Central venous catheter related thrombosis in neonatal intensive care unit, incidence and risk factors

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Background and Objectives: Vascular access is a major challenge in the management of preterm and critically-ill term infants in neonatal intensive care units (NICU). In newborn, central venous catheters (CVC) allow rapid and reliable vascular access for the administration of fluids, total parenteral nutrition (TPN), medications, and hemodynamic monitoring. However, CVCs are associated with a high rate of life-threatening problems; such as mechanical, infectious and thrombotic complications. This study aimed to estimate the incidence of CVC related thrombosis (CRT) among neonates in our NICU and to determine its possible risk factors.

Patients and Methods: A prospective cohort study in NICU, Faculty of Medicine, Ain Shams University, pediatrics hospital over 9 months duration that was conducted on 50 admitted neonates who had CVC insertion, the gestational age range of 30-39 weeks, birth weight range of 1.27-3.90 Kg and a male/female ratio of 27/23. All studied cases were subjected to detailed perinatal history, clinical examination, and laboratory evaluation relevant to determine risk factors for CRT development, including maternal pre eclampsia, maternal diabetes mellitus, preterm delivery, low birth weight, perinatal asphyxia, blood product transfusion; (type and frequency), dehydration, sepsis, congenital heart disease, CVC criteria; (indication, type, site, size, position, method of insertion, tip of the catheter place, duration and anticoagulant used), infused fluid; (type and concentration), hematocrit value, platelets count, C reactive protein (CRP), prothrombin time (PT) and activated partial thromboplastin time (aPTT). All neonates had serial radiological investigations either neck Doppler on the vein with CVC or portal vein Doppler for umbilical vein catheters.

Results: Five (10%) out of the 50 neonates had CRT. CRT had significant negative correlation with each of the gestational age (p = 0.002) and birth weight (p = 0.009), and significant positive correlation with each of hematocrit value (p = 0.003), glucose infusion rate (GIR) (p = 0.006) and total parenteral nutrition (TPN) administration (p = 0.044). No statistically significant association was found between CRT and any of maternal diseases, packed red blood cell transfusion, congenital heart disease, sepsis, dehydration, platelet count, CRP, PT, aPTT, CVC criteria (site, rib position, size, Methods of insertion, or duration of CVC in place) or mortality (p > 0.05).

Conclusions: the incidence of CRT in our NICU is 10%, with prematurity, low birth weight neonates, high GIR, TPN administration and high hematocrit value are of the risk factors for the development of CRT.

Anxiety and depression in asthmatic children: impact on asthma control

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Background: Asthma is a chronic heterogeneous inflammatory airway disease that usually threatens the psychological well-being due to its impact on daily life. Asthmatic patients are at high risk of psychiatric morbidity due to its episodic nature, anxiety & depression are the most common. Inversely, they may also exert a negative impact on asthma. Asthma is often described as a classic psychosomatic disorder that share common patho-physio-psychological pathways with anxiety and depression.

Objective: To investigate comorbidity with anxiety and depression in asthmatic children, their impact on the level of asthma control and spirometry Results.

Methods: This study was a cross sectional study. It included 90 asthmatic recruited from pulmonology clinic, children’s hospital, Ain shams university. They were further subdivided into 3 groups according to level of asthma control using multidimensional GINA approach, asthma control test (ACT) to ensure control over the past 4 weeks, anxiety screening was done using translated arabic version of spence children’s anxiety scale (SACS), depression screening was done using translated Arabic version of children depression inventory scale (CDI), spirometry was done for all patients same time questionnaire was completed.

