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7th European Pediatrics and Pediatric Surgery

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Posters



Pediatrics Conference 2016

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Is cerebral oxygen saturation an effective method to terminate or continue cardiopulmonary resuscitation in pediatric patients?

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Objective: Near infrared spectroscopy (NIRS) is a new technology for monitoring of cardiopulmonary resuscitation (CPR). The use of NIRS has advantages to monitoring cerebral oxygenation in the cardiac arrest patients. In this prospective study, the efficacy of the NIRS device on the determination of ROSC or futility of CPR was investigated in pediatric out-of-hospital cardiac arrest patients in the emergency department.

Methods: All the out-of-hospital cardiac arrest patients who admitted to our pediatric emergency department were included in this prospective study. All patients were monitored via NIRS besides standard monitoring during CPR. Cardiopulmonary resuscitation was performed accordingly Pediatric Advanced Life Support 2010 guideline.

Results: 10 patients were included to this study. The median (IQR) age of patients was 40.0 (14.0-88.2) months. Three (30%) of 10 patients had been achieved sustained ROSC. Abruptly increments in cerebral regional oxygen saturation (CrSO_2) were observed in all these three patients. Minimum values of the CrSO_2 were significantly higher and the percentages of the median times under the 30% of CrSO_2 were significantly lower in the ROSC group ($p=0.02$, $p=0.02$).

Conclusions: Our study indicated that low CrSO_2 value can be a predictive factor for futility of CPR. Additionally, abruptly increment of CrSO_2 during CPR can be an indicator for ROSC but on-going high level of CrSO_2 values should be maintain for sustained ROSC.

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The indication for taking microbiology swabs during pediatric appendicectomy for acute appendicitis

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During the course of appendicectomies, microbiological swabs are often taken for culture and sensitivities; however, the results rarely impact the antibiotic regime. The aim of this audit was to explore the frequency with which swabs are taken for acute appendicitis and what impact their results have on subsequent management and outcome. Data was compiled from all appendicectomies performed over a 12-month period at the Evelina London Children's Hospital from January 2014 to 2015. In the sample of 101 patients, 35 were performed electively and 66 for acute appendicitis. Both electronic and paper-based information were collected regarding clinical presentation, intraoperative findings, whether bacteriological samples were taken and how the results influenced management. It was found that of the patients being treated for acute appendicitis (n=66), 29% had generalized and 29% had localized pus intraoperatively. 70% had cultures sent for investigation. The most common bacteria culture was *Escherichia Coli*, followed by *Pseudomonas aeruginosa*, and then mixed anaerobes. In a third of cases, no swabs were taken. 34% of swabs taken grew no bacteria. In 90% of cases, the antibiotic regime did not change regardless of the swab result. On 3 occasions (5%), the antibiotic regime was changed following advice from microbiology based on culture and sensitivity results. For 3 patients (5%), the change was due to a change in clinical picture such as persistent temperature and intra-abdominal collection. This audit studies the bacteriological epidemiology of acute appendicitis, which antibiotics are most frequently prescribed, and the most common complications and their management. Ultimately it explores the impact of intraoperative microbiological sampling on treatment and outcome.

Biography

Nataliya Piletska is a final year Medical student of King's College London, due to begin her foundation year placement in Oxford University Hospitals Trust this autumn. She has a special interest in microbiology and pediatrics, intending to continue participating in research alongside her work.

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Epidemiology and antimicrobial susceptibility of strains isolated from urinary tract infection outpatient

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Aim: Urinary tract infection (UTI) is the most common bacterial disease in children. The aim of this study was to compare the species distribution and antimicrobial susceptibility pattern of strains isolated from outpatient pediatric with urinary tract infection.

Materials & Methods: The study group consisted of children aged up to 12 years and lasted for two years (2014-2015). Organisms were isolated using standard culture techniques. A total of 201 isolates were tested. The antibiotic susceptibility profiles were analyzed for all strains using the Kirby Bauer disk diffusion susceptibility procedure and the VITEK 2 system for betalactam antibiotics, fluoroquinolones, carbapenems, aminoglycosides, nitrofurans, sulfonamides, fosfomycin (CLSI 2014, CLSI 2015).

Results: A total of 201 gram negative bacteria isolated from urine specimens, female infants were predominance. *Escherichia coli* 154 isolates (76,6%) was the most common strain, followed by *Klebsiella* spp. 19 strains (9,45%), *Proteus* spp. 18 strains (8,95%). The isolated bacteria were *Escherichia coli* (76,6%); 18 cases (11,6%) were found to be ESBL-producing organisms. *E. coli* isolates ESBL-producing were susceptible to carbapenems, nitrofurans, amikacin, fosfomycin. The large majority of *E. coli* strains were resistant to ampicillin. All isolates *Klebsiella* spp. and *Proteus* spp. were susceptible to carbapenems, fosfomycin and amikacin.

Conclusions: *Escherichia Coli* was the most common causative organism for pediatric UTI. Recurrent episodes of UTI was presented a risk of ESBL-producing and antimicrobial resistance. The majority of ESBL isolates were susceptible to carbapenems, fosfomycin and amikacin, these antibiotics were important therapeutic options for infections due to multidrug-resistant.

