Central PMCID: PMC4125583.

OBJECTIVES: To comparatively evaluate the efficacy of photo-activated disinfection (PAD), calcium hydroxide (CH) and their combination on the treatment outcome of indirect pulp treatment (IPT).

MATERIALS AND METHODS: Institutional ethical clearance and informed consent of the patients were taken. The study was also registered with clinical registry of India. Sixty permanent molars exhibiting deep occlusal carious lesion in patients with the age range of 18 - 22 yr were included. Clinical and radiographic evaluation and set inclusion and exclusion criteria's were followed. Gross caries excavation was accomplished. In group I (n = 20) PAD was applied for sixty seconds. In group II (n = 20), CH was applied to the remaining carious dentin, while in group III (n = 20), PAD application was followed by CH placement. The teeth were permanently restored. They were clinically and radiographically followed-up at 45 day, 6 mon and 12 mon. Relative density of the remaining affected dentin was measured by 'Radiovisiography (RVG) densitometric' analysis. RESULTS: Successful outcome with an increase in radiographic grey values were observed in all three groups. However, on inter-group comparison, this change was not significant ($p > 0.05$).

CONCLUSIONS: PAD and CH both have equal disinfection efficacy in the treatment of deep carious dentin. PAD alone is as effective for treatment of deep carious lesion as calcium hydroxide and hence can be used as an alternative to CH. They can be used independently in IPT, since combining both does not offer any additional therapeutic benefits.

75: Singh H, Patel CD, Sharma P, Naik N, Singh S, Narang R. Does perfusion pattern influence stress-induced changes in left ventricular mechanical dyssynchrony on thallium-201-gated SPECT myocardial perfusion imaging? *J Nucl Cardiol.* 2014 Aug 22. [Epub ahead of print] PubMed PMID: 25145635.

BACKGROUND: The relationship between perfusion pattern and stress-induced changes in left ventricular mechanical dyssynchrony (LVMD) on stress-rest thallium-201-gated SPECT myocardial perfusion imaging (Tl-201 SPECT MPI) is not clear. The aim of the study is to assess the relation of perfusion pattern with stress-induced changes in LVMD on Tl-201 MPI.

METHODS: Data of 194 patients who underwent exercise-rest Tl-201 MPI between January to December 2012 at our institute was retrospectively evaluated. Institute Ethical committee approval was obtained. Fifty patients who underwent Tl-201 MPI for suspected CAD and had normal LV perfusion and function on MPI were taken as normal group. Patients with perfusion abnormalities (n = 144) were divided into three groups: ischemia (n = 66), infarct (n = 32), and mixed group (n = 46; ischemia and infarct both). Summed stress score, summed rest score,

summed difference score (SDS), and LV ejection fraction (EF) were evaluated. Two LVMD parameters, phase standard deviation (PSD) and phase histogram bandwidth (PHB), were assessed in post-stress and rest MPI images. Δ PSD (post-stress PSD - rest PSD) and Δ PHB (post-stress PHB - rest PHB) were calculated to measure stress-induced changes in LVMD.

RESULTS: In all the groups, mean post-stress LVMD parameters were lower as compared to LVMD parameters at rest. Post-stress PSD was significantly lower than rest PSD in all groups. Similar trend was noted with PHB values also, but it was statistically significant in the normal and ischemia group only. Post-stress worsening of at least one of the LVMD parameters was noted in 28 patients and all these patients had perfusion abnormalities. But on subgroup analysis, no difference was found in proportion of patients showing post-stress worsening of LVMD between ischemia (13.6%), infarct (25%), and mixed (23.6%) groups. No significant correlation was found between Δ PSD/ Δ PHB and Δ LVEF/SDS in any group. CONCLUSION: LV mechanical dyssynchrony parameters are smaller in post-exercise stress as compared to rest on Tl-201 MPI, regardless of perfusion pattern. Stress-induced worsening of LV dyssynchrony was observed only in patients with perfusion abnormalities, but this is not related to the type of perfusion abnormality.

