

4th World Summit on Neonatology, Pediatrics and Developmental Medicine

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Sundus Khuder, Neonat Pediatr Med 2023, Volume 09

New approach and management of persistent pulmonary hypertension in newborn

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Pulmonary Hypertension (PH) is a life-threatening condition in newborns characterized by high blood pressure in the arteries of the lungs. It can lead to significant morbidity and mortality if not managed appropriately. The approach to managing newborns with PH involves a thorough evaluation of the underlying cause and severity of the disease. Early recognition and diagnosis are crucial for prompt intervention and improved outcomes.

The role of three helps us to understand and manage Persistent Pulmonary Hypertension of the Newborn (PPHN) much better.

There are three causes of PPHN, there are three molecule pathways affect the pulmonary vessels, there are three types of management depend in the etiology and there are three echocardiography findings. In general, management strategies for PH in newborns aim to improve oxygenation, reduce pulmonary vascular resistance and enhance cardiac function.

Initial management includes supportive care measures such as supplemental oxygen, mechanical ventilation and inotropic support. In addition, pharmacologic interventions such as inhaled nitric oxide, prostaglandins and sildenafil may be used to reduce pulmonary vascular resistance and improve oxygenation. However, the use of these agents requires close monitoring and should be used judiciously to avoid adverse effects.

Extra-Corporeal Membrane Oxygenation (ECMO) may be used as a rescue therapy in refractory cases.

In conclusion, the approach to managing newborns with PH requires a multidisciplinary team approach involving neonatologists, pediatric cardiologists and intensivists. Early recognition and diagnosis, prompt intervention and close monitoring are essential for optimizing outcomes.

Biography

Sundus Khuder is a Pediatric consultant at Dibba Al-Fujairah Hospital. She is a Board director of global newborn society GNS. She is an Instructor of the neonatal resuscitation committee. She has completed fellowship of the Arab board of health at neonatologist subspecialty. She is an Instructor in mechanical ventilation course and Director of mechanical ventilation course, Iraq and Syria.

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Zsuzsanna Varga et al., Neonat Pediatr Med 2023, Volume 09

Parental educational level modulates the cognitive developmental outcome in infants with neonatal encephalopathy

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Aim: Despite advanced imaging and neurophysiological tests, prognostication of neurodevelopmental outcomes in NE is still not precise. Our aim was to consider the predictive value of Socio-Economic Status (SES) for developmental outcomes independent of physiological variables and disease severity in NE infants.

Methods: A cohort of 93 NE infants who had MRI examination with Barkovich scorings in the neonatal period were examined and prospectively followed until 16-42 months of age. Besides the registration of the Bayley Scales of Infant Development II, we collected SES variables, including combined parental education to reveal associations between SES and outcomes.

Results: At mean follow-up of 23.0 ± 6.7 months, higher parental education was strongly associated with good cognitive outcome (OR 2.20; 95% CI: 1.16-4.36), but not with motor outcome. One point for brain injury on neonatal MRI was associated with decreased odds for good cognitive outcome (OR 0.70; 95% CI: 0.50-0.89). In the subgroup of NE infants with any brain injury on MRI (n=21), literacy environment (OR 40; 95% CI: 3.7-1352) seems to have a marked effect on cognitive development.

Conclusions: Our results highlight the need to consider the SES factors besides the clinical ones in the prediction of cognitive outcomes in NE infants.

Biography

Zsuzsanna Varga is a cognitive psychologist who is working at the Pediatric Clinic, Division of Neonatology of the Semelweis University in Budapest, Hungary. She carries out developmental follow-up examinations in preterm infants and in infants born with Neonatal Encephalopathy (NE). Her research area is the cognitive development of infants born with NE. During her PhD years, she examined the event-related brain potential correlates of the language development of preterm and full-term infants.

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Congenital bleeding disorders: When to evoke in neonates?

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Introduction: Congenital Bleeding Disorders (CBD) comprises a heterogeneous group of diseases that reflect abnormalities of blood vessels, coagulation proteins and platelets. Patients with rare CBD may have a broad spectrum of clinical symptoms, ranging from mucocutaneous bleeding to life-threatening hemorrhages, such as those occurring in the central nervous system.

Methods: A retrospective descriptive study of all neonatal cases of CBD registered in the Neonatal Intensive Care Unit of the Military Hospital of Tunis, through the 20 previous years.