Biography

Elena Adela involved under treatments of pediatric diseases she is belongs to Pediatrics, Dr V Babes Foundation. Elena Adela educational institution is the University of Medicine and Pharmacy "Iuliu Hatieganu" Cluj Napoca, Faculty of Medicine. She finished her postgraduate training courses. Cardiopulmonary resuscitation and pediatric cerebral", organized by the Romanian National Council for Resuscitation, University of Medicine and Pharmacy.

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Bone mineral density of the spine in 11,898 Chinese infants and young children: A cross-sectional study

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Bone mineral density (BMD) increases progressively during childhood and adolescence and is affected by various genetic and environmental factors. The aim of this study was to establish reference values for lumbar BMD in healthy Chinese infants and young children and investigate its influencing factors. Healthy children aged 0 to 3 years who underwent regular physical examinations at the Child Health Care Clinic of Hubei Maternal and Child Health Hospital (N=11,898) were recruited for this study. We also chose 379 preterm infants aged 0 to 1 years to preliminarily explore the development of BMD in this special population. BMD (g/cm²) measurements of the lumbar spine (L2–L4) were carried out with dual-energy X-ray absorptiometry and a questionnaire was administered to full-term children's parents to gather information on various nutritional and lifestyle factors as well as mothers' nutritional supplement use during pregnancy. Lumbar BMD significantly increased with age among both boys and girls ($p=0.05$), with fastest growth observed during the first postnatal year. There was no significant difference in lumbar BMD between boys and girls of similar age ($p=0.05$), either among healthy reference children or preterm infants. However, BMD values in preterm infants were significantly lower than those in term infants three to eight months old ($p=0.05$) after adjustment for gestational age. Multivariable linear regression analysis indicated significant positive associations between lumbar BMD of healthy children and the child's age and current weight, mother's weight gain during pregnancy, birth weight, children's outdoor activity duration and children's physical activity duration. Our study provides reference values of lumbar BMD for healthy Chinese children aged 0 to 3 years and identifies several influencing factors.

Biography

Xiaoyan Wang has completed her PhD from Shanxi Medical University. She has been a Developmental Pediatrician for nearly 20 years in Hubei Maternal and Children Health Hospital. Treatment specialties include: nutritional diseases (anemia, rickets, malnutrition, lead poisoning, loss of appetite, difficulty feeding, etc.), sleep disorders, high-risk children early intervention and potential development of infants and young children, growth retardation (intelligence, language, etc.), short stature, children's psychological clinic (ADHD, learning difficulties, tic disorder, autism, mood disorders, obesity, enuresis, etc.) of counseling, intervention and treatment. She has published more than 20 papers.

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Accepted Abstracts



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Gut-the Trojan horse of systemic autoimmunity

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Objectives & Study: In suitable circumstances, the human gut possesses all the components necessary to start the autoimmune cascade. The aim of the study was to characterize the multiple gut-remote organ autoimmune axes.

Methods: A systematic review was performed to identify studies referred to gut-gut, brain, joint, bone, endocrine, kidney, lung, liver, heart and skin exes using Medline, Google and Cochrane Library databases.

Results: The specific dysbiota and tight junction dysfunction seems to be a primary defect in autoimmune diseases. Intestinal permeability is decreased in many: Ulcerative colitis, Crohn's disease, celiac disease, inflammatory joint disease, ankylosing spondylitis, juvenile onset arthritis, psoriatic arthritis, type 1 diabetes mellitus and primary biliary cirrhosis. The end result of the passage of those non-self- proteins, from the luminal compartment to the sub epithelial one, initiates the autoimmune cascade. The richness of the mucosal milieu in immune components, cells and systems; blood and lymphatic vessels; entero-neuronal and endocrine network; and mural endo-mesoderm cohabitation constitute an ideal place to initiate, maintain and propagate the autoimmune process. The mucosal committed immune cells, post translation modified proteins, proinflammatory cytokines and lymphokines have the capacity to circulate via the local vessels, to bring the autoimmune message to remote organs, thus creating gut-extra intestinal organ axes of autoimmunity. Each one of the remote organs: Brain, joint, bone, endocrine, kidney, lung, liver, heart and skin, is directionally relayed to the intestinal events taking place in the genetically susceptible individuals

Conclusions: The immune system carefully distinguishes between self and non-self-components. The intestine is a major site of changing tolerance to autoimmunity. The disease specific dysbiota, its post translational capacity to modify proteins, the plethora of substrates, the leaky gut, the local adjacent immune, neuroendocrine, vascular and lymphatic systems make the intestine a prime candidate to drive systemic autoimmunity

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No-fistula vs. fistula anorectal malformation: Outcome comparative study

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Anorectal malformations (ARM) refer to a wide variety of congenital anomalies, most commonly referring to imperforate anus. Occurring on average of 1:3500 live births, imperforate anus is described as the failure of the rectum to descend through the external sphincter complex. In surgical history, the first form of management for imperforate anus began in the 7th century with a highly morbid procedure by Paulus Aegineta, and until current day pediatric surgical intervention of ARM has evolved with modifications and updates periodically; attempting to improve our pathophysiological understanding and surgical outcome. Anorectal malformation is a congenital defect that exists in varying presentations. These are of two types, high and low anomalies owing to its severity. The high-type anorectal malformation is divided into two types, with (fistula) and without fistula (no-fistula). Of the categorical presentations, no-fistula type ARM has recently been investigated and reported on as its own disease in the literature; with increasing evidence of distinct associations, risk factors, and anatomical differences with surgical management implications and outcomes. As pediatric surgeons globally have identified unique characteristics associated with no-fistula type ARM, we aim to report our experience with management of this anomaly and its outcome, compared to the more common fistula type ARM.