76: Singh N, Mishra P, Tyagi S, Pati HP, Mahapatra M, Seth T, Saxena R. Clinicohematologic Profile of Patients With Factor VIII Inhibitors: A Case Series. Clin Appl Thromb Hemost. 2014 Aug 29. pii: 1076029614548720. [Epub ahead of print] PubMed PMID: 25172870.

Factor VIII (FVIII) inhibitors present major clinical challenge as a complication of hemophilia A in patients on treatment with FVIII concentrates and as acquired autoantibodies in patients without hemophilia A. We aimed to study the prevalence of FVIII inhibitors in Indian settings, risk factors involved in early development of inhibitors in patients with hemophilia, differences in their clinical behavior, and approach to treatment, in comparison to patients with acquired hemophilia. The overall prevalence of FVIII inhibitors in patients with severe hemophilia A was found to be 22.3%. Two cases of acquired hemophilia were reported. Due to heterogeneity of our study population, cases have been discussed individually. We observed that the early development of FVIII inhibitors in patients with hemophilia A is dependent upon an interplay of several risk factors that need to be studied in a multivariable analysis to bring out significant correlation with response to treatment. Also, they differ from patients without hemophilia A entirely in terms of presentation and management.

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77: Singh N, Mishra SK, Sachdev V, Sharma H, Upadhyay AD, Arora I, Saraya A. Effect of oral glutamine supplementation on gut permeability and endotoxemia in patients with severe acute pancreatitis: a randomized controlled trial. Pancreas. 2014 Aug;43(6):867-73. doi: 10.1097/MPA.000000000000124. PubMed PMID: 24809408.

OBJECTIVE: The aim of this study is to evaluate the effect of oral glutamine (GL) supplementation on gut permeability and endotoxemia (surrogate end point) in patients with severe acute pancreatitis.

METHODS: In a randomized controlled trial, patients were randomized to be given placebo or GL for 7 days. The primary outcome measures include the effect on gut permeability (assessed by lactulose/mannitol excretion in urine and endotoxemia assessed by endotoxin core antibodies type IgG and IgM (EndoCab IgG and IgM). The secondary outcome measures include infectious complications, mortality, total hospital/intensive care unit stay, C-reactive protein, and prealbumin levels.

RESULTS: Patients were assigned to GL (n = 41) and placebo (n = 39) groups. There was no change in gut permeability after the intervention. However, the EndoCab IgM levels increased significantly (33 [4, 175] to 40 [8, 350] GMU/mL; P = 0.0164) and the C-reactive protein levels decreased significantly (133 [1, 287] to 88 [1, 267] ng/mL; P = 0.0236) in the GL group. No difference was observed in infectious complication, prealbumin value, hospital/intensive care unit stay, and mortality in both groups.

CONCLUSIONS: No significant trend was identified for an effect of GL on gut permeability. Decreased inflammation and endotoxemia did not translate into reduced infectious complications in severe acute pancreatitis. However, the study was underpowered to detect the aforementioned difference (trial registration: CTRI/2009/000945).

78: Singh PK, Garg K, Sawarkar D, Agarwal D, Satyarthee GD, Gupta D, Sinha S, Kale SS, Sharma BS. Computed tomography-guided C2 pedicle screw placement for treatment of unstable hangman fractures. *Spine (Phila Pa 1976)*. 2014 Aug 15;39(18):E1058-65. doi: 10.1097/BRS.0000000000000451. PubMed PMID: 25122548.

STUDY DESIGN: Case series and description of technique.

OBJECTIVE: The purpose of this study was to evaluate the feasibility and accuracy of inserting pedicle screws in unstable Hangman fracture cases by using intraoperative CT (O-arm) based navigation.

