

JOINT EVENT



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Posters

Neonatology & Pediatric Surgery 2018

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An unusual case of neonatal metabolic alkalosis causing seizures

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Introduction: Metabolic alkalosis in neonates is very rare and attributed to gastric fluid losses, diuretics and congenital chloride diarrhea (CCH). There were four cases reported: due to maternal bulimia, Bartter's, vomiting and CCH. None of them had seizures.

Case report: A new-born was born in good condition by emergency lower segment caesarean section (LSCS) for intra-uterine fetal growth restriction (IUGR), preeclampsia and suboptimal cardiotocogram (CTG). She developed desaturation of 80% at 30 minutes followed by apnoea and seizures. Antenatally, mother had persistent vomiting for last one month and she also had cocaine and amphetamine abuse and active hepatitis C infection. The examination revealed irritability and hypertonia. Rest of the history and examination weren't significant. Mother and the baby showed hypochloremic metabolic alkalosis with deranged renal function and electrolytes except potassium of 3.5 and 2.4 in baby and mother respectively; urine was positive for opiates and cocaine. Cerebral function analyzing monitor showed seizure activities; EEG and MRI head were unremarkable. Infections and metabolic screening remained negative. She was ventilated and treated with designer electrolytes solution, antibiotics and anticonvulsants. Due to renal impairment acyclovir was not given both made uneventful recovery. Because of maternal substance abuse baby was discharged to grandparents with supervised access to parents.

Discussion: Maternal hypochloremic metabolic alkalosis was likely secondary to prolonged vomiting. The placental simple diffusion and hemodialysis effects explain the similar levels of electrolytes and renal function in mother and new-born except potassium. Initial normal (3.5 mmol/l) and later low (2.4 mmol/l) potassium levels are explainable by unidirectional placental potassium fluxes and intracellular shifting in alkalosis respectively. Desaturation and apnoea were due to shift of oxygen dissociation curve to left and hypoventilation by alkalosis. Early onset seizures were likely secondary to neuromuscular effect of alkalosis. This case illustrates the importance of close follow up of new-borns with maternal deranged electrolytes and renal impairment.

Biography

M Ranjan has completed MBBS and Postgraduate Master's degree in Sri Lanka and Membership of the Royal College of Pediatrics and Child Health in UK. She is currently working as Specialty Trainee Doctor at ST7 level in Yorkshire and Humber deanery rotation in United Kingdom.

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**The effects of the intrauterine and extrauterine language experience on the world stress processing:
An ERP study**

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There is growing evidence that prosody is a powerful cue infants make use for segmenting spoken utterances into word-like units. The language specific segmentation, as well as the syntactic elements are bootstrapped via perceptual patterns available at both lexical and phrase levels. Supposedly, the attunement to the native language prosodic properties starts prenatally, emphasizing the prominent role of the intrauterine period in language acquisition. A total of 82 term and preterm infants were studied on one occasion at corrected 6 months of age (n=40) or at 10 months of age (n=42) respectively. Preterm infants (n=34) were divided regarding gestational age into 30-32 weeks (n=17) and 33-36 weeks (n=17) groups and compared. Mismatch negativity event related brain potential (ERP) component (mismatch response, e.g. MMR in more general) was recorded and analyzed. The ERPs elicited by frequent (standard) and rare (deviant) pseudo-words by using a passive oddball paradigm of two conditions: (1) standards of legal stress patterns interspersed with deviants of illegal one (stress on the second syllable), and (2) standards of illegal stress and deviants of legal one. We found no significant difference in MMR responses between 6th and 10th months of age, however processing patterns differed ($p < 0.02$) between preterm and term infants. Furthermore severity of prematurity associated with less stress discrimination accuracy at the illegal deviant condition ($p < 0.05$). These results strengthen the view that longer extra-uterine language exposure doesn't redound as a compensatory effect.