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Role of oral atropine sulphate in conservative management of infantile hypertrophic pyloric stenosis

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Aim: To assess the efficacy and the effectiveness of oral atropine on clinical outcome and regression of pyloric hypertrophy using ultrasonography in infantile hypertrophic pyloric stenosis (IHPS).

Setting: The study setting was done at the tertiary level teaching hospital. Participants: 28 confirmed cases of IHPS diagnosed on the basis of history, clinical examination and ultrasonography.

Methods: Atropine sulfate was administered orally at a dose of 0.02 mg/kg/dose 8 times a day before feeding. Oral feeding was started at a rate of 10 ml/kg/day every 3 hourly and increased stepwise till full volume tolerated without vomiting. Discharge criteria were vomiting reduced to 1 episode every 12 hours on full feed. Treatment was considered unsuccessful if patients failed to tolerate 50 ml/kg/day within 7 days. Atropine was continued at the same dose for 1 week after cessation of vomiting and then tapered by 25% every 1 week. Successfully treated patients were followed up clinically for physical development at the end of treatment, 3 months, 6 months, 9 months and 1 year. Ultrasonographic evaluation of the pylorus was done for thickness of the pyloric muscle and the length of the pyloric canal in every patient at the end of treatment and at 1 year of age.

Results: 25 patients (89.3%) enrolled in the study were responded to oral atropine therapy. Mean hospital stay was 10.2 (4-19) days and total mean duration of oral atropine therapy in all patients was 60.6 (47-84) days. Mean weight gain per day prior to diagnosis was 19.83 (± 3.39) grams which significantly ($p < 0.001$) increased to 33.83 (± 7.26) grams during atropine treatment. Weight gain from 3 to 6 months and 6 months to 1 year were 21.73 (± 2.97) and 14.72 (± 3.42) gram per day. Mean pyloric muscle thickness decreased from 5.25 (4-8) mm at presentation to 3.64 (2-5) mm at completion of oral atropine and 2.67 (1-5) mm at 1 year of age, both of which were significantly (< 0.001) less than that at presentation. Mean pyloric canal length decreased from 20.86 (16-28) mm at presentation to 16.48 (12-23) mm at completion of oral atropine and 13.64 (8-18) mm at 1 year of age, both of which were significantly ($p < 0.01$) less than that at presentation.

Conclusion: Oral atropine therapy is effective in decreasing vomiting and improving pyloric muscle thickness and pyloric canal length in IHPS.

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Helal technique for simplified single incision laparoscopic pediatric inguinal hernia repair

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Background: The desire to reduce number of incisions and postoperative pain while achieving better cosmesis has recently led to the introduction of single incision laparoscopic hernia repair (SILHR). Intracorporeal knotting, remain a major challenging tasks for pediatric surgeons during SILHR. We introduce a simplified technique for pediatric SILHR with intracorporeal knotting.

Patients & Methods: This prospective study was conducted at Al-Azhar University Hospitals, between Feb 2014 and Aug 2016. One hundred children with hernia defects were subjected to SILHR. Extraperitoneal saline was injected around internal inguinal ring [IIR] in males. The opened IIR was closed by percutaneous insertion of purse string suture using epidural needle gauge-18 with intracorporeal knotting. The main outcome measurements include: Operative time, feasibility of the procedure, complications and cosmesis.

Results: Ages ranged between 6 months and 7 years (mean \pm 24.2 years). They were 81 males and 19 females. Thirty four patients presented with right sided inguinal hernia, 46 patients with left sided hernia, and 20 patients with bilateral hernia. The mean operative time was 8 \pm 2.2 minutes for unilateral hernia repair and 16 \pm 4.3 for bilateral cases. On follow-up, there was only 1 case of recurrence and 1 cases of hydrocele and the scar is nearly invisible.

Conclusion: Our technique is very simple to achieve secure closure of IIR and reduce operative time with excellent cosmetic results. It avoids the drawbacks of extracorporeal knotting.

