

was applied for conditional length and body mass index. Associations of these measures with systolic and diastolic blood pressure at the age of 5–6 years were modeled before and after adjustment for current body mass index and height.

Results Higher weight-, length-, and bmi conditionals (expressing faster growth) were associated with higher blood pressure, with the exception of conditional growth between birth and 1 month. Adjusted for current height and body mass index, almost none of the conditionals were associated with blood pressure. However, lower birth weight and lower weight and height conditionals 0 to 1 month were associated with higher systolic blood pressure at age 5–6 years.

Conclusions We infer that the inverse association between prenatal and first month growth with childhood blood pressure may reflect a programming effect, while the positive association between infant growth after 1 month with childhood blood pressure probably reflects an effect of the tracking of body size.

504 AETIOLOGY AND ELECTROCARDIOGRAM FINDINGS IN CHILDREN PRESENTING TO THE EMERGENCY DEPARTMENT WITH CHEST PAIN

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Introduction Chest pain is a frequent cause of attendance to the emergency department. Electrocardiogram (ECG) is often used as a first line investigation. This study aims to investigate the aetiology of chest pain and usefulness of ECG in a group of 200 children ranging between 3–16 years who presented between June - December 2009.

Methods ED casenotes were reviewed retrospectively to study the demographic features, clinical characteristics, ECG utilization and final diagnoses of these children. Children were placed in two groups. The first group were those who had suggestive history (crushing/exertional pain/palpitations), positive examination findings, or previous cardiac/family history. The second group of patients consisted of those without these features.

Results Musculoskeletal chest pain (46%) is the most common diagnosis in children followed by respiratory (15%), gastrointestinal (14%), idiopathic (13%), and psychological (7.5%) causes. Cardiac cause chest pain (4.5%) was the least common.

Only 20 patients (10%) presented with positive cardiac features according to the criteria used. 81 (40.5%) patients in total had an ECG performed. Of the 20 patients with cardiac features, 15 (75%) had an ECG compared to 66 (37%) patients in the other group. ($p < 0.0014$) Four abnormal ECGs were obtained. These were all from the group with positive cardiac features. ($p < 0.0008$).

Conclusion Musculoskeletal pain was found to be the most common cause of chest pain. Electrocardiogram has poor yield when performed in children without significant cardiac history/examination findings. However, it remains a useful screening tool and is beneficial for reassurance of patients and their families.

505 LINEAR GROWTH IN CHILDREN WITH CONGENITAL ACYANOTIC HEART DISEASE (CHD) BEFORE VERSUS AFTER SURGICAL INTERVENTION

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Objectives To evaluate linear growth and insulin-like growth factor- I (IGF-I) concentration of patients with congenital acyanotic heart disease (CHD) before versus after surgical intervention.

Design 27 infants and children with CHD (10 with VSD, 8 with ASD, 9 PDA) without heart failure, before and 12 months or more after surgical or catheter intervention. Eighty normal children served as controls.

Results At presentation, age = (35.6 \pm 26 months), patients were significantly shorter, height SDS (HtSDS)(-1.6 \pm 1.1) and had lower BMI (15.1 \pm 2.5) compared to normal controls (HtSDS = 0.25 \pm 0.3, BMI = (16.4 \pm 1.5). One year or more after catheter or surgical treatment the HtSDS and BMI increased significantly in patients to -0.55 \pm 0.9 and 15.9 \pm 1.5 respectively. Circulating concentrations of IGF-I increased from 46.8 \pm 29 mcg/L before to 77.3 \pm 47.6 mcg/L after intervention. The HtSDS after treatment was correlated with the IGF-I concentration ($r = 0.804$, $P < 0.001$). The change in the HtSDS after intervention was correlated significantly with BMI ($r = 0.594$, $p < 0.001$). The shunt size was correlated negatively with BMI before intervention ($r = -0.35$, $P < 0.01$) and with HtSDS ($r = -0.461$, $p < 0.05$).

Conclusions These data denoted that early surgical interference and good weight gain have beneficial effect on postoperative growth spurt. The accelerated linear growth after intervention appears to be mediated through activation of the GH/IGF-I system.

506 DO SOUTH ASIAN BABIES HAVE MORE CONGENITAL HEART DEFECTS, DOES CONSANGUINITY INFLUENCE IT? FINDINGS FROM BORN IN BRADFORD STUDY

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Background and Aims Born in Bradford is a birth cohort study established in March 2007 to look at health and outcomes in a multi ethnic population in Bradford (UK). We aimed to establish whether South Asian children in the cohort had a higher prevalence of congenital cardiac anomalies compared to non South Asians, and evaluate association with consanguinity.

Methods Babies with cardiac anomalies in the cohort born between May 2007 and March 2010 identified using multiple ascertainment models. Ethnicity ascribed to cases using clinical records & inferred to cohort based on questionnaire responses. Data on consanguinity and other cofounders were obtained from database. Statistical analysis done by Chi square test and logistic regression.