SUMMARY OF BACKGROUND DATA: Hangman fracture, also known as traumatic spondylolisthesis of the C2, is defined as a fracture involving the lamina, articular facets, pedicles, or pars of the axis vertebra. Opinions vary regarding the optimal treatment of unstable Hangman fractures. Some authors have recommended the use of rigid orthosis, whereas others have recommended surgical stabilization. The peculiar anatomy of the upper cervical spine is highly variable, and the presence of surrounding neurovascular structures makes pedicle screw fixation even more technically challenging. The advent of intraoperative 3-dimensional navigation systems permits safe and accurate instrumentation of the cervical spine.

METHODS: Ten patients with unstable Hangman fracture, with age ranging from 17 years to 81 years, were operated under O-arm-based navigation, and screw position was confirmed with intraoperative computed tomographic scan.

RESULTS: A total of 52 screws were inserted under O-arm guidance: 20 in C2 pedicle, 20 in C3 lateral mass, and rest in C4 lateral mass. Screw misplacement was seen in only 1 C2 pedicle screw (1 of 20, 5%). No new-onset neurological deficit developed in any of the patients. Follow-up ranged from 3 months to 21 months. Bony fusion was achieved in all. Full rotation was preserved at C1-C2 joint. All the patients (50%) with neurological deficits before surgery improved after surgery.

CONCLUSION: This series demonstrates that C2 pedicle screws can be put with precision under O-arm-guided navigation, and intraoperative computed tomographic scan can confirm position of screws. Patients can be operated and mobilized early with negligible risk of screw misplacement, with preservation of motion at the C1-C2 joint.

LEVEL OF EVIDENCE: 4.

79: Sinha A, Bhatia D, Gulati A, Rawat M, Dinda AK, Hari P, Bagga A. Efficacy and safety of rituximab in children with difficult-to-treat nephrotic syndrome. *Nephrol Dial Transplant*. 2014 Aug 13. pii: gfu267. [Epub ahead of print] PubMed PMID: 25121488.

BACKGROUND: Rituximab has emerged as an important medication for patients with steroid-dependent or steroid-resistant nephrotic syndrome.

PATIENTS: We report the efficacy and safety of therapy with intravenous rituximab, administered once weekly for 2-4 doses, in 193 patients (mean age 10.9, range 2.2-18.7 years) with difficult-to-treat steroid dependence (n = 101), calcineurin inhibitor (CNI)-dependent steroid resistance (n = 34) and CNI-resistant nephrotic syndrome (n = 58) managed at this center during 2006-13.

OUTCOMES: Therapy in patients with steroid dependence and CNI-dependent steroid resistance led to significantly reduced relapse rates (respective mean difference 2.7 relapses/year and 2.2 relapses/year, corresponding to a decrease in relapses by 81.8 and 71.0%; both $P < 0.0001$). This resulted in a significant reduction in steroid requirement (mean difference 104.5 and 113.6 mg/kg/year, respectively; both $P < 0.0001$) and a trend to improved standard deviation scores for height ($P = 0.069$) and body mass index ($P = 0.029$). Remission was longer in patients with steroid dependence compared with CNI-dependent steroid resistance (median 16 versus 10 months; $P < 0.0001$). Prior response to cyclophosphamide predicted a lower risk of relapse in the former (hazard ratio, HR 0.56; $P = 0.045$); patients with initial resistance and CNI-dependent steroid resistance had increased risk of relapse (HR 2.66; $P = 0.042$). B-cell recovery, noted in 62.5% patients at 6 months, was not related to occurrence of relapse; redosing (n = 42 patients) was safe and effective. Response to therapy was unsatisfactory in patients with steroid- and CNI-resistant nephrotic syndrome, with remission in 29.3%. Focal segmental glomerulosclerosis was associated with higher odds of non-response (odds ratio 11.1; $P = 0.028$) and lack of response was associated with progressive chronic kidney disease (HR 9.97; $P = 0.035$). Therapy with rituximab was safe; adverse effects or infections were noted in 19 (9.8%) patients.