Biography

Zsuzsanna Varga is completing her PhD at the Budapest University of Technology and Economics at the Doctoral School of Psychology (Cognitive Science). She is working as a Research Psychologist at the Neonatal Intensive Care Unit of the Semmelweis University 1st Department of Pediatrics and also as guest Young Researcher at the Research Group of the Neurocognitive Development of the Natural Sciences of the Hungarian Academy of Sciences.

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Case report: Congenital central hypoventilation syndrome (CCHS)

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Introduction: CCHS is a rare disorder found in less than one per 100,000 new-borns. It affects the central and autonomous nervous system which controls many of the autonomic function in the body. The underlying cause is dominant mutation in the PHOX2B gene. The mutations are stable in transmission from generation to generation but penetrance and phenotype can still vary significantly.

Case Report: A new-born was born in good condition following induction of labour for polyhydramnios at term. She developed respiratory distress at 4 hours of age needing intubation and ventilation at local hospital. She failed extubation once at local hospital and twice at tertiary care with marked CO₂ retention during sleep. Her elder sibling of 4 years is being investigated for obstructive sleep apnoea and awaiting adenotonsillectomy. Rest of the history and examination were normal except poor antigravity movements during first few days of life. CCHS was confirmed by genetic testing for PHOX2B gene mutation after excluding metabolic disorders and spinal muscular atrophy (SMA). She was switched to non-invasive ventilation and transferred to long term ventilation (LTV) center specialized for tracheostomy and long-term home ventilation. We avoided suxamethonium during intubation. Family was referred for genetic counseling and professionals involved in the care of elder sibling were made aware of this diagnosis after parental consent.

Conclusion: This case illustrates undiagnosed mild cases may be still at large and the importance of avoiding drugs causing prolonged neuromuscular blockade such as suxamethonium, atracurium, gentamicin etc. in hypotonia until spinal muscular disorders are excluded, to prevent unwarranted hyperkalemia; maintaining high index of suspicion in mildly symptomatic cases to avoid associated long-term morbidity and mortality and to permit early genetic testing and counseling for families; and referring to the local LTV specialist before a final decision to progress down the LTV pathway.

Biography

M Ranjan has completed MBBS and Postgraduate Master's degree in Sri Lanka and Membership of the Royal College of Pediatrics and Child Health in UK. She is currently working as Specialty Trainee Doctor at ST7 level in Yorkshire and Humber deanery rotation in United Kingdom.

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Successfully treated *Candida* infection of ventriculo-peritoneal shunt in an extremely low birth weight infant

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Infection is a common complication of ventriculo-peritoneal (VP) shunt placement. *Candida* is a rarely implicated. Most authors consider device removal necessary to clear infection. Jans reported high caspofungin levels in cerebrospinal fluid (CSF) and successful treatment of a neonatal VP shunt-associated *Candida* meningitis adding caspofungin to standard antifungal treatment. A preterm female (GA24 weeks, BW 708 gr) developed, on day 14, late onset GBS sepsis with ultrasonographic evidence of ventriculitis. Lumbar puncture was not performed because of clinical instability. She received a 16 days course of antibiotics plus fluconazole prophylaxis. Despite clinical improvement, progressive hydrocephalus occurred. On day 46, antibiotic-impregnated VP shunt with Ommaya was inserted, with 3 days prophylactic linezolid and cefotaxime. CSF taken during surgical procedure (see table 1) grew *Candida albicans* susceptible to fluconazole, voriconazol, amphotericin B; qualitative real-time PCR for GBS was positive. Ampicillin (300 mg/kg/day) and fluconazole (6 mg/kg/day) were started. Fifteen days later, CSF showed moderate response to treatment but culture was still positive for *Candida albicans*. After 3 weeks, the baby had poor weight gain, unchanged ventricular size despite VP shunt, worsening of pleiocytosis and raised CSF proteins, with negative culture. Intravenous caspofungin (25 mg/m²/day) was added and ampicillin stopped (we assumed PCR detection of GBS not indicative of active infection). After a 9 days on caspofungin, there were clinical improvement, reduction of ventricles size, sterile CSF, reduced pleiocytosis and CSF proteins. Fluconazole and caspofungin were discontinued. The baby recovered, without the need for shunt replacement, and was discharged home on day 90. VP shunt was replaced only 18 months later because of malfunctioning.