Results & Conclusion: Asthmatic children mean age was (9.43 ± 2.49), according to ACT 61.1% were uncontrolled, 38.9% were controlled as regards asthma symptoms, 34.4% had anxiety with mean SACS score of (38 ± 25.2), 33.3% had depression with mean CDI score of (8.98 ± 5.45), when comparing between controlled (30), partly controlled (30) and uncontrolled (30) groups according to GINA, the uncontrolled group had higher mean scores for anxiety (50.93 ± 25.8) and depression (11.28 ± 6.9) than partly controlled and controlled group. All asthmatic children with depression were clinically significant for history of more ER visits (8.65 ± 2.23) vs non depressed asthmatics. Using multivariate regression analysis, co morbidity with anxiety or depression were independent risk factors for poorly controlled asthma. Moreover, severe asthma, uncontrolled asthma and comorbidity with depression were independent risk factors for anxiety in asthmatic children. Also, longer duration of asthma more than 5years and presence of another atopic disease were independent risk factors for depression. There was no statistical significant difference in spirometry Results between asthmatic children with anxiety & depression. However, there was clinically significant negative correlation between ECV1% of predicted and SACS.

Splanchnic hemodynamics as a predictor of feeding tolerance in preterm neonates

H.L. El Sayed, M.F. Nassar, M.H. A bdel-Hamed and D.G. Abdel Hady

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Background: The superior mesenteric artery (SMA) is the blood vessel that Supplies the greatest volume of blood to the small intestine. The use of Doppler ultrasound to measure SMA blood flow velocity (BFV) is increasingly used to investigate intestinal hemodynamics in neonates. After birth, SMA blood flow velocity (SMA BFV) increases to support the dramatic increase in intestinal growth and oxygen uptake that occurs during the first few postnatal weeks.

Objectives: This study was designed to correlate Doppler indices of splanchnic perfusion and vascular resistance to early tolerance of feeding and to establish whether serial Duplex study of the Superior mesenteric artery in early days of life could predict development of NEC in preterm infants.

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factor VIII and 43.3% with recombinant factor VIII; the cumulative incidence of high-titer inhibitors was 14.1% and 28.6%, respectively. Recombinant factor VIII was associated with 97% higher incidence than plasma-derived factor VIII (hazard ratio, 1.97). Our Results were consistent and not different from the whole data. Conclusions: Patients treated with plasma-derived factor VIII containing vWF had a lower incidence of inhibitors than those treated with recombinant factor VIII. (Clinical Trials gov number, NCT01064284).

Microalbuminuria in obese children and adolescents and the metabolic syndrome
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Insulin resistance is a common feature of childhood obesity and is considered to be an important link between adiposity and development of type 2 diabetes mellitus and cardiovascular disease. It is also a major contributing factor to renal injury. Microalbuminuria (albumin excretion 20-200 mg/min or 30-300 mg/gram creatinine) is now considered an early marker of renal damage in non-diabetic patients.

Objectives: to evaluate the association of obesity and microalbuminuria among obese subjects and its relation to metabolic syndrome components.

Methods: This cross-sectional study was conducted on sixty-two obese children and adolescents randomly recruited from the Obesity Clinic, Pediatric Hospital, Ain-Shams University. Anthropometric data were collected, fasting serum insulin, glucose and serum lipid profile were measured. The homeostasis model assessment of insulin resistance (HOMA-IR) was used to calculate in vivo insulin resistance. Oral glucose tolerance test and urinary albumin concentrations were done.

Results: Microalbuminuria was detected in 18 cases (29%), metabolic syndrome in 4 cases (6.4%), impaired OGTT in 9.6%. Impaired fasting insulin and high serum insulin after 2 hours in OGTT in 3.2% of cases. Abnormal lipid profile was significantly associated with microalbuminuria.

Conclusion: Microalbuminuria is strongly associated with impaired fasting insulin, and abnormal lipid profile.

Pentoxifylline use for neuroprotection in neonates with hypoxic ischemic encephalopathy
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Background: Pentoxifylline has been used in neonates with diseases related to inflammation, free radical toxicity, or impaired microcirculation. It also showed neuroprotective effect in animal studies.

Aim: to study the short-term effects of pentoxifylline on clinical and oxidative stress in neonates with hypoxic-ischemic encephalopathy (HIE).

Patients and Methods: we conducted a prospective randomized control study on 20 neonates > 36 weeks gestation, diagnosed as HIE (12 sever and 8 moderate HIE). Neonates were