CONCLUSIONS: Therapy with rituximab is effective and safe in reducing relapse rates and need for immunosuppressive medications in patients with steroid-dependent and CNI-dependent steroid-resistant nephrotic syndrome.

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80: Sinha S, Sarkari A, Mahapatra AK, Sharma BS. Pediatric giant pituitary adenomas: are they different from adults? A clinical analysis of a series of 12 patients. *Childs Nerv Syst.* 2014 Aug;30(8):1405-11. doi: 10.1007/s00381-014-2421-8. Epub 2014 Apr 29. PubMed PMID: 24777295.

OBJECTIVES: To evaluate clinical presentation and microsurgical outcome of giant pituitary adenomas (GPAs) in pediatric age.

METHODS: All patients <18 years, who were operated on at our center for GPA (tumor >40 mm in maximum diameter) were included in study. Clinical features, hormonal profile, radiology, surgical approach, results and complications were analysed.

RESULTS: A total of 12 children with GPA were managed microsurgically. Visual deterioration (73 %) was most common presentation. Functioning adenomas were found in 83 % patients, with prolactinomas being most common. Twelve patients underwent a total of 16 microsurgical procedures, with a single surgery done in eight (75 %) patients. Out of the 12 primary surgeries, eight (67 %) were performed trans-sphenoidally. A near-total excision (>90 % tumor removal) could be achieved in six (50 %) patients. Visual improvement was observed in 44 % patients. However, there was no improvement in those where the eye was negative to perception of light prior to surgery. At the last follow-up, all the patients with functioning adenomas were in hormonal remission, and there was no residual/recurrent tumor in patients with non-functional adenomas. 25 % experienced single or multiple perioperative or postoperative complications. There was one perioperative death (8 %).

CONCLUSIONS: GPAs are very rare in the pediatric population, with majority being functional and more aggressive in nature as compared to in adults. However, most

of them can be approached trans-sphenoidally. The combination of surgery and radiotherapy, as well as medical therapy with bromocriptine, achieves good tumor control, despite a high rate of residual tumor and tumor recurrence.

81: Stewart RA, Szalewska D, She L, Lee KL, Drazner MH, Lubiszewska B, Kosevic D, Ruengsakulrach P, Nicolau JC, Coutu B, Choudhary SK, Mark DB, Cleland JG, Piña IL, Velazquez EJ, Rynkiewicz A, White H. Exercise capacity and mortality in patients with ischemic left ventricular dysfunction randomized to coronary artery bypass graft surgery or medical therapy: an analysis from the STICH trial (Surgical Treatment for Ischemic Heart Failure). *JACC Heart Fail.* 2014 Aug;2(4):335-43. doi: 10.1016/j.jchf.2014.02.009. Epub 2014 Jul 9. PubMed PMID: 25023813; PubMed Central PMCID: PMC4127151.

OBJECTIVES: The objective of this study was to assess the prognostic significance of exercise capacity in patients with ischemic left ventricular (LV) dysfunction eligible for coronary artery bypass graft surgery (CABG).

BACKGROUND: Poor exercise capacity is associated with mortality, but it is not known how this influences the benefits and risks of CABG compared with medical therapy.

METHODS: In an exploratory analysis, physical activity was assessed by questionnaire and 6-min walk test in 1,212 patients before randomization to CABG (n = 610) or medical management (n = 602) in the STICH (Surgical Treatment for Ischemic Heart Failure) trial. Mortality (n = 462) was compared by treatment allocation during 56 months (interquartile range: 48 to 68 months) of follow-up for subjects able (n = 682) and unable (n = 530) to walk 300 m in 6 min and with less (Physical Ability Score [PAS] >55, n = 749) and more (PAS ≤55, n = 433) limitation by dyspnea or fatigue.