	Day 46	Day 61	Day 70	Day 79
CSF cells (cells/microliter)	1660	520	650	140
CSF protein(g/liter)	6.27	7.53	8.04	7.38
CSF glucose (g/liter)	1.6	1.1	1.1	1.1
CSF Culture	<i>Candida albicans</i>	<i>Candida albicans</i>	Negative	Negative
qualitative real-time PCR for GBS	Positive	Positive	-	-

Table 1.

Caspofungin, probably due to its specific action on fungal biofilm, can achieve resolution of VP shunt-associated *Candida albicans* infections, avoiding shunt and reservoir substitution.

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Biography

Vittoria Rizzo works at PICU-NICU in "Maurizio Bufalini" Hospital Cesena-Italy. She has a special interest in Neonatal Infections. She has published more than 20 papers in reputed journals, of which 8 in international Journals.

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CURRENT BRONCHOPULMONARY DYSPLASIA IN PRETERM CHILDREN WITH THE PATENT DUCTUS ARTERIOSUS AT AGE OF 3 YEARS

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Although over the past few decades improvement in perinatal care has increased the survival of very low-birth weight infants, these newborns continue to suffer from significant morbidities such as bronchopulmonary dysplasia (BPD). Despite the fact that the hemodynamically significant patent ductus arteriosus (PDA) contributes to formation of BPD (Kaempf et al., 2013), the role of hemodynamically insignificant (HI) PDA in the course of BPD is insufficiently clear. This study is aiming at identifying the features of the course of BPD of 1-year-old and 3-year-old children born prematurely, depending on a condition of PDA. The retrospective analysis of 146 preterm infants (gestation age, 24-32 weeks) with BPD and follow-up during their first three years of life were performed. Children were divided in three groups depending on a condition of PDA: (i) 58 preterm infants, in whom PDA was closed independently in the early neonatal period; (ii) 60 preterm infants with hemodynamically insignificant PDA that required surgical closure of PDA; (iii) 28 preterm infants with hemodynamically significant PDA that was treated with a surgery at the age of 21.5 ± 1.6 days. Echocardiographic indexes used in assessment of hemodynamically significant PDA were PDA diameter index to body weight $\geq 1.5 \text{ mm/kg}$, ratio of left atrial diameter to aortic root measured using M-mode echocardiography ≥ 1.5 , diastolic flow pattern (antegrade, absent, retrograde diastolic flow) in systemic arteries (descending aorta, celiac, superior mesenteric and/or renalis, middle cerebral), resistance index in a. cerebri anterior ≥ 0.8 (Tacy, 2009; Sehgal and McNamara, 2009; Hajjar, 2005). During the treatment stage in perinatal center, the second group included more children with severe BPD in comparison to the first group (23.3%, 5.6%, $p < 0.01$). In the comparison groups of 1-year-old children, the significant differences in the clinical aspects of BPD were not observed. Specifically, 20 to 35% of children were healthy, about 50% had mild BPD, 15 – 20% had mediate and 5 – 10% had severe BPD. At the age of 3 years, the first group included predominantly recovered children (59.5%) in comparison to the second (43.5%, $p < 0.05$) and the third groups (25.0%, $p < 0.01$). Further, the second group comprised more children with severe BPD (11.5%) in comparison to the first group (0%, $p < 0.05$). Overall, the presence of hemodynamically insignificant PDA contributed to the more severe course of BPD at the treatment stage in the perinatal center and of 3-years-old children, in whom ductus arteriosus was closed independently in the early neonatal period or was treated with a surgery.