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Etiologies and early diagnosis of short stature and growth failure in children and adolescents

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Accurate measurement of height and weight using standardized techniques is a fundamental component of pediatric medical visits. Calculation of height velocity over time enables comparison with standardized growth charts to identify potential deviations from normal. Growth deviations may be expressed as SD from the normal population mean for children of comparable age and sex; children with heights >2 SD below the mean are generally classified as short stature. In a child with suspected impaired growth, a detailed evaluation should be conducted to identify the cause. Such an evaluation may include a combination of personal, family, and social history; physical examination; general and perhaps specialized laboratory evaluations; radiologic examinations; genetic testing; and consultation with a pediatric subspecialist, such as a pediatric endocrinologist. Variants of normal growth include familial short stature, constitutional delay of growth and puberty, and small for gestational age with catch-up growth. Pathological causes of abnormal growth include many systemic diseases and their treatments, growth hormone deficiency, and a series of genetic syndromes, including Noonan syndrome and Turner syndrome. Children with short stature in whom no specific cause is identified may be diagnosed with idiopathic short stature. Early identification of abnormal growth patterns and prompt referral to specialist care offer children with growth failure and/or short stature the greatest chance for appropriate diagnosis, treatment, and improved clinical outcomes.

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Clinical and demographic profile of patients with dengue fever admitted in 3 hospitals in Tagbilaran city

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Objective: To determine the epidemiological and clinical features of pediatric patients with laboratory-confirmed dengue infection in Bohol

Methodology: This is a retrospective epidemiological study. The charts of children 0–14 years of age admitted to Gov. Celestino Gallares Memorial Hospital, Ramiro Community Hospital and Medical Mission Group Cooperative Hospital for laboratory-confirmed dengue from January 2010 to December 2012 were reviewed. The age, gender, residence, clinical signs, symptoms and outcome on discharge were noted and tabulated. Frequencies and percentages were computed for nominal data.

Results: There were 540 patients enrolled in the study. Results showed that dengue infection was most prevalent in children 4 to 7 years old. Dengue infection was also noted to be more frequent among female children. Tagbilaran city has the highest incidence of dengue disease in the province. Hepatomegaly, abdominal pain, vomiting and headache were the most common signs and symptoms. Most of the patients had either classical dengue fever or dengue hemorrhagic fever grade I. All patients with dengue hemorrhagic fever grade IV died.

Conclusions: Among patients with laboratory-confirmed dengue infection in Bohol, the highest proportion was noted among children 4 to 7 years old. Females were more often afflicted with dengue than males. Coastal towns had higher incidence of dengue compared to inland towns. The most common signs and symptoms on admission were hepatomegaly, abdominal pain, vomiting, and headache. Majority of children with dengue had either classical dengue fever or dengue hemorrhagic fever grade I. All patients with dengue hemorrhagic fever grade IV died.

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Whole colon mobility with cecocolic volvulus and literature review

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Volvulus refers to torsion of a segment of the alimentary tract, which often leads to bowel obstruction. The most common sites of volvulus are the sigmoid colon and caecum. Volvulus of other portions of the alimentary tract, such as the stomach, gallbladder, small bowel, splenic flexure and transverse colon are rare. Patients with a caecal volvulus are young, with a mean age varying from 33 years in India to 53 years in Western countries. In contrast, sigmoid volvulus usually occurs in elderly subjects with chronic constipation or distal colon obstruction. The common presentations are colicky abdominal pain, abdominal distention, constipation/obstipation and depending on vascular status, the patient may be febrile and tachycardic. Here I present a case of cecocolic volvulus involving cecum, ascending colon, transverse colon and distal ilium in a 13 years old girl after she presented with colicky abdominal pain, distension, failure to pass feces and flatus for 3 days. She had also previous history of similar complaint but was self-limiting. She was febrile and tachycardic. Diagnosis was made by plain abdominal x-ray which showed air fluid level. She was prepared and operated and intraoperative finding was 360 degree clockwise rotated right colon and transverse colon along its mesentery which was ischemic and the whole large bowel was mobile and redundant with its own long mesentery. We extended right hemicolectomy and iliocolic anastomosis. The patient was followed for 1 week in the ward and discharge improved. Now she is being followed in the surgical referral clinic. Details of the pathology, diagnosis and management will be discussed.

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Use of juvenile animal studies to support oncology medicine development in children

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When planning the pediatric development of any pharmaceutical, aspects that need to be taken into consideration include the understanding of potential for modified sensitivity vs. adults, unique toxicities or potential for effects on organ development. The need for early consideration of children has led to an increased focus on the relevance of nonclinical studies in juvenile animals (JAS). The immaturity of the developing organ may increase the potential for new target organs, modified activity or greater toxicity than has previously been seen in adults. While needing to screen for potential safety concerns associated to medicines use in children, avoiding useless studies and animal protection principles are strongly taken into consideration also. The need for animal studies for oncology drugs is in general a matter of controversy in particular for the most severe forms and the experience for JAS in advanced cancer patients is of importance. We intend to present a revision of results collected during the development of oncology pediatric medicines, towards pediatric use and build up the experience on utility of JAS. Also, a critical analysis of nonclinical information on all approved European Public Assessment Reports (EPARs: 1995–2014) concerning existence of JAS, pediatric therapeutic indication, and species and data from JAS in the nonclinical information on all approved pediatric investigation plans (PIPs) to support an indication in pediatric population (2007-2014). Further emphasis is placed on nonclinical support where PIPs refers to neonates and infants and the usefulness of such studies especially for tumors leading to short life expectancy.