RESULTS: Compared with medical therapy, mortality was lower for patients randomized to CABG who walked ≥300 m (hazard ratio [HR]: 0.77; 95% confidence interval [CI]: 0.59 to 0.99; p = 0.038) and those with a PAS >55 (HR: 0.79; 95% CI: 0.62 to 1.01; p = 0.061). Patients unable to walk 300 m or with a PAS ≤55 had higher mortality during the first 60 days with CABG (HR: 3.24; 95% CI: 1.64 to 6.83; p = 0.002) and no significant benefit from CABG during total follow-up (HR: 0.95; 95% CI: 0.75 to 1.19; p = 0.626; interaction p = 0.167).

CONCLUSIONS: These observations suggest that patients with ischemic left ventricular dysfunction and poor exercise capacity have increased early risk and similar 5-year mortality with CABG compared with medical therapy, whereas those with better exercise capacity have improved survival with CABG. (Comparison of Surgical and Medical Treatment for Congestive Heart Failure and Coronary Artery Disease [STICH]; NCT00023595).

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82: Talwar S, Meena A, Choudhary SK, Kothari SS, Gupta SK, Saxena A, Juneja R, Airan B. Anomalous branch of pulmonary artery from the aorta and tetralogy of Fallot: morphology, surgical techniques and results. *Eur J Cardiothorac Surg.* 2014 Aug;46(2):291-6. doi: 10.1093/ejcts/ezt632. Epub 2014 Jan 23. PubMed PMID: 24459212.

OBJECTIVES: Tetralogy of Fallot (TOF) with hemitruncus (HT) is a rare entity. In this report, we present our experience with this condition over the last 20 years.

METHODS: Between January 1994 and June 2013, 11 patients with HT and TOF underwent surgery at the All India Institute of Medical Sciences, New Delhi, India. All available clinical, radiographic, echocardiographic, cardiac

catheterization, operative and follow-up data were reviewed.

RESULTS: The mean age was 73 ± 7.1 months (range 7 months to 18 years) and the mean weight was 15.7 ± 1.2 kg. The mean preoperative saturation was $79.3 \pm 11.7\%$ (range 62-92%). Six patients had anomalous left pulmonary artery (PA), whereas 5 had an anomalous right PA arising from the aorta. Surgical procedures consisted of complete intracardiac repair of TOF with direct implantation of the anomalous PA into the main PA ($n = 7$), intracardiac repair of TOF with an interposition saphenous vein graft between the right PA and main PA ($n = 1$), and reconstruction of the left PA with autologous pericardium with intracardiac repair of TOF ($n = 1$), direct implantation of the anomalous PA into the main PA with an innominate to right pulmonary artery shunt ($n = 1$) and a right PA banding with innominate to left PA shunt ($n = 1$). There were two early deaths. Follow-up ranged from 3 to 73 months. All survivors are in NYHA Class I and follow-up echocardiograms did not show any residual lesions.

CONCLUSIONS: Surgical repair of HT with TOF results in acceptable early outcomes. The surgical strategy needs to be individualized to the anatomy of the patient.

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83: Thakur DV, Gaikwad UN. Microbial contamination of soft contact lenses & accessories in asymptomatic contact lens users. Indian J Med Res. 2014 Aug;140(2):307-9. PubMed PMID: 25297366.

BACKGROUND & OBJECTIVES: With increasing use of soft contact lenses the incidence of contact lens induced infections is also increasing. This study was aimed to assess the knowledge of new and existing contact lens users about the risk of microbial contamination associated with improper use and maintenance of contact lenses, type of microbial flora involved and their potential to cause ophthalmic infections.

METHODS: Four samples each from 50 participants ($n=200$) were collected from the lenses, lens care solutions, lens care solution bottles and lens cases along with a questionnaire regarding their lens use. The samples were inoculated onto sheep blood agar, Mac Conkey's agar and Sabouraud's dextrose agar. Organisms were identified using standard laboratory protocols.

