P46

ECHOCARDIOGRAPHIC EVALUATION OF CARDIAC FINDINGS IN INFANTS OF MOTHERS WITH GESTATIONAL DIABETES MELLITUS

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Aim Echocardiographic evaluation of cardiac findings in infants of mothers with gestational diabetes mellitus (GDM).

Materials and Methods In this study, echocardiographic evaluation of the 70 infants born to mothers with GDM and 70 control group was conducted retrospectively in the first 24 hours of their lives.

Results Infants born to mothers with GDM and control group respectively, interventricular septum (IVS) end-diastolic thickness was found $6,1 \pm 1,0$ mm; $4,6 \pm 0,6$ mm ($P < 0,001$); end-systolic thickness was found $7,4 \pm 1,7$ mm; $6,7 \pm 1,1$ mm ($P = 0,006$); right ventricular isovolumetric contraction time (IVCT) was found $28,6 \pm 4,8$ ms; $27,1 \pm 4,4$ ms ($P = 0,048$) and ejection time (ET) was found $211,8 \pm 21,1$ ms; $219,4 \pm 17,1$ ms ($P = 0,021$), myocardial performance index (MPI) was found $0,37 \pm 0,08$; $0,31 \pm 0,05$ ($P < 0,001$); the ratio of early and late diastolic flow peak flow velocity values in tissue doppler imaging (TDI E/A) was found $77 \pm 0,13$; $0,81 \pm 0,11$ ($P = 0,032$); left ventricular isovolumetric relaxation time (IVRT) was found $41,9 \pm 4,6$ ms; $39,5 \pm 5,6$ ms ($P = 0,007$), and MPI was found $0,45 \pm 0,09$; $0,39 \pm 0,06$ ($P < 0,001$).

Conclusion The infants born to mothers with GDM in the first 24 hours of life, IVS was detected thicker, TDI E/A was detected lower, ET was detected longer in the right ventricle, right ventricular IVCT and left ventricular IVRT value were detected higher, MPI was detected higher in both ventricles.

P47

EVALUATION OF THE USE OF PULSE OXIMETRY AND COMBINED WITH CLINICAL ASSESSMENT IN THE EARLY DETECTION OF CRITICAL AND SEVERE CONGENITAL HEART DISEASE IN TERM NEONATES IN THE FIRST FOUR DAYS AFTER BIRTH

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Background Since 2002 up to date, many studies around the world have proven the use of pulse oximetry (pox) as a screening test with high specificity, moderate sensitivity and a low overall false-positive rate, for detecting critical and severe Congenital Heart Diseases (c/s-CHD). It can be used as a preventive/early detective test for c/s-CHD, mostly in countries that lack high quality of medical services for CHD and/or have a high prevalence.

Aim Prospective study of screening by pox and comparing pox + physical assessment, aiming to detect c/s-CHD in term neonates.

Population-Method From June 2016 to August 2018, 2570 term neonates were screened in two major maternity units in Baku-Azerbaijan. Pox levels using a motion-tolerant pulse oximeter were blindly reported on the end of the 1st and 3rd day of life by a team of trained nurses, using a simultaneous pre and post ductus arteriosus (pre/post DA) measurement. A second team manned by neonatologists then assessed these neonates on the same dates. Firstly, blinded to existing pox measurements and then combining them together with Physical Assessment (pox+PA). Cut-offs of pathological pox were below 90% in any measured site or persisting pre/post DA difference $> 3\%$, following 2 assessments within 30 minutes apart. At day five from birth, all of them received Echo-2D screening from two examiners both double-blinded to the results of pox, pox + physician assessment and findings of primary Echo-2D.

Findings From 2570 screened neonates by Echo-2D, 47 CHD's were detected. From them, 17 were c-CHD and 5 s-CHD. 25 were simple or moderate complex non-cyanotic CHD.

Regarding the pox team; detected 14/22 (63.63%) for c-CHD at 24h post-birth. This raised 18/22 (81.81%) at 72h post-birth. This team detected 65 cases (2.2%) of additional neonatal non- cardiac pathology.

Combined team PA only 12/22 (55.5%) and 14/ (63.63%). Pox +PA: 17/22 (77.28%) and 20/22 (90.91%) of c/s-CHD at 24 and 72h post-birth respectively. Additional to that, 75 cases (3%) neonatal non- cardiac pathology were detected.

Conclusion Pox+PA test when applied as late as 72h post birth can serve as a screening/early detecting c/s-CHD test with a high positive predicted value. Additional can help countries with limited resources in CHD surgery to improve their services and limit morbidity and mortality from CHD or other neonatal early presenting pathology.

P48

STRUCTURAL-FUNCTIONAL CHANGES OF THE HEART IN DIFFERENT STAGES OF CHRONIC KIDNEY DISEASE IN CHILDREN

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Chronic kidney disease (CKD) is a significant factor in the development of cardiovascular events.

Objective To study the structural-functional parameters of the heart in children at different stages of CKD according to echocardiography (EchoCG).

Material and Methods 104 patients with CKD were examined. The CKD stage was determined based on the estimated glomerular filtration rate. The first group consisted of 63 patients with CKD stage I, the second group included 26 patients with CKD stage III, and the third group of 15 patients with CKD stage V. Control group included 33 healthy children. All children performed echocardiography.

