

Results A total of 58 babies were identified with 64 episodes of medical treatment for PDA with Indomethacin or Ibuprofen. Mean gestational age was 25.5 weeks and birth weight of 737.1 grams. Mean age at treatment was 26.7 weeks with pre-treatment PDA size of 1.5–6 mm and platelet count of $34\text{--}602 \times 10^9/\text{L}$.

Overall 73% (47/64) were treated with high dose and 11% (7/64) with low dose Indomethacin. 30% (19/64) PDA closed post treatment, 62% (40/64) remained open.

Out of 19 successful closures 7 had initial platelet counts of >150 (Odds Ratio 0.31, 95% Confidence Interval) and out of 40 unsuccessful closures 26 had initial platelet counts of >150 (Odds Ratio 3.18, 95% Confidence Interval).

Conclusions Success of PDA closure after medical treatment was not related to the platelet counts in our study group.

1133 ANTENATAL VS POSTNATAL DETECTION OF MAJOR CONGENITAL HEART DISEASE IN A LARGE DISTRICT GENERAL HOSPITAL IN UK; A SIX-YEAR REVIEW

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Background and Aims Major congenital heart disease (CHD) is defined as CHD that needs operative or catheter based intervention in the first year of life. National institute of clinical excellence (NICE) in March 2008 recommended screening of outflow-tracts in addition to four-chamber view as part of the anomaly scan to improve CHD detection rates. We aimed to examine the clinical spectrum of antenatally and postnatally diagnosed major CHD in our institute pre- and post-introduction of NICE guideline.

Methods This is a retrospective review over six years from Jan 2006 to Dec 2011. Data was obtained from antenatal records, patient's clinical and electronic records.

Results A total of 74 babies had major CHD diagnosed out of which 37 (50%) were diagnosed antenatally. Antenatal diagnosis pre- and post- NICE guidelines were 12/29 (41%) and 25/45 (55%) respectively as also termination of pregnancies with critical CHD doubled. Common postnatal presentations included cardiovascular collapse 4 (11%), cyanosis 8 (22%), murmurs 12 (32%), heart failure 5 (13.5%), faltering growth 5 (13.5%). 4 babies were critically ill with severe acidosis and 3 needed intubation and ventilation prior to transfer to a tertiary unit. Median age at intervention for duct dependent lesions was 10 days and other major CHD was 5 months.

Conclusions Although antenatal screening methods have improved, a large proportion of babies with CHD are still undetected. Routine Pulse-oximetry screening has proved to be an effective screening adjunct in four large studies and hence should be considered as part of early neonatal examination.

1134 PROTEASE-ACTIVATED RECEPTOR (PAR)-MEDIATED CONTRACTION OF THE CHICKEN DUCTUS ARTERIOSUS

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Background and Aims PARs belong to a family of G protein-coupled receptors, thus mediating the cellular effects of proteinases. PAR1 and PAR2 have been shown to be involved in regulating vascular tone. Thrombin activates PAR1, whereas trypsin activates PAR1 and PAR2. Our aim was to evaluate the functional presence of PAR1 and PAR2 in the ductus arteriosus (DA).

Methods We investigated, using wire myography, the mechanical responses induced by thrombin (0.1 to 3 U/mL), trypsin (0.1 to 30 U/mL), the PAR1-activating peptide TFLLR-NH₂ (1 to 100 μmol/L)

and the PAR2-activating peptide SLIGRL-NH₂ (0.1 to 10 μmol/L) in DA rings from 15-, 19-, and 21-d chicken embryos.

Results Thrombin, trypsin, and TFLLR-NH₂ all caused concentration-dependent contraction of the pulmonary side of chicken DA. These contractions were not observed in the aortic side of the DA, in the femoral artery or in the pulmonary artery. Thrombin-, trypsin- and TFLLR-NH₂-induced contractions were endothelium-independent but markedly impaired by the elimination of calcium from the external medium. The contraction evoked by thrombin and trypsin increased between day 15 and 19 of incubation and was not affected by oxygen tension. SLIGRL-NH₂ ($\geq 10 \mu\text{mol/L}$), evoked endothelium-dependent relaxation of the DA.

Conclusions PARs are functionally present in the chicken DA but not in other vascular tissues. Recent studies demonstrate that loss of platelet number or function leads to defective DA closure. We speculate that the role of platelets in DA closure might be partially mediated through the PAR-mediated vasoactive effects of thrombin.