RESULTS: Overall rate of microbial contamination among the total samples was 52 per cent. The most and the least contaminated samples were found to be lens cases (62%) and lens care solution (42%), respectively. The most frequently isolated contaminant was *Staphylococcus aureus* (21%) followed by *Pseudomonas* species (19.5%). Majority (64%) of the participants showed medium grade of compliance to lens cleaning practices. Rate of contamination was 100 and 93.75 per cent respectively in those participants who showed low and medium compliance to lens care practices as compared to those who had high level of compliance (43.75%) ($P < 0.05$).

INTERPRETATION & CONCLUSIONS: Lens care practices amongst the participants were not optimum which resulted into high level contamination. Hence, creating awareness among the users about the lens care practices and regular cleaning and replacements of lens cases are required.

84: Tiku VR, Sharma S, Verma A, Kumar P, Raghavendhar S, Aneja S, Paul VK, Bhan MK, Ray P. Rotavirus diversity among diarrheal children in Delhi, India during 2007-2012. Vaccine. 2014 Aug 11;32 Suppl 1:A62-7. doi: 10.1016/j.vaccine.2014.03.005. PubMed PMID: 25091683.

Rotavirus is the leading cause of severe gastroenteritis in young children worldwide and is responsible for around 100,000 deaths in India annually.

Vaccination against rotavirus (RV) is a high priority: 'ROTAVAC' an indigenous vaccine will soon be licensed in India. Surveillance to determine the impact of vaccines on emerging RV strains is required. In this study we compared the pattern of RV strains circulating in Delhi over a 5 year period with the strains over the past 12 years. The most commonly detected G genotypes were G1 (22.4%), G2 (17.2%), and G9 (25.2%) with P[4] (25.5%), P[6] (20%) and P[8] (16.9%) specificity. G12 genotype was found to be the fourth common G-type with 14.8% prevalence. Among the G-P combinations; G1P[8], G2P[4], G9P[8] and G12P[6] were detected at 7.2%, 7.2%, 5.2% and 10%, respectively. Of note, G9P[4] and G2P[6] that were rarely detected during 2000-2007 in Delhi, were observed quite frequently with prevalence of 6.5% and 3.4%, respectively. In total, 16 different G-P combinations were detected in the present study demonstrating the rich diversity of rotavirus strains in Delhi. Our data from the 12 year period indicate wide circulation of G1 and G9 genotypes in combination with P[8], G2 with P[4] and G12 with P[6] with high frequency of RV strains having rare G-P combinations in Delhi. Since the indigenous vaccine 'ROTAVAC' has a monovalent formulation, the impact of vaccines on strains and the effect of strain diversity on the efficacy of the vaccine should be monitored.

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85: Tripathi V, Kumar R, Dinda AK, Kaur J, Luthra K. CXCL12-CXCR7 signaling activates ERK and Akt pathways in human choriocarcinoma cells. *Cell Commun Adhes.* 2014 Aug;21(4):221-8. doi: 10.3109/15419061.2013.876013. Epub 2014 Jan 23. PubMed PMID: 24450273.

Abstract CXCL12 acts as a physiological ligand for the chemokine receptor CXCR7. Chemokine receptor expression by human trophoblast and other placental cells have important implications for understanding the regulation of placental growth and development. We had previously reported the differential expression of CXCR7 in different stages of the human placenta suggesting its possible role in regulation of placental growth and development. In this study, we determined the expression of CXCR7 in human choriocarcinoma JAR cells at the mRNA level and protein level and the downstream signaling pathway mediated by CXCL12-CXCR7 interaction. We observed that binding of CXCL12 to CXCR7 activates the ERK and Akt cell-survival pathways in JAR cells. Inhibition of the ERK and Akt pathways using specific inhibitors (Wortmanin & PD98509) led to the activation of the p38 pathway. Our findings suggest a possible role of CXCR7 in activating the cell survival pathways ERK and Akt in human choriocarcinoma JAR cells.

