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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.

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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 mandated 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.

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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