

In the intensive care, Mg<sup>++</sup> levels in group I, 0.74 ( $\pm 0.25$ ) mmol/L was greater than group II 0.40 ( $\pm 0.06$ ) mmol/L. Only 1 child out of 25 (4%) in Group I, had junctional tachycardia, while 5 out of 25 children in group II (20%) had junctional (4/25-16%) and 1 child had supraventricular tachycardia (4%).

**Conclusions:** Serum Mg<sup>++</sup> levels are low preoperatively in neonates/infants undergoing the arterial switch operation, Mg<sup>++</sup> supplementation helps in reducing postoperative arrhythmias in these children.

611

**PATTERN OF LIFE THREATENING CONGENITAL HEART DISEASES - EXPERIENCE FROM 2 DISTRICT GENERAL HOSPITALS IN UK**

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**Aim:** To look at pattern, clinical presentation and initial management of life threatening congenital heart defects.

**Methods:** Retrospective audit focused on diagnosis and initial management of babies who presented with life threatening congenital heart diseases to 2 district general hospitals in UK from March 2007 to July 2009.

**Results:** 30 babies with life threatening congenital heart defects were identified. 30% were suspected antenatally. 80% presented within few hours after birth with cyanosis. 40% had murmurs. Diagnosis was confirmed in 29 by urgent echocardiogram performed by a paediatrician with expertise in cardiology and in 1 antenatally suspected case at cardiac centre. Most frequent defects were: Transposition of great arteries (including complex) 11, Hypoplastic left heart syndrome 3; Truncus Arteriosus 3; Pulmonary Atresia 2; Total Anomalous Pulmonary Venous Connection 2, Tetralogy of Fallot 2; and Congenitally Corrected TGA with other defects 2; Other defects (n=1) were Double outlet right ventricle with Ventricular Septal Defect (VSD), Coarctation of aorta, Critical pulmonary stenosis, Complete AVSD and Large VSD. 19 of 20 babies with duct dependent lesions were managed immediately with prostaglandin infusion and all 6 cases with cardiac failure treated with diuretics. 2 sick babies underwent life saving balloon septostomy in these

hospitals performed by outreach cardiac team. 30 day mortality was 16%.

**Conclusion:** These were complex, critical and most commonly cyanotic heart diseases, majority undetected antenatally. Commencing prostaglandin is crucial in suspected duct dependent lesions. Routine post-natal pulse-oximetry and facility to have echocardiography in district general hospitals help in appropriate management.

612

**MYOCARDIAL PERFORMANCE INDEX (TEI INDEX) IN TERM NEONATES-PRELIMINARY STUDY**

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**Background:** To define age-related changes in left and right ventricular function using myocardial performance index (Tei Index) in healthy term newborn infants.

**Materials and methods:** 9 newborn infants were selected from normal full-term healthy neonates with gestational age 38-42 weeks, mean birth weight 3572 g (min. 2870, max. 4160 g). The Tei Index is a Doppler myocardial performance tool which can be used to evaluate of systolic and diastolic function. The first measurement was taken as soon as possible after birth, the second one was taken on day 3 of life.

**Results:** The higher Tei index were obtained in the right ventricle (mean value - 0,44; SD +/-0,11) then the left ventricle (mean value - 0,31; SD +/-0,07) in the first day of life. In the left ventricle the Tei index were converted during the first three days of life (from mean value 0,31 to 0,37), and we observed the conversion in the right ventricle too between the first and the third day of life (mean value 0,44- day 1 to 0,26 -day 3).

**Conclusion:** In neonates, the diastolic and systolic fuction of the right ventricle were higher then those measured in the left ventricle during the first day of life and this ratio changing in the third day of life. Higher mean value Tei index in the right ventricle might be reflecting the "persistent" fetal status of this ventricle in the first day of life. Further investigations

are needed in a greater population of neonates. (granted MZiNSW nr NN407414336)

613

**THE STUDY OF CIRCULATING ENDOTHELIAL PROGENITOR CELLS AND RELATED INFLAMMATORY FACTORS IN CHILDREN WITH CORONARY ANEURYSMS LATE AFTER KAWASAKI DISEASE**

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**Objectives:** Concerns have been raised regarding the existence of endothelial damage and the possibility of a predisposition to premature atherosclerosis in young adulthood with a history of Kawasaki disease (KD). This study was designed to evaluate the Circulating endothelial progenitor cells (EPC) and the serum lipoprotein levels and high sensitivity C-reactive protein in children with coronary aneurysms.

**Methods:** Thirty-one children with coronary aneurysms due to KD and 21 healthy controls were enrolled. Circulating EPC were determined by flow cytometry, and defined as CD34/ KDR/CD133<sup>+</sup> cells. Serum hs-CRP levels were determined by euzymelinked immunosorbent assay.

**Results:** The KD group included 9 children with medium aneurysms and 22 children with gaint aneurysms. The duration from the onset of the disease was 1-12.5 years (median 2.53 years). One children had angina pectris, another had heart failure and abnormal Q waves. The hs-CRP levels in KD group was significantly higher than in normal controls (2.77±1.06 mg/L VS 1.60±1.53mg/L, P< 0.01). The number of circulating EPCs between the two groups had no statistical significance (P>0.05). The serum levels of TG, TC, HDL-C, LDL-C apo-A1 and apo-B between the two groups had no statistical significance (P>0.05).

**Conclusions:** The serum level of hs-CRP were significantly increased in KD group, while circulating EPC and serum lipoprotein levels have no significant differences between the two groups. This suggest that children with persistant coronary aneurysms due to Kawasaki disease may have the disposition to premature atherosclerosis in young adulthood.

614

**OUTCOMES OF PREMATURE NEONATES REFERRED FOR PDA LIGATION TO A NATIONAL TERTIARY CENTRE**

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**Background:** It is well recognised that presence of a haemodynamically significant PDA increases the risks of bronchopulmonary dysplasia(BPD), intraventricular haemorrhage(IVH) and necrotising enterocolitis(NEC) to the premature neonate. It has previously been recommended that significant PDAs be ligated within three weeks of age [Vida et al, 2009].

**Methods:** All patients referred for PDA ligation in 2008/2009 were identified from a computerised database system. Primary outcome of mortality was examined as well as secondary outcomes of NEC, IVH, BPD and PVL.

**Results:** 41 referrals were identified over the two year period, of which 31 babies had PDA ligation surgery. 3 patients died pre-operatively (2- NEC;1- sepsis) and 7 did not require ligation after assessment. Surgery was carried out at an average of day of life 38, with only 2 babies having their procedure completed at less than three weeks of age. No patients had surgery on an elective list, with 61.3% of surgeries performed at weekends. Logistic regression analysis did not show any relationship between day of life of surgery and secondary outcomes [p-values: NEC = 0.095; BPD = 0.157; PVL = 0.222; IVH = 0.74]. Overall incidences were as follows : NEC = 30%; BPD = 74%; PVL = 12%; IVH = 34%.

**Conclusions:** Premature neonates requiring PDA ligation surgery in Ireland are being marginalised to emergency lists and weekend surgery times. There is no evidence to show that this increases their morbidity or mortality, but a further adequately powered audit is recommended.