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Reducing the risk of transfusion related necrotising enterocolitis (TNEC) by reducing anaemia and transfusion

Shalini Sharma

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Transfusion therapy in the neonatal period may be considered a life-saving procedure; and effective quality, quantity and delivery of transfusion products are all critical in weighing up the benefits and risks to these patients. However, transfusion-related necrotising enterocolitis is a rare but devastating condition, associated with red cell transfusion. TNEC most often occurs in preterm infants and there is a growing interest in exploring its proposed mechanisms and causality, as well as potential therapeutic strategies. This study explored clinical correlates of neonates transfused blood products at the Royal United Hospital (RUH), Bath, from 2009-2016. The annual number of blood transfusions amongst neonates during their first year of life was obtained from a transfusion database. Clinical details from these patients and denominator data on the number of preterm infants were recorded from the neonatal database, Badger. Relevant specific outcomes were sought from both Badger and microbiology databases. Results demonstrated an 85 percent reduction in the number of babies transfused between 2009 and 2016, temporally associated with several quality improvement projects. There were no cases of TNEC during the study period. There is clear guidance outlining criteria for transfusion amongst ventilated babies, those on CPAP, and infants with chronic and stable lung disease; in both national and specific trust guidelines. However, recommendations pre-transfusion in neonates not requiring respiratory support are poorly defined. New guidelines being created must consider preterm neonates as a substantial group of infants when defining best evidence-based practice, hence limiting the development of complications such as NEC

Biography

Shalini Sharma is a Medical Student from the University of Bristol. She is currently in her fifth year of study, and is undertaking an intercalated BSc in Reproductive and Developmental Sciences at Imperial College London. She will return to the University of Bristol next academic year to complete her final year of study.

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Evaluation of Auditory Brainstem Responses (ABR) in healthy term infants with elevated bilirubin levels requiring exchange transfusion or were treated with exchange transfusion

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Background and Objective: hyperbilirubinemia is a common cause neonatal disease. Sever hyperbilirubinemia is a risk factor for auditory system injury. To determine the usefulness of auditory brainstem responses (ABR), in early diagnosis of hearing impairments in healthy term infants with elevated bilirubin levels requiring exchange transfusions or treated with exchange transfusions.

Material & Methods: During a two year period (2007 – 2009), in a prospective descriptive analytic study, 64 (32 female , 32 male), healthy term (> 37 weeks) infants, who required treatment or were treated with phototherapy or exchange transfusions for elevated bilirubin levels or jaundice, were studied. After obtaining consent from parents post treatment, infants were tested with auditory brain responses (ABR) then results were analyzed using SPSS 16 software.

Results: No significant correlation was seen between ABR with age ,weight, bilirubin level and ABO group . 19 of 64 infants were treated with exchange transfusion, 3 of 19 infants (16%) showed abnormal ABR and 16 of 19 infants (84%) had normal ABR, which showed no significant correlation between exchange transfusion and ABR . $p < 0.05$

Conclusions: These results showed that 14% of infants with elevated bilirubin who required exchange transfusion had abnormal ABR, which indicate that elevated bilirubin levels requiring exchange transfusion without kernicterus is an important risk factor for hearing impairments and may lead to abnormalities in hearing tests. Although it is unclear, how long these tests remain abnormal, which requires further research.

Key Words: Infant, hearing loss, exchange transfusion, auditory brainstem response, oto-acoustic emission (OAE)

Biography

Seyed Saeid Nabavi, MD, is an Assistant Professor of Pediatrics at Tehran Azad University. He graduated from Tehran Azad University and completed his residency in Pediatrics at Zanjan University of Medical Sciences. Dr. Nabavi's area of interest is Neonatology. and participated at pediatric congress in the rome(2017) and presented his article about brain ultrasonographic finding in neonatal seizure.

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Socio-cultural and environmental influences on infant feeding practices' of Brazilian immigrant mothers living in the United States