Results: The first observation was about a full term male infant, with no significant familial history, who declared at 4 hours of life an overwhelming hemorrhage. Initial blood tests revealed biologic signs of disseminated intravascular coagulation. The assays of IX, VIII and Von Willebrand factors were normal. Brain MRI showed an intraventricular hemorrhage with quadriventricular hydrocephalus. Analysis of the plasma revealed a severe deficiency of ADAMTS13. The patient has since required periodic prophylactic Fresh Frozen Plasma (FFP) infusions. With a decline of seven years, he kept moderate encephalopathy. Genetic study confirmed the diagnosis of Upshaw-Schulman syndrome.

The second case was about a newborn with an enormous caput succedaneum. The blood count was consistent with severe anemia and coagulation studies revealed a prolonged Activated Partial Thromboplastin Time (APTT). Coagulation factors were measured, with a very low factor VIII activity (<1%) which was compatible with severe type-A hemophilia. Despite introducing the specific treatment, the infant died at the age of 18 months due to a severe hemorrhagic episode.

The third and fourth cases were about a brother and his sister who presented an umbilical hemorrhage that wasn't initially explored. Both of them have had seizures due to an intracranial hypertension and multiple episodes of bruising. The blood tests showed no anomalies aside from a low rate of XIII factor.

Conclusion: In our patients, the onset of CBD was originally declared with a severe neonatal hemorrhagic syndrome. Indeed, early diagnosis is mandatory to adequately monitor the disease, prevent organ damage and severe sequelae.

Biography

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Alej-An Joyce Marie A. Gumpal-Te et al., Neonat Pediatr Med 2023, Volume 09

Neurodevelopmental outcome of infants born to mothers with COVID-19 infection during pregnancy: A meta-analysis

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Background and relevance: Intrauterine viral infections induce an increase in the levels of proinflammatory cytokines which inhibit the proliferation of neuronal precursor cells and stimulate oligodendrocyte cell death leading to abnormal neurodevelopment. Epidemiologic studies suggest maternal immune activation during pregnancy maybe associated with neurodevelopmental effects in infants which is of great concern. Given the large number of exposed individuals, even a modest increase in risk for adverse offspring neurodevelopment would still have a massive public health impact.

Objective: To determine the neurodevelopmental outcome of infants born to mothers with COVID-19 infection during pregnancy.

Methodology: This study utilized a meta-analysis design. Studies published up to September 30, 2022 were included in the analysis.

Data analysis: STATA MP Statistical Software, Version 13, College Station, TX: StataCorp LP was utilized for all statistical analyses. A p-value ≤ 0.05 was considered statistically significant. Since estimated heterogeneity is non-significant and not substantial, a fixed-effect model was utilized. Pooled risk ratio was utilized as the summary effect measure for the risk of neurodevelopmental delays and was estimated with their corresponding 95% confidence intervals. Heterogeneity was scrutinized using the following statistical tests: Q statistics test, I² statistics and tau squared statistics. I² values greater than 50% imply substantial heterogeneity, while a Q-statistics with a significant p-value denotes a statistically significant heterogeneity.

Results: Two studies with a total population of 7,848 patients met the eligibility criteria. Results indicated that all included studies have good quality of evidence in the areas of selection, comparability and exposure. Appraisal of the included studies in these areas of evaluation also showed that all studies were of good quality. The pooled risk of neurodevelopmental delays among infants born to COVID-19 positive mother was 2.00% higher than those born from mothers who were negative for COVID-19 infection. However, this was not statistically significant. Graphical analysis of publication bias showed funnel symmetry, suggestive that publication bias was unlikely. This result was confirmed with formal statistical tests using Begg's adjusted rank correlation test and Egger's regression asymmetry test.

Conclusion: Although not statistically significant, infants born to mothers with COVID-19 infection during pregnancy have increased risk of neurodevelopmental delay. This may be attributed to the limited number of studies and articles available and in part because children born to women infected in the first wave of the pandemic are younger than two years of age. In addition, majority of developmental delay reflected developmental disorders of motor function or speech and language.

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Biography

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C Vasundhara Balaswamy et al., Neonat Pediatr Med 2023, Volume 09

Effectiveness of safe discharge program on knowledge and skills of mothers in homecare management of surgical neonates

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Background and objectives: Protocols and guidelines are available related to NICU (Neonatal Intensive Care Unit) discharge planning and process. Same may not be sufficient for the surgical neonates. The present study aimed to develop and assess the effectiveness of the Safe Discharge Program (SDP) in-home care management of surgical Neonates.

