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P1892 - NEONATAL ARRHYTHMIAS AND INDEXES OF HEART RATE VARIABILITY IN NEWBORNS

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Aim: to compare the frequency of occurrence and variants of cardiac arrhythmia in full-term and preterm newborns.

Methods: analysis the data of anamnesis, Holter monitoring ECG (Holter ECG), Doppler echocardiography, statistical analysis.

Results: In 79 infants had irregular heart rhythm. The 1st group was included prematurely born children 55 (69.6%), the 2nd group - full-term newborns (24 - of 30.4%). Hypoxic-ischemic CNS damage moderate, and severe degrees of gravity was found in 29 (52.7 %) of the 1st group and in four children (29.2 %) the 2nd group ($t=3.13$, $p<0.05$). Central hemodynamics according to Doppler echocardiography showed the presence of hyperkinetic and hypokinetic types of hemodynamics in almost equal shares (45.8% and 41.7%, respectively) in a group of full-term infants. Significant differences between the groups was observed in patients with normokinetic type of hemodynamics ($t=5.5$, $p<0.05$). According to the results of Holter ECG among cardiac arrhythmias have been identified in both groups: atrial extrasystoles – 40.5%, ventricular extrasystoles – 13.9%, episodes of transient AV-block of 1st degree – 10.1%, long QT – 10.1%. No significant differences were between groups in the frequency of occurrence of AV-block of 2nd degree type Mobitz 1 in 4 preterm babies ($7.3\pm 2.2\%$, $t=3.13$, $p<0.05$). Processing of the obtained statistical indices of heart rate variability non-parametric methods have revealed a reliable decrease in SDNN in the group of premature born children ($p<0.05$). SDNN displays the decrease of the total effect of autonomous regulation of circulation that is associated with the strengthening the regulation of cute, depressing the activity of the autonomous circuit.

Conclusions: A rhythm disorder of the heart in preterm babies was connected to the influence of hypoxic lesions of the CNS in the regulation of cardiac activity largely and to the complexity of the flow adaptation processes.



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Results: The mean age was 4.0 ± 5.3 years. Seven patients received cilazapril, and three patients received enalapril. There were no differences between before and after receiving ACEI in pOsm (284.4 ± 7.1 vs. 283.5 ± 7.3 mOsm/kg H₂O; $p=0.81$), sNa concentration (138.1 ± 3.8 vs. 137.6 ± 2.9 mEq/L; $p=0.78$), and pAVP levels (2.0 ± 1.2 vs. 2.6 ± 2.2 pg/mL; $p=0.38$). Four patients (40.0%) had the non-osmotic release of pAVP, and one of them was diagnosed as SIADH without symptoms.

Conclusions: This study suggested that ACEI could cause the non-osmotic secretion of pAVP.

P1830 - CARDIAC TRANSPLANTATION IN SURVIVORS FOLLOWING TREATMENT FOR PEDIATRIC MALIGNANCY

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Background / Hypothesis: Outcomes from malignancy occurring during infancy and childhood are improving. However, secondary side-effects can compromise quality of life and survival, including cardiac failure from chemotherapy/radiation. The timing of when cardiac transplant is performed, how patients are supported after listing but before transplant and the transplant outcomes in cancer patients are unknown. This data could inform use of temporary/destination extracorporeal support devices and impact the practice of cardiac transplant following malignancy diagnosis.

Materials & Methods: A retrospective analysis of patients ≤ 25 years old receiving cardiac transplants in the United States following their malignancy diagnosis was undertaken. The comprehensive United Network for Organ Sharing (UNOS) database from 1988-2015 was queried and abstracted. Patients were analyzed by: age ≤ 25 or > 25 years old; pre-transplant malignancy diagnosis; type of any extracorporeal support pre-transplant; post-transplant recurrent malignancy; survival at censoring of database, among other attributes explored.

Results: From complete records 1988-2014, 59,705 total cardiac transplants were performed in the United States. Pre-transplant malignancy occurred in 2,265 patients, 2064 adult and 201 pediatric. The most common pediatric malignancy diagnoses included 55 leukemia/lymphoma and 37 sarcoma patients; 77 were "unknown". 105 pediatric patients were supported with extracorporeal devices pre-transplant including extracorporeal membrane oxygenation (ECMO) and multiple varieties of ventricular assist devices (VAD). There were 340 recurrent malignancies post-transplant occurring in 291 adult and pediatric patients; only 13 recurrences occurred in 9 pediatric patients.