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Internal abdominal hernias are infrequent cause of intestinal obstruction in children

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Internal abdominal hernias are infrequent cause of intestinal obstruction in children. In children usual causes of obstruction are Intussusceptions, congenital band ligation, malrotation and foreign bodies. Here we report a case of mesosigmoid hernia in a 10 year old child, after he was presented with complaint of abdominal pain of 2 days duration. He was admitted to our hospital and was x-rayed and put on conservative management. But the patient condition was worsened and exploratory laparotomy was done and segment of mid ileum was herniated through sigmoid mesocolon on the left lateral side. Sac was opened and the hernia was reduced but was gangrenous so we did resection and end to end anastomosis and the hernia sac was repaired.

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Is MRI a viable alternative to ultrasound in the diagnosis of pediatric appendicitis: A systematic review?

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Appendicitis is the most prevalent cause of acute abdominal pain in children requiring surgical intervention. The global incidence of appendicitis increases from 1-2 cases per 10,000 children aged less than 4 years to 25 cases per 10,000 children aged 10-17 years. The atypical symptoms presentation of appendicitis in children means a substantial number of cases may be misdiagnosed if diagnostic pathway relies only on clinical examination and laboratory investigations. The primary aim of this systematic review is to determine the diagnostic accuracy of MRI in determining the presence of appendicitis in children following an inconclusive ultrasound examination and established whether gadolinium adds value to diagnostic process. A secondary aim was to determine the average scan time and optimal diagnostic sequence for MRI examination of children with suspected appendicitis. A systematic literature review was undertaken to identify primary research studies. A search of Medline, CINAHL, PubMed Central and Google Scholar was undertaken and supplemented by review of reference lists, author searching and review of NICE evidence base for existing guidelines. 7 primary articles were identified and included in the systematic review article. Pooled sensitivity and specificity estimated from the included studies showed a range of values for MRI in pediatric appendicitis. Pulse sequence, scan time, contrast agent, and other MRI parameters were extracted from the included studies. MRI can offer a viable alternative to pediatric appendicitis cases where ultrasound becomes indeterminate or a primary imaging tool where availability is guaranteed round the clock.

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Variability in quality of chest compressions provided during simulated cardiac arrest across 9 pediatric institutions

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The variability in quality of CPR provided during cardiac arrest across pediatric institutions is unknown. We aimed to describe the degree of variability in the quality of CPR across 9 pediatric institutions and determine if variability across sites would be affected by just-in-time CPR training and/or visual feedback during simulated cardiac arrest. We conducted secondary analyses of data collected from a prospective, multi-center trial. Participants were equally randomized to either: (1) No intervention; (2) real-time CPR visual feedback during cardiac arrest or (3) just-in-time CPR training. We reported the variability in median chest compression depth and rate across institutions, and the variability in the proportion of 30-s epochs of CPR meeting 2010 American Heart Association guidelines for depth and rate. We analyzed data from 528 epochs in the no intervention group, 552 epochs in the visual feedback group, and 525 epochs in the JIT training group. In the no intervention group, compression depth (median range 22.2-39.2 mm) and rate (median range 116.0-147.6 min⁻¹) demonstrated significant variability between study sites ($p < 0.001$). The proportion of compressions with adequate depth (0-11.5%) and rate (0-60.5%) also varied significantly across sites ($p < 0.001$). The variability in compression depth and rate persisted despite use of real-time visual feedback or JIT training ($p < 0.001$). The quality of CPR across multiple pediatric institutions is variable. Variability in CPR quality across institutions persists even with the implementation of a just-in-time training session and visual feedback for CPR quality during simulated cardiac arrest.

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Traumatic chest injury in children: A single thoracic surgeon's experience in two Nigerian tertiary hospitals

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Background: This study was to determine the extent and outcome of childhood chest injury in Nigeria, and to compare results with that of other literatures.

Patients & Methods: A Prospective study of all children under 18 years of age with chest trauma in two tertiary hospitals in Southern Nigeria from January 2012 to December 2014 was reviewed. The aetiology, type, associated injury, mechanism, treatment and outcome were evaluated. The patients were followed up in the clinic. The data were analyzed using SPSS version 20.0 with a significant $P < 0.05$.

Results: Thirty-one patients (12.1%) under 18 years of age of 256 chest trauma patients were managed in the thoracic units. The mean age was 9.78 ± 6.77 years and 27 (87.1%) were male. The aetiology in 13 was from falls, 10 from automobile crashes, 3 from gunshots, 4 from stabbing and 1 from abuse. The highest peak of chest injury was on Saturday of the week and April of the year. The pleural collections are as follows: 15 (71.4%) was haemothorax, 4 (19.1%) pneumothorax, 2 (9.5%) hemothorax and 18 patients had lung contusion in combination or alone with the pleural collections. Seven patients who presented >12 -h versus 2 who presented <12 -h and 6 of children between 0 and 9 years versus 3 at 10-18 years of age had empyema thoracis (P value not significant). One death was recorded.

Conclusion: Chest trauma in children is still not common, and blunt chest injury from falls and automobile accidents are more common than penetrating chest injury. Treatment with tube thoracotomy is the major management modality with empyema thoracis as the most common complication.