1135 CORONARY ARTERY ANATOMY PRIOR TETRALOGY OF FALLOT SURGERY

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Introduction Anomalous coronary artery disease is common among patients with Tetralogy of Fallot (TOF). The need to define the morfohaemodynamics of TOF is the priority in echo laboratory prior TOF surgery.

Aim To evaluated coronary artery anatomy pre and intraoperatively by imaging technique-echocardiography and to establish frequency of congenital coronary arteries anomalies in patients with tetralogy of Fallot, as a plan of surgical approach in these patients.

Methods Consecutive retrospective analysis of echocardiography data patients with tetralogy of Fallot and surgical protocols of total corrections of Tetralogy of Fallot was performed.

Results During period from 01.01.2010 till 01.01.2011. at Paediatric clinic CCU Sarajevo Out pts Cardiology department 3577 pts were evaluated, 70/1.9%/pts with CHD and 13/70 with TOF (18%), age 25 months (9–60), 7 girls (53.8%). First Group had simple TOF/n=10/and Second Group had Pentalogia Fallot (n=3 pts). Anatomical correction was performed in all pts in Sarajevo by foreign an local team. Preoperatively 2/15.4%/pts with TOF had anomalous origin of anterior interventricular branch of RCA crossing RVOT which was as well confirmed intraoperatively. The surgical approach was based upon the preoperatively echo findings, so these 2 pts had RVOT-PA graft construction. All pts from the Second Group had normal anatomy of coronary arteries pre- and intraoperatively.

Conclusion Non invasive transthoracic echocardiography (TTE) is very usefull tool in delination of coronary artery anatomy as a part of surgical approach plan in patients with TOF which defenitly could decrease the risk of surgery.

1136 MORPHOHEMODYNAMIC MONITORING OF PULMONARY ARTERY IN PREMATURE INFANTS

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Introduction Two-dimensional echocardiography is increasingly used in Neonatal intensive care departments in order to test structure and function of the heart because a definite diagnosis in this period is very difficult if solely based on physical examination.

Abstracts

Aim To determine influence of oxygen support on diameter and flow rate through the pulmonary artery in preterm infants by echocardiography.

Methods The study was conducted in tertiary health institution (Pediatric Clinic, KCU Sarajevo), the Neonatal intensive care unit between November 2011th and February 2012th. Examinees were divided into three groups, depending on the type of oxygen support: infants on conventional mechanical ventilation, CPAP by continuous positive pressure and indirect oxygen. It was performed echocardiography measuring of pulmonary artery dimensions and the maximum flow rate. Standard echocardiography methods were used: One-dimensional M mode and Two-dimensional Doppler.

Results 30 patients age < 35 weeks were divided into three groups.

Mean body weight was 1066 ± 150.5 g; 1280 ± 115.95 g and 2720 ± 420.92 g.

Mean gestational age is: 28.7 ± 1.78 ; 30.3 ± 0.95 and 33.90 ± 0.99 .

The mean diameter of the main branch of the pulmonary artery is: 5.64 ± 0.6 ; 6.16 ± 0.37 and $8.5 \text{ mm} \pm 1.06$.

The mean maximum flow rate through the main branch of the pulmonary artery (m/s): 1.48 ± 0.74 ; 1.58 ± 0.24 and 1.72 ± 0.18 .

Conclusion By comparison of dimension values and flow rate through the pulmonary artery we have proved that type of oxygen support has no influence on the diameter and flow speed through the pulmonary artery in preterm infants < 35 weeks of gestation.

1137 ISOLATED AORTIC COARCTATION SEEN IN THE CHILDREN IN REPUBLIC OF KOSOVA A 12YEARS SINGLE CENTRE EXPERIENCE

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Introduction Aortic coarctation (CoA) accounts for 6 to 8% of live births with congenital heart disease and it represents a spectrum of lesions, generally encompassing variable degrees of tubular hypoplasia along with additionally stenotic areas within the aortic arch.

Objective Aim of this presentation is to describe pathoanatomical presentation, echocardiographic diagnosis, treatment and outcome of children with isolated CoA.

Methods Retrospectively we analyzed medical records and echocardiograms of 62 children with CoA during the past 11 years.