Results According to the results of the One-Way ANOVA test, the echocardiographic parameters differed significantly in the studied patients depending on the presence and stage of CKD ($p < 0,05$ for all parameters). In general, with the progression

of CKD stages, there was a statistically significant increase in the thickness of the heart walls and the size of the heart cavities.

We compared echocardiographic parameters of the heart in patients with different stages of CKD and the control group using the Scheffe's test. The patients with stage I CKD differed from the control group by slightly increased EchoCG indices, but the differences were not statistically significant ($p>0,05$ for all parameters).

Of particular interest were the EchoCG parameters determined among patients with CKD stage III. They showed a significant increase in the thickness of left ventricular posterior wall ($p=0,001$) and the left ventricle end-diastolic diameter ($p=0,037$). Changes in the interventricular septum thickness, the size of the left atrium and the left ventricular systolic dimension were not statistically significant ($p>0,05$).

Patients with CKD stage V differed in a statistically significant increase in the size of the left atrium, the thickness of left ventricular posterior wall and interventricular septum ($p<0,001$) and a statistically significant increase left ventricular systolic and diastolic dimensions ($p<0,05$).

The analysis showed that the left ventricular mass, left ventricular mass index significantly increased with the progression of CKD stages ($p<0,001$). The left ventricular mass in patients with CKD stage V was significantly increased in 2,3 times in comparison with the control group.

Conclusions Structural-functional changes of the heart in children with CKD manifest left ventricular myocardial hypertrophy in the early stages and the addition of an increase in the left ventricular cavity in patients with CKD stage V.

P49

A CASE OF A STRANGE DYSPNEA

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Infantile hemangioma is the most common benign tumor of infancy, affecting 1–2% of infants. Hemangiomas of the airway constitute an even smaller percentage, but their management can be challenging due to the potential for life threatening airway compromise. A Subglottic hemangioma (SGH) makes up 1.5% of all congenital laryngeal anomalies, it is twice more common in females than males and have been linked to low birth weight and prematurity. It is during the early proliferative phase (1–3 months of life) that patients became symptomatic, developing characteristic stridor which may progress to respiratory distress. In this early stage, a SGH is often mistaken for a more common condition such as croup. The aim of this case is to underline what a recurrent dyspnea or laryngeal stridor in the first 6 months might hide.

Case report A 4 months-old-girl who was born at term of natural childbirth (birth weight 2.500 kg-SGA), presented with several weeks of unremitting stridor, substernal retractions. She was diagnosed to have bronchiolitis and she had been hospitalized twice in an another hospital and treated with oral steroids and nebulized racemic epinephrine without significant

improvement in her symptoms; Than she had been sent to our hospital. She had intercostal and subcostal retractions. Both lungs had equal contribution to respiration, respiratory sounds were coarse and she had both inspiratory and expiratory stridors which were more obvious on bilateral sibilant rales, and inspiratory phase. She also had wheezing. Laboratory tests, echocardiogram and electrocardiogram were normal. Her follow-up showed that she was not responding to treatment and her respiratory distress was increasing, thus she had a laryngofibroscopy that did not reveal any clear structural abnormalities, and performed a CT scan of the neck, that revealed a laryngeal mass, confirmed by an MRI of the neck, which showed a solid tissues of low intensity on T1-weighted spin-echo images and of hyperintensity on T2-weighted spin-echo images (6x8 mm), compatible with SGH. After her workup was complete, she received an initial dose of propranolol at 0.5 mg/kg, which was increased to 2 mg/kg, and no adverse effects were noted. SGH is a rare but potentially life-threatening disease. A high index of suspicion is vital for the early, accurate diagnosis of this disease. Propranolol treatment has many advantages, it is non-invasive and it has a low complication rate; thus, the use of propranolol as a first-line treatment for SGH is proposed.

P50

OUTCOMES OF ATRIOVENTRICULAR VALVE REGURGITATION IN PATIENTS WHO HAD ATRIOVENTRICULAR SEPTAL DEFECT REPAIR SURGERY

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Aim Left atrioventricular (AV) valve regurgitation is the most serious residual lesion after surgical correction of atrioventricular septal defect (AVSD). Despite improvements in surgical techniques, left AV valve regurgitation continues to be the most serious problem after surgery. In this study, it was aimed to investigate the risk factors of the left AV valve regurgitation by evaluating clinical and echocardiographic findings of patients with AVSD, retrospectively.

Material and methods In this study, 78 patients were enrolled. Preoperative echocardiographic findings, operation data, postoperative echocardiography findings were recorded.

Results Fifteen patients (19%) were partial, 26 patients (33%) were intermediate and 37 patients (47%) were complete type. Forty-seven patients (60.3%) were female and 25 patients (32%) had Down's syndrome. The median age at diagnosis was 6 months ranged from one day to 12 years. The median age at operation was 10 months (3–180 months) and the median weight at operation was 6.8 kg (4–49 kg). The total follow-up was a median of 103 months (28 days–268 months). In patients with partial AVSD, there was no significant difference in left AV valve regurgitation in the first, postoperative and last echocardiography ($p>0.05$). In patients with intermediate and complete AVSD, left AV valve regurgitation was higher in the final echocardiography than in the first echocardiography ($p=0.007$ and $p=0.01$, respectively). According to the univariate analysis; age, gender, the presence of Down syndrome, operation type, annuloplasty, and pulmonary hypertension were not associated with moderate or severe left AV regurgitation after surgical repair ($p>0.05$). Left AV valve