G250(P) SUPRAVENTRICULAR TACHYCARDIA DUE TO BLUNT CHEST TRAUMA

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Aims Blunt cardiac injury is more prevalent in children and this may cause commotio cordis or ventricular arrhythmias. Commotio cordis is the devastating consequence of otherwise innocent-appearing chest-wall blows, with sudden cardiac death often resulting from projectiles striking the precordium. The spectrum of injuries to the heart includes damage to the great vessels, myocardial rupture or contusion, and valvular disruption. Pericardial effusions, conduction abnormalities and ventricular arrhythmias may also occur.

Methods/results We report a case of atrial arrhythmia in a 7 year old boy following blunt trauma to the chest. This previously healthy boy reported being unwell after he was hit by a football whilst playing. The impact was directly to the left anterior chest wall. A12-lead electrocardiogram (ECG) done in primary care showed supraventricular tachycardia (SVT) at a rate of 225 bpm. On arrival to the hospital his heart rate had reverted to normal limits. Twenty-four-hour Holter monitoring was normal, recording brief periods of sinus arrhythmia, infrequent sinus tachycardia of gradual onset and no episodes of SVT or ectopic activity. A transthoracic echocardiogram excluded structural abnormalities of the heart. He was started on Sotalol and is currently doing well with no sequelae from the injury. Final diagnosis of Wolf-Parkinson White syndrome was made following detailed investigations.

Conclusions We hypothesise that the blow elucidated a previously unknown congenital accessory conduction pathway. We would like to raise the awareness of such possibilities amongst children and importance of detailed investigations to detect underlying predisposing pathologies.

G251(P) CARDIAC MURMURS IN NEONATES: REVIEW OF CURRENT LOCAL PRACTICE AND CLINICAL OUTCOMES

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Aim To review the result of modifications to regional network guidelines in the management of neonatal heart murmurs.

Background The local trust guidelines for the management of neonatal heart murmurs were formulated by the modification of the South West Midlands Maternity and Newborn Network (SWMMNN) guidelines. The modifications included the following – Babies with murmurs are reviewed again as inpatients at ≥ 24 hours of age to identify any change, electrocardiography is not done as first line investigation, outpatient review is done within 2 to 3 weeks as opposed to 2 to 6 weeks and referred to neonatal cardiology outpatient clinic if the murmur is persistent.

Methods This was a retrospective review of 3131 babies born between December 2016 and May 2017. Data was obtained from the case notes and electronic records. Babies with antenatally detected congenital heart disease and babies admitted to the neonatal unit for other reasons were excluded.

Results 93 babies (3%) had murmurs detected at birth. Murmurs resolved in 60 babies (64.5%) within 24 hours. Murmurs persisted for more than 24 hours in 33 babies and all these

babies were reviewed in neonatal outpatient clinic in 2–3 weeks. The mean waiting time for echocardiography was 15 weeks. 25 babies were discharged (75%) from the clinic after resolution of the murmur. Out of the remaining 8 babies, one baby's murmur disappeared, one had an innocent murmur, two had congenital heart disease diagnosed (severe pulmonary stenosis with right ventricular hypertrophy and dilatation, moderate pulmonary stenosis) and were transferred to a tertiary centre. Four are awaiting outpatient appointments. Providing written information to general practitioners and parents was found to be inadequate.

Conclusion Review at ≥ 24 hours of age significantly reduces the need for investigations, outpatient appointments and also decreases parental anxiety. Communication to GPs and parents should be improved with emphasis on when and whom to seek help. A generic letter to GPs and a parent information leaflet were formulated to improve this. There is a need for reduction in the mean waiting time for outpatient echocardiography. This could be achieved by training more paediatricians to develop an expertise in cardiology.

G252(P) HOW RELEVANT IS AN INCIDENTAL FINDING OF ABNORMAL CARDIAC SILHOUETTE ON CHEST X-RAY?

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Aim Abnormal cardiac size and shape on chest X-Ray (CXR) causes anxiety to paediatricians as it could be due to an underlying heart disease. We reviewed the echocardiogram findings of all children who were referred because of an incidental finding of an abnormal cardiac silhouette on CXR. None of these children had any abnormal signs or symptoms of a cardiac condition at the time of referral.

Methods Retrospective analysis of the patients whose data was prospectively collected over a 3 year period (Nov 2014–Oct 2017).

Abstract G252(P) Table 1

No	Age	Indication for CXR	Abnormality on CXR	Echocardiogram result
1.	7 m	Swallowed foreign body	Cardiomegaly	Normal
2.	1 day	Sepsis	Prominent aortic arch	Normal
3.	14 y	Cough	?Scimitar syndrome	Normal
4.	4 m	Fever and grunting	?Dextrocardia	Normal
5.	9 y	Asthma	Prominent pulmonary trunk	Normal
6.	4 m	Chest infection	Cardiomegaly	Normal
7.	8 m	Chest infection	Cardiomegaly	Normal
8.	14 m	cough	Cardiomegaly	Small pericardial effusion

Results Eight patients were referred for echocardiogram and their details are given below (table 1).