Results Patients (n = 61, 38 male or 62%) diagnosed with a median age of 14 months, aged from 4 days to 14 years. Clinical presentation depends from age of diagnosis, where children diagnosed less than 3 months of age (18 of them or 29%) manifested signs of heart failure; children diagnosed under from 3 to 12 month (32 or 51.6%) manifested signs of cardiac failure, often respiratory infection. Diagnosis were decided by echocardiography, where peak velocity was estimated by continuous Doppler. All children age under one year, disregard of type of coarctation, therapy was surgical, end-to-end anastomosis. In 4 children age 10 to 13 years, percutaneous balloon angioplasty were performed, in different centers, and in all of them short time after intervention, re-coarctation was noted. Re-coarctation was noted in 6 children.

Conclusion Isolated CoA is a CHD with excellent prognosis, especially in children under one year of age. Percutaneous balloon angioplasty is performed in adult patients but short term results are delicate and stent implantation were performed.

1138 TRANSITION FROM FOETAL TO NEONATAL LIFE: CHANGES IN CARDIAC FUNCTION ASSESSED BY SPECKLE-TRACKING TECHNIQUE

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Objective Assessment of cardiac function by speckle tracking (2D-S) echocardiography in the transitional period from foetal to neonatal life in a healthy population.

Methods Ultrasound assessment of cardiac function of 30 healthy foetuses at the gestational age of 28 and follow-up after birth using 2-D strain derived novel parameters such as strain (S), strain rate (SR), tissue velocities, MPI- and E/E'-index, E/A- and E'/A'-rate of both right (RV) and left ventricles (LV) and interventricular septum (IVS) and comparison to conventionally measured cardiac stroke volume (SV), cardiac output (CO) and ejection fraction (EF).

Results Ultrasound performance and analysis is technically feasible in all 30 foetuses and in the neonatal period. In foetuses, tissue velocities and SR measurements are homogenous for all regions of interest in both ventricles, and strain increases from apex to basis and is higher in the RV compared to LV. All calculated indices are almost identical for RV and LV.

After birth, strain and strain rate exhibit significantly lower values ($p<0.001$) and systolic tissue velocities are significantly ($p=0.001$) higher in comparison to fetal values in both chambers and in all regions of interest. The conventional methods for measuring EF, SV and CO show higher variability and lower reproducibility.

Conclusion The haemodynamic changes in cardiac function from foetal to neonatal life can be assessed by the novel method of speckle-tracking echocardiography which seems to be more reliable than conventional ultrasound techniques. Therefore, we recommend using speckle-tracking technique in routine follow-up of myocardial function in foetuses and neonates.

1139 RIGHT HEART DIMENSIONS AND FUNCTION AT 6 YEARS-OF-AGE USING 2D- AND 3D-ECHOCARDIOGRAPHY

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Background and Aim Survival after premature birth and neonatal lung disease is nowadays almost universal. To determine the long-term health outcomes for these infants, cardio-respiratory follow-up is needed. Whereas normative reference data for lung function in children exists, reference data of cardiac structure and function are at large lacking. The aim of this study was to determine right heart dimensions, volumes and function in healthy preschool children using echocardiography. We also wanted to compare right heart dimensions from 2D-images with volumes obtained from 3D-full volume single-beat echocardiographic measurements.

Methods Forty-one healthy children (23 boys) aged 6 years, mean weight= 24.1 ± 4.3 kg and mean height= 121.9 ± 4.3 cm, were assessed with echocardiography (Acuson SC2000, Siemens). Using 2D-echocardiography, we measured right ventricular (RVmajor/minor) and right atrial diameters (RA major/minor). Using pulsed waved Doppler tissue imaging we calculated the E/e'-ratio and the Tei-index. With 3D-echocardiography we also calculated volumes for the right ventricle (RVEDV, RVESV) and atrium (RAEDV, RAESV), as well as ejection fraction (EF) for RV.

Results The RVmaj was 53.0 ± 3.7 mm, RVmin 29.9 ± 3.1 mm, RVEDV 42.8 ± 7.5 ml, RVESV 18.9 ± 3.4 ml, RAmaj 35.3 ± 3.6 mm, RAmaj 32.0 ± 3.1 mm, RAEDV 6.5 ± 2.4 ml, RAESV 15.8 ± 4.3 ml, E/e'ratio 3.3 ± 0.7 , RV Tei-index 0.36 ± 0.09 and RVEF 56 (range 51–61) %. The length of right ventricle (RVmaj) measured with 2D correlated significantly with 3D estimated volumes (RVEDV, $r=0.45$, $p<0.01$). Right heart volumes correlated positively with BMI; RVEDV($r=0.61$, $p<0.001$), RVESV($r=0.62$, $p<0.001$), RAEDV($r=0.72$, $p<0.001$) and RAESV($r=0.48$, $p<0.01$).