Conclusions: Cardiac transplant for cardiac failure from chemotherapy/radiation can result in positive outcomes for pediatric cancer patients. However, not all potential transplant candidates may have been offered the option and thus are not included in UNOS database. Further systematic analysis of all patients' courses, perhaps linking UNOS to other registries, could optimize candidate selection and define potential role of long-term or destination VAD support in their management.

P1890 - DIAGNOSTIC CRITERIA OF HEMODYNAMICALLY SIGNIFICANT PATENT DUCTUS ARTERIOSUS IN PRETERM NEWBORNS

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Objective: To improve the accuracy of diagnosis of hemodynamically significant ductus arteriosus (HSDA) in preterm infants by determining objective clinical and Doppler echocardiographic criteria. The study involved 93 newborns of 24-35 weeks gestation (WG). Doppler echocardiography was conducted in the first days of life on a daily basis. The newborns were grouped into: Group 1



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(n=26) with weight 779.5±63.4 g of 24-29 WG, Group 2 (n=29) – weight 1297.1±112.6 g of 30-34 WG, Group 3 (n=38) with weight 1859.1±118.1 g of 32-35 WG.

Results: Doppler echocardiography showed HSDA in 13 (50.0%) (p<0.05) Group 1 children in accordance with the criteria elaborated by A.Sehgal, P.J.McNamara (2009); LV dilatation with hypertrophy of the wall and interventricular septum in 77.4% (p1\2; 1/3<0.05), RV dilatation in 82.8% (p1\2; 1/3<0.05), LA dilatation in 100% (p1\2; 1/3<0.05), 1st-2nd degree regurgitation on the tricuspid and pulmonary valves in 65.6% (p1\2; 1/3<0.05), increase in the average pressure in the pulmonary artery in 78.5% (p1\2; 1/3<0.05), disturbance of ventricular diastolic function by slow relaxation in 100% (p1\2; 1/3<0,05) of children. We identified additional Doppler echocardiography data in neonates who were rendered respiratory care with FiO2 40% or more, particularly the probability of false-negative result due to temporary functional closure of PDA. Furthermore, lack of reverse flow in the anterior cerebral artery and/or middle cerebral artery.

Conclusion: Morphological changes in cardiac chambers and clinical deterioration of newborns' state demonstrate the need to address the issue of hemodynamic significance ductus arteriosus. It is important to focus on the morphological changes in heart chambers, clinical condition of the patient and oxygen dependence.

P1955 - IMPLEMENTATION OF A CLINICAL PRACTICE GUIDELINE FOR GENERAL ANAESTHESIA OR PROCEDURAL SEDATION FOR CHILDREN WITH IDIOPATHIC PULMONARY ARTERIAL HYPERTENSION

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Background: Children with idiopathic pulmonary arterial hypertension (IPAH) are a high-risk group who require diagnostic and invasive procedures with general anaesthesia (GA) or procedural sedation (PS). Complications including death, are reported more frequently in this population, but the true risk has not been quantified.

Aim: Review clinical outcomes, considering major complications, mortality and impact of a clinical practice guideline (CPG) for IPAH patients from a single paediatric tertiary centre (RCH, Melbourne).

Methods: A retrospective review using medical records and institutional databases was undertaken on patients with IPAH who underwent GA or PS as part of the state-wide pulmonary hypertension (PH) service. Patients were stratified into 3 groups: before availability of PH specific therapies (1.1.1980 - 31.12.1999), after (1.1.2000 - 31.12.2012) and following implementation of an institutional CPG (1.1.2013 - 1.12.2016). Data collected included disease severity, details of clinical management, and major complications occurring within 30 days of GA or PS. Major complications were defined as death, unplanned intensive care, cardio-pulmonary resuscitation, ECMO, intubation and pulmonary hypertensive crisis. Standard statistical methods were applied.

Results: During the study period, 41 patients underwent 107 procedures including 17 performed in the era without specific PH therapy, 62 in the era of available PH specific therapy and 28 utilizing the new CPG. Death occurred in 12% of untreated cases and 5% of treated era patients (p=0.16). There were no deaths post CPG implementation. Major complications were significantly greater in the untreated era, representing 41% of cases, reducing to 6% and 11% respectively in the treated era and post CPG era (p=0.002).

Conclusions: Mortality and morbidity in the form of major complications has markedly reduced over time as interventions undertaken in children with advanced disease increased. Implementation of a specific CPG for this vulnerable group with IPAH has promoted institutional awareness, education and overall improved care.