CXR was reported by paediatric radiologists for six children, adult radiologist for one child and consultant paediatrician for one child. CXR was done (P)osterio Anterior (PA) erect in three children, Antero (P)erior (AP) erect in one child and AP supine

in 4 children. Only one echocardiogram was abnormal in a child in whom cardiomegaly was due to a small pericardial effusion that resolved spontaneously in a few weeks time. It is likely that this effusion was secondary to an underlying viral illness.

Conclusion Incidental finding of an abnormal cardiac silhouette on a CXR in children with no underlying cardiac symptoms or signs is not associated with an underlying structural or functional heart disease.

G253(P) THE RISK OF DEVELOPING NECROTISING ENTEROCOLITIS IN INFANTS WITH CONGENITAL HEART DISEASE UNDERGOING INVASIVE CARDIAC PROCEDURES

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Aim Prematurity is the most significant risk factor for developing necrotising enterocolitis (NEC). However, congenital heart disease (CHD) is also a well-recognised risk factor. Our aim was to identify the incidence of NEC in term children undergoing invasive cardiac procedures.

Methods This was 5 year (January 2010 to December 2015) retrospective review of all infants admitted with CHD. Data was collected on demographics, NEC (incidence, clinical management and mortality) and invasive cardiac procedure (ICaP) defined as either open-heart surgery or cardiac catheterisation. Incidence of NEC was compared in the two groups (ICaP and non-ICaP). Institutional ethical approval was given. p value <0.05 was significant.

Result 5103 infants with CHD were identified. 31.5% ($n=1608$) patients had an ICaP. Overall 128/5103 (2.5%) of patients developed NEC: 102/1608 in ICaP group; 26/3495 in non ICaP group, $p<0.001$. Median gestational age was 37 weeks (range 29 to 42). Median age at presentation was 6 weeks (range 0.4 to 104). The most common cardiac diagnoses were, hypoplastic left heart 45 (33.5%), ventricular septal defect (VSD) 16 (12%), isolated PDA 10 (7.4%). 60 had multiple cardiac procedures and 42 had a single cardiac procedure, $p>0.5$.

52% ($n=66$) of patients had pneumatosis and 7% ($n=9$) had pneumoperitoneum. 79% ($n=101$) of patients were managed conservatively. 21% (27/128) required surgery: 18/27 (67%) in ICaP and 9/27 in non-ICaP group, $p>0.5$. Multiple cardiac procedures significantly increased the risk of needing a laparotomy, $p=0.01$. Intraoperatively, 44% ($n=12$) had a bowel perforation and rest had significant NEC. 41% ($n=11$) had primary resection and anastomosis; 16/27 had a stoma. Overall mortality was 7%: 5 patients died pre-operatively and 4 patients died post-operatively, however an ICaP was not a significant factor for mortality in NEC ($p>0.5$).

Conclusion Invasive cardiac procedure is a significant factor in developing NEC in term infants. A single ICaP did not increase the risk for either needing laparotomy or mortality, but multiple cardiac procedures did further increased the risk for laparotomy in children with NEC. This information could be used for counselling and risk stratifying cardiac patients.

G254(P) CHANGING PATTERN OF NEONATAL PDA LIGATION ACROSS A NETWORK

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Introduction The management of the neonatal patent ductus arteriosus (PDA) remains controversial and subject to much debate. There is uncertainty about the type and timing of medical therapies. There are concerns about the long-term outcome after surgical ligation. Previous studies from our network suggested improved survival.¹ Subsequent work highlighted different referrals practices by the tertiary neonatal intensive care units (NICUs). The aim of this service evaluation was to review changing practice across this network over the last 18 years following a more standardised network approach of referral since 2013.

Methods Patients were identified from the Acute Neonatal Transport Service (ANTS) database. All infants requiring PDA ligation were transported by them to cardiac centres for surgical ligation between January 2004 and July 2017.

Results Over this period 252 neonates have been referred for PDA ligation. The numbers referred annually were a median of 15 (range 5–36), with a peak of 36 referrals in 2011. Most referrals (77%) were from the three tertiary NICUs. Prior to 2011 there was a clear difference in referral rates.

Conclusions A more standardised approach, where usually only infants who had failed extubation were referred for PDA ligation has resulted in a substantial reduction in the number of infants undergoing surgical closure. This reduction is not the result of a changing neonatal population nor a change in specific medical therapies to treat the PDA in any of the units. It almost certainly reflects more tolerance of a PDA alongside careful ventilation, fluid, and nutrition management.

REFERENCE

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G255(P) AORTIC AND PULMONARY ARTERY CALCIFICATION IN TWIN-TO-TWIN TRANSFUSION SYNDROME

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Introduction Twin-to-twin transfusion syndrome (TTTS) is a rare disorder occurring as a result of communicating vascular anastomosis between the circulations of one twin with that of the other. Cardiac findings in this condition may include ventricular hypertrophy, pulmonary stenosis, tricuspid regurgitation, congestive cardiac failure, left ventricle hypoplasia with hypokinesia, and sub-aortic obstruction seen in the recipient twin. Isolated great artery calcification; aortic and pulmonary artery calcification is one such uncommon condition associated with TTTS. It may cause severe systemic hypertension and