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The bimodal distribution of foot arch index and its application

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Flatfeet are common physiological deviations in young children, and the treatment of flatfeet remains controversial. The bimodal frequency distribution of foot arch index, which was found in our previous research, gave a new natural definition for flatfeet. Based on the new definition, the purpose of this research was to characterize foot arch development in contrast to body growth and identify associated factors. The Chippaux-Smirak index (CSI) of footprints was used as a foot arch index. In a prospective longitudinal study of body structure and physical fitness, two surveys of 572 children were conducted during their first year at their elementary school and 1.5 years later. In the 263 children who had flatfeet at the first survey, 70 (27%) developed their foot arches (mean CSI from 0.72 to 0.46). The rest presented little change (mean CSI from 0.75 to 0.75). Improving one leg balance and changing into smaller CSI were significantly associated with foot arch development, but sex and weight were not. In the 288 non-flatfooted children at the first survey, only 9 children (3%) changed to flatfooted. The bimodal distribution, all-or-none changes, and unidirectional change at different ages in foot arch index indicated that foot arches are not direct results of body growth. Significant relationship to one leg balance ability suggests a motor control associated with biomechanical stability of the ankle should underlie foot arch development.

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Complications of colostomy and their correction in children

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Objective: To study the causes of complications in children colostomy.

Material & Methods: There were 84 patients with a colostomy in the period from 2003 to 2013. Colostomy was applied in order to decompress the bowel (intestinal paresis, peritonitis), anorectal malformations and Hirschsprung's disease.

Results: Complications of colostomy were detected in 44 patients. The most frequent complications were paracolostomic inflammatory complications-14 (32%). Parastomal infiltrate developed in mucocutaneous transition colostomy due to infection of postoperative wound edges intestinal contents. In 5 (11%) patients colostomy was complicated with necrosis due to massive devascularization and redundant loops derived. 7 (16%) patients developed to stenosis of colostomy. Evagination occurred in 8 (18%) patients, which was resulted due to living of a large abdominal free part of the colon in 5 patients, single-barrel stoma were in 3 children. Eventration was seen in 10 (23%) patients.

Conclusion: The major complications of colostomy were paracolostomic inflammatory complications, which were eliminated using local therapy; necrosis, stenosis of the stoma; eventration, due to the superposition of single-row fixation sutures and suturing the parietal peritoneum to the skin; evagination related to insufficient fixation guts to parietal peritoneum and abdominal leaving a large free prestomal part of the colon. Developed in our clinic, method corrugating stoma led to a significant decrease in the number of complications.

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Usefulness of Wieneke criteria in assessing morphologic characteristics of adrenocortical tumors in children

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Purpose: The objective of our study was to compare the Wieneke criteria with the standard Weiss criteria used in adults in assessing malignant potential of adrenocortical tumors (ACTs) in children.

Aim: The aim of this study was to document the spectrum of clinic-pathological findings in pediatric ACTs and to apply Wieneke criteria in assessing clinical behavior of these tumors.

Methods: This multi-institutional study comprised of 13 children with ACTs from January 2005 to May 2014. Clinical and pathological findings were collected from records. Review and analysis of microscopic features were performed. Each individual tumor was assessed applying the criteria proposed by Wieneke *et al* and designated benign, intermediate for malignancy or malignant. The adult Weiss criteria were also used in the same cases for comparison.

Result: Out of 13 cases, 6 were adreno-cortical adenoma, 7 cases were adreno-cortical carcinoma. Majority (76.9%) presented with endocrine dysfunction. Younger patients were found to be associated with better prognosis. Applying Wieneke criteria, there were 6 adenoma, 6 carcinoma and one case was assigned to intermediate for malignancy group. Applying Weiss criteria on the same cases; 3 cases with benign clinical course were assigned to malignant group.

Conclusion: Our study validates the reliability of Wieneke scoring system in assessing malignancy in Pediatric ACTs. We are also studying the role of P53 status and KI 67 index in assessing malignancy in pediatric ACTs which will be concluded later.

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Preeclampsia and neonatal morbidities in VLBW infants: A population based study

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Preeclampsia, respiratory distress syndrome (RDS), bronchopulmonary dysplasia (BPD) and retinopathy of prematurity (ROP) are associated with dysregulation of vascular growth factors, especial for vascular endothelial growth factor (VEGF) and placental growth factor (PlGF). However, the relationship between maternal preeclampsia and RDS, BPD or ROP in preterm infant's poses a degree of variability and the issue remains controversial. Therefore, we conducted a large population-based cohort of very low birth weight (VLBW) infants to analyze these relationships. Total 6,000 VLBW infants were included for analysis. Infants with maternal preeclampsia had a higher gestational age, higher incidence of cesarean section and being small for their gestational age, lower incidence of patent ductus arteriosus and sepsis. Both RDS and BPD occurred significantly less frequently in the maternal preeclampsia group, however, the multivariate logistic regression analysis revealed maternal preeclampsia was negatively associated with the risk of developing BPD, but has no effect on the incidence of RDS. Subgroup analysis showed that the association between preeclampsia and BPD was significant only in those VLBW infants with a gestational age between 31–34 weeks. Similar to RDS and BPD, the incidence of ROP was also significantly lower in infants with maternal preeclampsia than in those without maternal preeclampsia. Multivariable logistic analysis, which included the variables that were significant according to univariable analysis, showed that the preeclampsia was not associated with all grade ROP.