86: Venkatesan S, Purohit A, Aggarwal M, Manivannan P, Tyagi S, Mahapatra M, Pati HP, Saxena R. Unusual presentation of hairy cell leukemia: a case series of four clinically unsuspected cases. *Indian J Hematol Blood Transfus.* 2014 Sep;30(Suppl 1):413-7. doi: 10.1007/s12288-014-0442-9. Epub 2014 Aug 17. PubMed PMID: 25332634; PubMed Central PMCID: PMC4192250.

Hairy cell leukemia (HCL) is characterized by pancytopenia and usually associated with massive splenomegaly, however the same may not be true in the clinical settings. Here we report four cases of HCL and all of them were without the classical clinical feature of splenomegaly. This is an observational study conducted between January 2013 to March 2014 where we could diagnose ten cases of HCL in Department of Hematology, All India Institute of Medical Sciences, New Delhi. Of these, four cases attracted attention because of absence of classical clinical features of HCL. Of the four cases, three presented with weakness/fatigability while fourth patient presented with recurrent respiratory tract infection. Surprising finding in these cases was absence of splenomegaly,

both clinically and on imaging which demerit the suspicion of HCL clinically. All four had bi/pancytopenia and bone marrow examination coupled with immunophenotypic analysis confirmed the diagnosis of HCL. Three patients received chemotherapy with cladribine and achieved complete hematological remission. One patient did not receive chemotherapy due to poor general condition and was subsequently lost to follow up. To conclude, HCL can and do present without splenomegaly and this should not restrain one from suspecting HCL based on histomorphology which needs to be further confirmed by ancillary techniques. This finding in our series could be because these cases were picked early in their natural course of the disease. A high index of suspicion is essential for diagnosing and appropriately managing such cases.

87: Vijayvargiya M, Jain D, Mathur SR, Iyer VK. Papillary cystadenoma of the epididymis associated with von Hippel-Lindau disease diagnosed on fine needle aspiration cytology. *Cytopathology*. 2014 Aug;25(4):279-81. doi: 10.1111/cyt.12090. Epub 2013 Jul 31. PubMed PMID: 23901807.

88: Yadav AK, Sharma R, Kandasamy D, Bhalla AS, Gamanagatti S, Srivastava DN, Upadhyay AD, Garg PK. Perfusion CT: Can it predict the development of pancreatic necrosis in early stage of severe acute pancreatitis? *Abdom Imaging*. 2014 Aug 31. [Epub ahead of print] PubMed PMID: 25173791.

PURPOSE: Pancreatic necrosis is an important determinant of patient outcome in severe acute pancreatitis (SAP). This prospective study was conducted to evaluate if perfusion CT (PCT) can predict the development of necrosis at an early stage in SAP.

METHODS: PCT was performed within 72 h of abdominal pain in 57 consecutive admitted patients of acute pancreatitis, out of which four patients were excluded. Thirty-two patients were classified as SAP and 21 as mild acute pancreatitis (MAP) on the basis of APACHE II or SIRS criteria or presence of organ failure. All patients underwent a follow-up CECT at 3 weeks to look for pancreatic necrosis.

RESULTS: Out of 32 patients of SAP, 14 patients showed perfusion defects. The mean blood flow (BF) in these areas was 11.47 ± 5.56 mL/100 mL/min and median blood volume (BV) was 3.92 mL/100 mL (0.5-8.49 mL/100 mL). All these patients developed necrosis on follow-up scan. Two patients who did not show perfusion defects also developed necrosis. Remaining 37 patients (16 SAP and 21 MAP) did not show perfusion defect and did not develop necrosis on follow-up. All regions showing BF less than ≤ 23.45 mL/100 mL/min and BV ≤ 8.49 mL/100 mL developed pancreatic necrosis. The values of perfusion parameters may vary with the scanner, mathematical model and protocol used. The sensitivity and specificity of PCT for predicting pancreatic necrosis were 87.5% and 100%, respectively. The cut off values of BF and BV for predicting the development of pancreatic necrosis were 27.29 mL/100 mL/min and 8.96 mL/100 mL, respectively, based on ROC curve. PCT is a reliable tool for early prediction of pancreatic necrosis, which may open new avenues to prevent this ominous complication.