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Exclusive breastfeeding for the first 6 months of life and timely introduction of appropriate solid foods are important determinants of weight status in infancy and later life stages. Disparities in obesity rates among young children suggest that maternal feeding practices during the first 2 years of life may contribute to these disparities. Brazilians are a growing immigrant group in the United States, yet little research has focused on parental beliefs and behaviors affecting the health of Brazilian immigrant children in the United States. This study aimed to explore beliefs and infant-feeding practices of Brazilian immigrant mothers in the United States. Focus group discussions were conducted with Brazilian immigrant mothers. Transcripts were analyzed using thematic analysis and themes categorized using the socio-ecological model. Twenty-nine immigrant Brazilian mothers participated in the study. Analyses revealed that all participants breastfed their infants. The majority initiated breastfeeding soon after childbirth. However, most mothers did not exclusively breastfeed. They used formula and human milk concomitantly. Family and culture influenced mothers' infant-feeding beliefs and practices in early introduction of solid foods. As the number of children in the United States growing up in families of immigrant parents increases, understanding influences on Brazilian immigrant mothers' infant-feeding practices will be important to the development of effective interventions to promote healthy infant feeding and weight status among Brazilian children. Interventions designed for Brazilian immigrant families should incorporate an understanding of social context, family, and cultural factors to develop health promotion messages tailored to the needs of this ethnic group.

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Does the use of maternity waiting homes increase skilled birth attendance, decrease maternal and newborn mortality, and lead to sustainable development goals in Ethiopia?

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Introduction: Improving maternal and child health is foundation for every nation, community and family. Millennium development goals had applied various strategies to close the gaps in maternal and child health morbidity and mortality from global to local levels. Among the strategies maternity waiting home is an important tool for those in need of access and hard to skilled birth attendance.

Aim: The aim of this review is to narrate existing, summarized outcome and impact of maternity waiting homes in Ethiopia.

Methodology: For accessing literature four databases were searched: ScienceDirect, Google Scholar, Open Access Journals Search Engine and PubMed. Both published studies and other library sources were explored to get unpublished work about the topic. Boolean connectors were used to connect the key words. Exclusion and inclusion criteria were established.

Results: From all databases five studies were identified, screened, and included. All were facility based studies. Three were cross sectional, one prospective and another retrospective cohort in their design of study. Two cohort studies claimed that there is difference in outcome of newborns and mothers following maternity waiting homes utilization. Cohort studies revealed that mothers who utilized maternity waiting homes have less likely to have negative health consequences both of themselves and their newborns.

Conclusion: Findings from these studies declared that there has been significant difference in maternal and perinatal mortality among maternity waiting homes utilizers and non-utilizers with their differences and limitations. But no trial either community or facility based was conducted. Consequently, it is vital to conduct community based randomized trials to examine the effect of maternity waiting homes in improvement of perinatal and maternal health to achieve both goals and targets of sustainable development goals.

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Antenatal steroids—Where are we?

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Early steroids studies in fifties and sixties involved animals and the effects they had upon various organs. It was not until in 1969 when GC Liggins, while studying the effects of steroids upon the initiation of labor in fetal lambs, that he noticed the steroids treated lambs not only had initiation of labor but they also had relatively more mature lungs and better survival. This further led to studies which directly showed the effect of steroids upon maturing lungs by accelerated surfactant appearance. In 1972, landmark study by GC Liggins and RN Howie showed that steroids could reduce the incidence of respiratory distress syndrome (RDS) in preterm neonates. This study led pathway to numerous studies all over the world showing effects of steroids in maturation of lungs. However, they also showed caution regarding the potential adverse effects. In 1990, systemic review by P Crowley clearly showed the beneficial effects of steroids in reduction of RDS with minimal adverse effects. Further in 1994, consensus statement by NIH gave the current recommendation and regimen for antenatal steroids for preterm deliveries. Further consolidation of the positive effects of steroids was done by meta-analysis by D Roberts in 2000 and further in 2006. However, despite clear evidence of beneficial effects, 2014 study in Lancet showed that the use of corticosteroids in lower income countries like Nepal, Afghanistan, Niger, and Congo was low. The use of antenatal steroids must be encouraged especially in lower income countries for reducing the neonatal mortality rates in these countries.