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Double intussusception of ileum through patent vitellointestinal duct: Case report

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Purpose: The objective of our study was to compare the Wieneke criteria with the standard Weiss criteria used in adults in assessing malignant potential of adrenocortical tumors (ACTs) in children.

Aim: The aim of this study was to document the spectrum of clinic-pathological findings in pediatric ACTs and to apply Wieneke criteria in assessing clinical behavior of these tumors.

Methods: This multi-institutional study comprised of 13 children with ACTs from January 2005 to May 2014. Clinical and pathological findings were collected from records. Review and analysis of microscopic features were performed. Each individual tumor was assessed applying the criteria proposed by Wieneke et al and designated benign, intermediate for malignancy or malignant. The adult Weiss criteria were also used in the same cases for comparison.

Result: Out of 13 cases, 6 were adreno-cortical adenoma, 7 cases were adreno-cortical carcinoma. Majority (76.9%) presented with endocrine dysfunction. Younger patients were found to be associated with better prognosis. Applying Wieneke criteria, there were 6 adenoma, 6 carcinoma and one case was assigned to intermediate for malignancy group. Applying Weiss criteria on the same cases; 3 cases with benign clinical course were assigned to malignant group.

Conclusion: Our study validates the reliability of Wieneke scoring system in assessing malignancy in Pediatric ACTs. We are also studying the role of P53 status and KI 67 index in assessing malignancy in pediatric ACTs which will be concluded later.

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OKN-007 is a new therapeutic approach for pediatric glioblastomas

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Pediatric glioblastomas (pGBM) are one of the leading causes of cancer-related deaths in children, with tumors essentially refractory to existing treatments. OKN-007 is a novel nitroene-based compound that has anti-cancer activity in both adult and pediatric GBM. Magnetic resonance imaging (MRI) techniques were used to assess the efficacy of OKN-007 in an orthotopic xenograft pGBM mouse (IC-3752GBM) model. OKN-007 was found to significantly decrease tumor volumes ($p < 0.05$) and increase animal survival ($p < 0.05$) in all OKN-007-treated mice compared to untreated animals, as well as increase diffusion ($p < 0.01$) and perfusion rates ($p < 0.05$). OKN-007 also significantly reduced lipid tumor metabolism [(Lip1.3 and Lip0.9)-to-creatinine ratio ($p < 0.05$)], as well as significantly decreased tumor cell proliferation ($p < 0.05$) and microvessel density ($p < 0.05$). Immunohistochemistry support data was also obtained for cell proliferation and tumor growth signaling. Furthermore, in relationship to the PDGFR α (platelet-derived growth factor receptor- α) pathway, OKN-007 was able to significantly decrease PDGFR- α ($p < 0.05$) and SULF2 ($p < 0.05$) immunoexpression, and significantly increase decorin expression ($p < 0.05$). This study indicates that OKN-007 may be an effective anti-cancer agent for pediatric patients with pGBMs by inhibiting cell proliferation and angiogenesis, possibly via the PDGFR α pathway, and could be considered as an additional therapy for pediatric brain tumor patients.

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Pediatric diagnostic audiology testing in South Africa

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Recognizing the importance of early identification and intervention is gaining momentum in developing countries. There has also been recognition of the ethical obligation to ensure access to diagnostic and intervention services for all children identified with hearing loss. Services should be equitable regardless of geographic or socioeconomic status. Many screening initiatives have been developed in South Africa, but there are limited studies on diagnosis of pediatric hearing loss. Diagnostic audiology records of 230 children enrolled in an early intervention programme were analyzed to determine processes used for diagnosis of pediatric hearing loss in South Africa, across the private and public healthcare sectors as well as across geographic regions. There were differences in audiology practice across regions and healthcare sectors. A full comprehensive diagnostic evaluation was unlikely to be completed. Diagnostic services for children with hearing loss are an area that needs extensive research (especially in a developing world context). Studies are needed so as to determine factors that are preventing adherence to best practice diagnostic audiology guidelines.

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Spinal cord dysfunction and quadriplegia following tracheal resection - A rare complication

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Introduction & Objective: Tracheal stenosis is narrowing of the windpipe which can occur after radiation therapy, prolonged use of an endotracheal tube or rarely, be congenital. Tracheal resection and primary reanastomosis for tracheal tumors and stenosis is a well-described procedure. Common complications of this procedure include Bleeding, infection airway edema, pulmonary insufficiency, recurrent laryngeal nerve injury, anastomotic dehiscence, fistula, leak and stenosis. We report a case of a 16 year-old male who suffered permanent quadriplegia following tracheal resection.

Case Report and Literature Review: We searched PUBMED using the words 'tracheal resection + paraplegia' 'tracheal resection + quadriplegia'. All the relevant articles were thoroughly reviewed.