89: Yadav VK, Mandal RS, Puniya BL, Kumar R, Dey S, Singh S, Yadav S. Structural and Binding Studies of SAP-1 Protein With Heparin. *Chem Biol Drug Des*. 2014 Aug 21. doi: 10.1111/cbdd.12420. [Epub ahead of print] PubMed PMID: 25147059.

SAP-1 is a low molecular weight cysteine protease inhibitor (CPI) which belongs to type-2 cystatins family. SAP-1 protein purified from human seminal plasma (HuSP) has been shown to inhibit cysteine and serine proteases and exhibit interesting biological properties, including high temperature and pH stability. Heparin is a naturally occurring glycosaminoglycan (with varied chain length) which interacts with a number of proteins and regulates multiple steps in

different biological processes. As an anticoagulant, heparin enhances inhibition of thrombin by the serpin antithrombin III. Therefore, we have employed surface plasmon resonance (SPR) to improve our understanding of the binding interaction between heparin and SAP-1 (protease inhibitor). SPR data suggest that SAP-1 binds to heparin with a significant affinity ($K_D = 158$ nm). SPR solution competition studies using heparin oligosaccharides showed that the binding of SAP-1 to heparin is dependent on chain length. Large oligosaccharides show strong binding affinity for SAP-1. Further to get insight into the structural aspect of interactions between SAP-1 and heparin, we used modelled structure of the SAP-1 and docked with heparin and heparin-derived polysaccharides. The results suggest that a positively charged residue lysine plays important role in these interactions. Such information should improve our understanding of how heparin, present in the reproductive tract, regulates cystatins activity.

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90: Zakaria MK, Khan I, Mani P, Chattopadhyay P, Sarkar DP, Sinha S. Combination of hepatocyte specific delivery and transformation dependent expression of shRNA inducing transcriptional gene silencing of c-Myc promoter in hepatocellular carcinoma cells. *BMC Cancer*. 2014 Aug 10;14:582. doi: 10.1186/1471-2407-14-582. PubMed PMID: 25108398; PubMed Central PMCID: PMC4153911.

BACKGROUND: A specific targeting modality for hepatocellular carcinoma (HCC) could ideally encompass a liver cell specific delivery system of a transcriptional unit that is active only in neoplastic cells. Sendai virosomes, derived from Sendai viral envelopes, home to hepatocytes based on the liver specific expression of asialoglycoprotein receptors (ASGPRs) which are recognized by the Sendai virosomal fusion (F) proteins. As reported earlier by us and other groups, transcriptional gene silencing (TGS) does not require continuous presence of the effector siRNA/shRNA molecule and is heritable, involving epigenetic modifications, leading to long term transcriptional repression. This could be advantageous over conventional gene therapy approaches, since continuous c-Myc inactivation is required to suppress hepatocarcinoma cells.

METHODS: Exploiting such virosomal delivery, the alpha-fetoprotein (AFP) promoter, in combination with various tumour specific enhancers, was used to drive the expression of shRNA directed against ME1a1 binding site of the proto-oncogene c-Myc P2 promoter, in order to induce TGS in neoplastic liver cells.

RESULTS: The dual specificity achieved by the Sendai virosomal delivery system and the promoter/enhancer guided expression ensured that the shRNA inducing TGS was active only in liver cells that had undergone malignant transformation. Our results indicate that such a bimodal therapeutic system induced specific activation of apoptosis in hepatocarcinoma cells due to heterochromatinization and increased DNA methylation of the CpG islands around the target loci.

CONCLUSIONS: The Sendai virosomal delivery system, combined with AFP promoter/enhancer expression machinery, could serve as a generalized mechanism for the expression of genes deleterious to transformed hepatocarcinoma cells. In this system, the epigenetic suppression of c-Myc could have an added advantage for inducing cell death in the targeted cells.