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Neonatal thrombocytopenia: Its associated risk factors and outcome in NICU in a tertiary hospital in Nepal

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Thrombocytopenia is a frequently encountered hematological abnormality in neonatal intensive care unit (NICU). It is associated with various maternal and neonatal risk factors and the incidence varies greatly depending upon the population studies. In a retrospective study, 412 neonates who were admitted in Bharatpur Hospital NICU during November 2016 till October 2017 were included in the study. Depending upon the values thrombocytopenia was categorized into mild, moderate and severe types. Incidence of thrombocytopenia was determined along with maternal and neonatal risk factors associated with it. Maternal risk factors like pregnancy induced hypertension (PIH), diabetes, maternal immune thrombocytopenic purpura (ITP), eclampsia, drug use and neonatal risk factors like sepsis, asphyxia, intrauterine growth restriction (IUGR), prematurity, necrotizing enterocolitis (NEC) were analyzed. The incidence of neonatal thrombocytopenia was found to be 74 in 412 neonates which comprised approximately 18% neonates admitted in NICU. Early onset thrombocytopenia occurring within 72 hours comprised 91.8% while late onset thrombocytopenia occurring after 72 hours comprised 8.2% of total thrombocytopenia. 58.1% (43) comprised of mild, 29.7% (22) moderate and 12.2% (9) severe thrombocytopenia. The major risk factors among the neonates were sepsis, asphyxia, IUGR and prematurity while gestational diabetes mellitus (GDM), PIH and maternal ITP were the common maternal risk factors contributing to the neonatal thrombocytopenia. However, there was no correlation found between sex and race with the occurrence of thrombocytopenia. Neonatal thrombocytopenia accounted for 18% of neonates which were admitted in the NICU. Significant neonatal risk factors were asphyxia and sepsis and maternal risk factors were PIH and diabetes.

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Prenatal and postnatal management of congenital bronchial atresia (CBA): Single tertiary center report

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Purpose: To summarize our diagnosis and management experience of congenital bronchial atresia (CBA).

Methods: A retrospective review was conducted and clinical data were collected of all patients with CBA.

Results: Among the 9 patients (5 males and 4 females), 6 cases with right side and 3 cases with left side, including 1 patient with mainstem bronchial atresia (MBA), 2 cases with lobar bronchial atresia (LBA), 6 cases with segmental bronchial atresia (SBA). Eight were diagnosed as congenital cystic adenomatoid malformation (CCAM) type \square by ultrasound (US) in prenatal. The MBA patient was diagnosed by CT and bronchofibroscopy, only 2 patients by pathological findings and the other 6 patients by CT. Five cases were accompanied by CCAM, 1 case with bronchopulmonary sequestration (BPS), 2 cases with emphysema. Eight cases except MBA were underwent thoracoscopic surgery treatment, and had favorable prognosis. Two cases with LBA merged with complication of pectus excavatum after surgery. One case with MBA had no surgery, and died 13 days old.

Conclusions: CBA is an easily misdiagnosed disease from pathologic conditions. Definitive diagnosis of this condition depends on combination CT or clinical pathologic diagnosis. Thoracoscopic resection is a safe and feasible treatment of CBA in experienced hands.

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Hypoxic ischemic encephalopathy – is it preventable? Important associations and outcomes

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Despite advances in obstetric and neonatal care over the last four decades the neonatal encephalopathy rate in newborns >2.5 kg shows no decline and there is uncertainty of associated risk factors and outcomes. To determine risk factors associated with hypoxic ischemic encephalopathy (HIE), our group set up an encephalopathy database and have been working to identify potentially modifiable risk factors which may serve to identify newborns at risk of not tolerating the labor process. Secondary aims of our group are to assess the predictive value of laboratory and neuroimaging investigations for neurological outcome. In particular we are interested in attention, memory and behavioral outcomes of survivors without cerebral palsy. Phase 1 of our research [237 cases (155 newborns with grade 1 encephalopathy, 61 newborns with grade 2 encephalopathy, 21 newborns with grade 3 encephalopathy) and 489 controls] defined distinct risk groups with HIE rates that ranged from 0-86%. Associations of placental, laboratory and neuroimaging findings with both short and longer term outcomes will be presented.

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Using social media to improve the learning loop from risk incidents

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Aims: To use a multi-media, multi-pronged approach to disseminate weekly learning outcomes from risk incidents on the neonatal unit.