Conclusion: Quadriplegia/Paraplegia after tracheal resection is an extremely 'rare but there' complication of tracheal resection. Different methods may be used to relieve the tension on the anastomotic site and the most appropriate method must be determined. A daily postoperative neurological examination should be performed in these patients. Immediate MRI should be performed if any abnormal findings are seen to verify the diagnosis. Quadriplegia in this setting likely resulted from compromised blood supply, concomitant edema, hemorrhage (as in this case, although the cause of hemorrhage is not known) or even traction (Breig⁹) however, the exact cause of injury remains unclear.

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Outcome of twin deliveries at a tertiary care centre of eastern Nepal

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Background: Twins, compared to singletons, have higher perinatal mortality and morbidity. The aim of this study is to describe the twinning rate, epidemiological variables and hospital outcome of twin deliveries at this institution.

Methods: We evaluated retrospectively the outcome of 92 twin pregnancies during one year study period (1st January 2014 to 31st December 2014). Only inborn twins were included. Cases with <28 weeks gestation and those twins delivered outside institution were excluded. Maternal and neonatal data were retrieved and statistically analysed.

Results: The twinning rate was 9.2/1000 (92/10,031). The mean birth weight was 1636.30±339.21 grams and mean gestational age 34.31±2.67 weeks. 182 babies (98.9%) were Low Birth Weight (LBW) while 32.1% were small for Gestational Age (SGA). There was mild, moderate and severe growth discordance in 68.5%, 23.9% and 7.6% respectively. Three (3.26%) of 92 pairs had twin to twin transfusion syndrome. The mortality rate was 10.87% (20/184). Out of 181 live babies, 69 (37.5%) had complications. The clinical causes of death were hyaline membrane disease (3.3%), severe birth asphyxia (2.7%), sepsis (1.6%) and congenital malformations (1.6%).

Conclusion: Twin deliveries are common in this hospital and need special consideration due to their substantial higher risk of complications and thereby consumption of relatively large proportion of resources before, during and after birth. Preparedness, early management and follow-ups are required for better management of twin infants in our part.

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Efficacy on antimicrobial activity and immunoglobulin preservation on donor breast milk after flash heat treatment and holder pasteurization: A comparative study

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Human milk is considered the optimal nutritional source for infants. Breast milk is safe and contains proteins such as IgA, which offers passive protection for the gastrointestinal system. When breastfeeding is impossible, pasteurized human milk is considered the best alternative. Due to the possibility of microbial contamination during collection and handling, milk is pasteurized to prevent transmission of pathogens. In low income and remote areas where pasteurization is inaccessible, the pursuit for the best alternative in rendering donor milk safe still remains. This study aims to determine and compare the efficacy of flash heat treatment and holder pasteurization in preserving IgA while reducing bacterial contamination on donor breast milk. This is an experimental study utilizing pooled donor breast milk subjected to bacterial analysis using blood agar and MacConkey plates. IgA level determination pre and post flash heat treatment and pasteurization was performed using BINDARID Kit IgATM. 10 samples each of aliquoted breast milk were subjected to pasteurization and flash heat treatment. The two groups generated a statistically significant reduction in colony forming units observed using blood agar and MacConkey plates. These sample groups also underwent IgA level determination using BINDARID Kit IgATM and exhibited no significant decline in IgA level concentrations. This study suggests that flash heat treatment may be utilized as an alternative method in reducing bacterial contamination while maintaining immunoglobulin A levels, and is therefore able to provide safe and effective donor breast milk. Its impact may be applied to low income and remote areas where holder pasteurization is inaccessible.

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Assessment of double outlet right ventricle associated with multiple malformations in pediatric patients using dual-source computed tomography

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Double outlet right ventricle (DORV) is a complex congenital heart disease which is characterized by the two great arteries completely or predominately arise (>50%) from the right ventricle. It often accompanied by a serious of intra- and extra-cardiac malformations. Accurate preoperative evaluation is essential for surgeons. In recent years, dual-source computed tomography (DSCT), with its fast scanning speed, high imaging quality and low radiation dose, has evolved into a reliable tool for pediatric patients with congenital heart diseases. In our study, we enrolled 47 pediatric patients with DORV who received surgical interventions. All surgically confirmed malformations were categorized into the following four groups: intracardiac anomalies, coronary artery anomalies (CAAs), anomalies of great vessels, separate thoracic and abdominal anomalies. We evaluated the diagnostic accuracy between DSCT and transthoracic echocardiography (TTE) when compared with surgical results. According to the data from our study, DSCT was superior to TTE in demonstrating paracardiac anomalies (sensitivity, coronary artery anomalies: 100% vs. 80.00%, anomalies of great vessels: 100% vs. 88.57%, separate thoracic and abdominal anomalies: 100% vs. 76.92%, respectively). As for intracardiac anomalies, our study demonstrated that DSCT might miss some tiny anomalies. Even so, the diagnostic accuracy of DSCT was also satisfactory (sensitivity, 91.30% vs. 100%) in comparison with TTE. The estimated mean effective dose in our study was <1 mSv (0.88±0.34 mSv). Hence, combined with TTE, DSCT may reduce or even obviate the use of invasive cardiac catheterization, and thus exposing the patients in a much lower radiation dose.

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