Methods: Pre-Experimental, one-group Pretest-Posttest design. Forty mothers included in the study and a structured questionnaire given to assess pre and post-knowledge-level of mothers. After Implementation of SDP, By Observation-checklist the skills of mother assessed, Level of satisfaction of mothers about SDP obtained by a rating scale.

Results: Post-Test knowledge scores had a significantly higher mean score value than the pre-test knowledge scores ($p < 0.001$). Adequate skills were achieved by 67% of the mothers. Majority (70%) of the mothers were satisfied with the Safe Discharge Program (SDP).

Conclusion: The SDP (M.O.T.H.E.R-Monitoring Vitals and Temperature, Observe and prevent surgical site Infection, to give feeding and medication, Hygiene, Early Warning Signs, Review and Follow-up) empowered and enhanced the knowledge and skills of mothers in homecare management of surgical neonates.

Keywords: Surgical neonates, Homecare management, Safe discharge program.

Biography

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Jehan Alsharnoubi, Neonat Pediatr Med 2023, Volume 09

Could we diagnose childhood asthma by LIBS technique?

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Background: Asthma affects children related to trace elements. Our aim was to investigate the levels of trace elements using Laser-Induced Breakdown Spectroscopy (LIBS).

Patients and methods: The study included 120 children aged 4–12 years from both sexes. They were divided into three groups: Group 1 controlled asthma, Group 2 uncontrolled asthma and Group 3 normal control. They were analyzed for serum levels of total IgE, eosinophil count and trace metals (Zn, Cu, Pb, Mg and Fe) by using LIBS.

Results: There was significant decrease in serum levels of Zn, Mg and Fe in children with asthma than in normal children. There was a significant decrease in uncontrolled asthmatic children than in controlled asthmatic children. But the Cu and Pb concentration in children with asthma was significantly higher than that in normal children and there was a significant increase in uncontrolled asthmatic children than in controlled asthmatic children.

Conclusion: Asthma is a common pediatric disease that is related to deficiency of Fe, Zn and Mg and occurs with increased Pb and Cu. LIBS is a safe and rapid technique that helps in detecting asthma.

Keywords: Bronchial asthma, Laser LIBS, Children.

Biography

Jehan Alsharnoubi is an Associate professor in Department of Pediatrics, Cairo University.

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Ahmed El Mohamady Mahfouz, Neonat Pediatr Med 2023, Volume 09

Value of thrombomodulin as a diagnostic and prognostic marker for sepsis in critically ill

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Background: Pediatric sepsis is life-threatening organ dysfunction and a leading cause of death for children.

Aim: To assess the role serum thrombomodulin in the diagnosis and prediction of mortality in pediatric septic cases.

Methods: This a prospective cohort study carried out at the Pediatric Intensive Care Unit (PICU) of Menoufia University Hospital. We included 70 critically ill patients admitted to PICU and 25 apparently healthy controls from October 2018 to September 2019. Clinical examination was performed including calculation of the Pediatric Risk of Mortality and Pediatric Index of Mortality II. Serum Thrombomodulin was performed for patients at admission and for the controls. Patients were followed up for 30 days.

Results: Serum Thrombomodulin level was significantly higher among the total patient cohort and those with systemic inflammatory response syndrome, sepsis and severe sepsis than among the controls ($p < 0.001$). Furthermore, Serum Thrombomodulin was significantly elevated in non survivors compared with survivors ($p = 0.005$). Receiver-operating characteristic curve analysis exhibited an Area Under the Curve (AUC) of 0.915 for Thrombomodulin for prediction of sepsis, whereas C-reactive protein had AUC of 0.789. Regarding the prognosis, PIIINP had AUC of 0.711 for prediction of mortality, whereas the AUC for Pediatric Risk of Mortality and Pediatric Index of Mortality 2 were 0.918, 0.960 respectively.

Conclusion: Serum Thrombomodulin is a promising marker for pediatric sepsis. The data showed that serum Thrombomodulin had added value for early diagnosis of sepsis in critically ill children.

Keywords: Thrombomodulin, C-reactive protein, Critically ill, Pediatric risk of mortality, Pediatric index of mortality 2, Sepsis.

Biography

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