Method: Originally a risk newsletter was circulated via email every 1-2 months with key learning points. A pre-intervention staff survey was performed to gauge the level of awareness of risk learning and interest in learning more. A slide was created each week with 4-6 learning points from incidents that week. It was presented on the weekly grand round, amended if necessary, then presented at nursing handovers, sent to the doctors WhatsApp group and nursing staff Facebook group (using information governance guidance), and copies put up around the department. Learning from other areas e.g. M&M meetings were also included. Information was presented in an aesthetic and digestible way. A post-intervention survey was then performed.

Results: Initially, 48% of staff felt a bit informed about incidents on the neonatal unit, 31% didn't feel informed at all, and 85% wanted to be more informed. After trialling the project for 8 weeks, 100% of the respondents felt happy with the weekly presentations, Facebook and WhatsApp posts. Everyone felt that they learnt from the weekly learning. This is now trialling in other departments. We are currently analyzing data to demonstrate the effectiveness of this project.

Conclusion: The multi-pronged approach used enabled us to effectively target a larger audience. The weekly presentations created a dynamic team attitude towards risk learning and enabled rapid recommendations to be put into practice.

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Demographic and clinical characteristics of immune thrombocytopenia in Sudanese children

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Background: The demographic and clinical profile of immune thrombocytopenia is well reported in the literature but was not reported before from Sudan.

Method: A retrospective chart review was performed for all children diagnosed as immune thrombocytopenia (ITP) in three major hospitals over six and half year period. 47 patients were identified and their median age was 6.5 years. Males and females were equally affected. A preceding upper respiratory infection was present in one third of patients. Epistaxis was the commonest presenting feature (87.2%), where gastrointestinal bleeding, gross hematuria and subconjunctival bleeding were the presenting features in 36.2%, 19.1% and 4.3% respectively. Ecchymosis and petechiae were the commonest clinical signs, seen in 46.8% and 29.8% respectively. Chronic ITP constituted one third of patients. Steroids were the first line of treatment and no death was encountered.

Conclusion: ITP in Sudanese children has similar features as those reported before; however, gross hematuria and gastrointestinal bleeding were seen more frequent in them.

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Cumulative stressors in preterm infants hospitalized in neonatal intensive care units

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Background: Infants' exposure to stressors in neonatal intensive care unit (NICU) and its outcomes is a new issue since previous studies have only focused on painful stimuli. Taking into account frequency and severity of the stressors on each infant, short and long-term outcome of these stressors can be improved.

Objectives: This study aimed to evaluate the cumulative stressors in premature infants hospitalized in a NICU.

Methods: In this descriptive study, 197 hospitalized preterm infants between 28 to 30 weeks of gestation were studied in terms of cumulative stressors during 10 days at the NICU of Tabriz Alzahra Hospital. Consecutive sampling method was used. Demographic questionnaire and neonatal infant stressor scale were used. Descriptive statistics, repeated measures analysis and Pearson's correlation coefficient tests were used to analyze the data.

Results: The total mean of stress scores during 10 days was 99.44 ± 17.37 . Multiple attempts to insert intravenous and intra-arterial catheters and intubation were the most frequent procedures in the extremely stressful category among four categories of stressors. The highest scores of acute and chronic stress were related to the tenth and third day of hospitalization, respectively. There was no significant difference between infants' characteristics and total mean stress scores. Repeated measures analysis showed that the mean acute stress scores were significantly different among the 10 subsequent days ($P < 0.05$).

Conclusions: The results of this study demonstrated the frequent occurrence of various procedures in preterm infants hospitalized at the NICU. Although these procedures were done with the purpose of improving infant's health, they can lead to problems and complications, which might postpone the infant's recovery process.

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The effect of interactive educational workshops with or without standardized patients on the self-efficacy of midwifery students in sexual health counseling

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Modifications in learning systems based on the concepts of self-efficacy and self-esteem are among the suggested strategies to bridge the gap between knowledge and practice. The aim of this study was to compare the effect of two interactive educational workshops with or without standardized patients (SPs) on midwifery students' self-efficacy in providing sexual health counseling at Mashhad University of Medical Sciences, Mashhad, Iran in 2014. In this quasi-experimental study, 62 BSc and MSc students of Midwifery at Mashhad School of Nursing and Midwifery were randomly divided into two groups. The groups were trained, using one of two interactive educational workshops (with or without SPs) on sexual health counseling (10 hours). Data were collected, using a demographic questionnaire and a self-efficacy assessment tool. For data analysis, paired and independent t-tests were performed, using SPSS version 16. The mean scores of students' self-efficacy in providing sexual health counseling in the two groups were not significantly different at the beginning of the study ($P=0.587$), while two weeks after the intervention, the scores were significantly higher in students who participated in SP-based workshops (76.0 ± 10.9 vs. 66.7 ± 5.9 , $P<0.0001$). Although both methods could promote students' self-efficacy, the impact of workshops with SPs was more significant. Therefore, integration of this training method in midwifery educational curricula is recommended.

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Zinc/lipid/autophagy-mediated plasma membrane integrity signaling pathway is a new target for developmental convulsive brain injury

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In pediatric clinics, about 75% of neonatal hypoxic-ischemic encephalopathy (HIE) have convulsions, and some children develop epilepsy during adulthood. On the one hand, many of the first-line anticonvulsant drugs in the clinic can effectively control convulsions caused by HIE. On the other hand, these drugs can also cause adverse effects such as white matter damage. Therefore, there is an urgent need to reveal the mechanism of epileptogenesis, thus providing clues for finding new targets for anti-epileptic treatment. Our research initially revealed that zinc (Zn) ion metabolism dyshomeostasis is involved in the developmental seizure-induced regenerative sprouting of hippocampal mossy fibers, especially zinc transporters 1, 3 and ZIP6. Secondly, lipid metabolism molecules and autophagy signals participate in the repair of long-term hippocampal and cortical plasma membrane damage, as well as neurobehavioral and cognitive function protection following developmental seizures. We have found that lipid metabolism control methods such as the ketogenic diet, leptin and melatonin, or intraperitoneal injection of autophagy inhibitors (3-MA, CBI, E-64d) immediately after seizures, can inhibit hippocampal sprouting and neurobehavioral damage. Our preliminary results indicate that the regulation of plasma membrane integrity mediated by zinc/lipid/autophagy signaling may be involved in the pathophysiological process of epileptogenesis, which may be a new target for repair of neuronal membrane damage after developmental seizures.

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The effects of two different intravenous lipid emulsions on the outcomes of preterm infants with sepsis: a randomized controlled trial

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Objectives: Lipid emulsions play an important role in parenteral nutrition in preterm infants. We aimed to evaluate the effects of two different intravenous lipid emulsions on the outcomes of preterm infants with sepsis.

Methods: A randomized controlled pilot trial was conducted in the Neonatal Care Unit of Mansoura University Children's Hospital, Egypt during the period from February 2016 to February 2017. Forty preterm infants with clinically suspected sepsis were enrolled and assigned randomly into one of two groups, one received MOFS lipid emulsion (MOFS group) and the other received pure soy bean oil-based emulsion (S group). Clinical and epidemiological data were collected. Assessment was done on 1st day and 7th day post randomization including growth parameters, complete blood count, C-reactive protein, random blood glucose, serum creatinine, serum triglyceride, soluble intercellular adhesion molecule 1 and leukocyte integrin β 2. Between-groups and within-group differences were analyzed statistically.

Results: No statistically significant differences were detected between MOFS and S groups as regards growth parameters. Laboratory markers did not show any statistically significant difference between both groups except for leukocyte integrin β 2 and soluble intercellular adhesion molecule 1 being higher in MOFS group. No statistically significant differences were observed between both groups as regards duration of mechanical ventilation, duration of antibiotics treatment, mortality rate or use of inotropes. Shorter hospital stay was observed with S group.

Conclusions: Both MOFS and pure soybean oil-based lipid emulsions were equally safe, effective and well tolerated in septic preterm infants with limited differences between them.

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