Results Structural congenital cardiac defects=96 cases. Overall prevalence rate=8.8/1000 live births. Prevalence was significantly higher in South Asians compared to non South Asians for all cardiac anomalies (11/1000 vs 6.2/1000, $P < 0.05$) & anomalies including only VSDs requiring surgery (8.7/1000 vs 4.4/1000, $P < 0.05$) implying that the differences were unlikely due to ascertainment bias. Complex cardiac defects were more prevalent in South Asians, cyanotic defects were significantly higher in this group $P = 0.017$. South Asian ethnicity (Odds-ratio=1.76, $P = 0.019$) and consanguinity (Odds-ratio=2.002, $P = 0.003$) significantly increased the risk for cardiac anomalies in univariate analysis. Multivariate analysis incorporating confounding factors attenuated their effect; however consanguinity remained a borderline significant predictor.

Conclusions We have demonstrated an apparent excess of congenital cardiac anomalies in South Asians in the Born in Bradford cohort. Consanguinity seemed to increase the risk for cardiac anomalies.

507 A NOVEL METHOD FOR QUANTIFICATION OF LEFT VENTRICULAR HYPERTRABECULATION/NONCOMPACTION USING TWO-DIMENSIONAL ECHOCARDIOGRAPHY

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Objectives There is not yet a general consensus about the diagnosis of left ventricular noncompaction. The echocardiographer may miss the areas with maximal noncompaction leading to a misdiagnosis. Accordingly, we suggested a new method to measure the percentage of myocardial hypertrabeculation/noncompaction using two-dimensional echocardiography.

Patients In this study, this new method was examined on 3 noncompaction, 26 dilated cardiomyopathy, and 25 normal subjects.

Results The mean percentages of myocardial hypertrabeculation/noncompaction were 3.59 ± 2.27 in control group, 8.86 ± 5.52 in dilated cardiomyopathic patients, and 38.1 ± 30.8 in noncompaction patients. A value of 16% could distinguish left ventricular noncompaction from dilated cardiomyopathy with 92% specificity and 100% sensitivity and from normal subjects with 100% specificity and sensitivity. This percentage had a statistically significant association with noncompacted to compacted myocardial thickness ratio ($P < 0.001$).

Key Conclusions This method showed good correlations with the other echocardiographic and magnetic resonance criteria. However, it is not dependent on finding the area of maximal involvement.

508 REGIONAL CARDIAC NETWORKS: CAN THEY WORK?

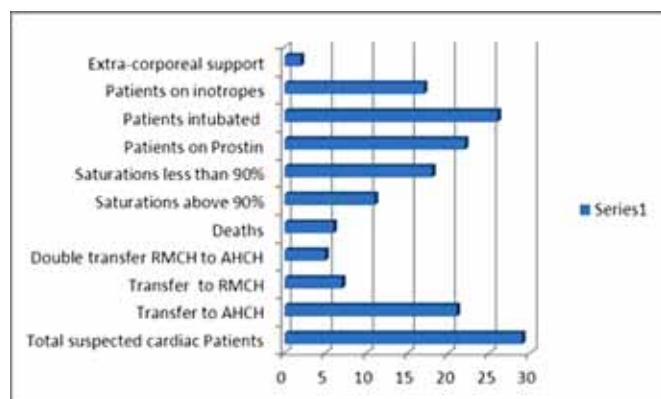
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Background Only eleven paediatric intensive care units (PICUs) in UK have cardiac surgical services on-site. Small proportion of patients admitted to non-cardiac surgical PICUs require transport to surgical centres. North West and North Wales Paediatric Transport service (NWTS) provides PIC transport service, including ability to conference call specialists. Alder Hey Children's hospital (AHCH) is the cardiac surgical centre and Royal Manchester Children's hospital (RMCH) only has cardiology on site.

Methods Retrospective review suspected cardiac cases transferred in 12 months:- assessing if time critical surgical patients underwent single transfer to surgical centre- interventions by referring hospital or NWTS.

Results Total 29 patients of suspected cardiac diagnosis.



Abstract 508 Graph 1

Abstract 508 Table 1 Interventions

INTERVENTIONS	REFERRING HOSPITAL	NWTS
Intubation	22	4
Central Venous Access	6	7
Dinoprostone (PGE2)	20	2
Inotropes	7	10
Inhaled Nitric oxide	0	3

Seven patients had time critical cardiac surgical lesions. One patient required a second immediate transfer to surgical centre. Retrospectively, this could have been predicted from clinical picture. 68% patients had dinoprostone started by referring team following advice from cardiologist or NWTS. Inotropes initiated on advice or by NWTS.

Conclusions Regional cardiac network can work effectively with improved communication particularly in acute scenario. Potential surgical cases may be predicted from clinical picture, especially if not resolving with full medical treatment.

509 PREVALENCE OF SIDEROPEMIC ANEMIA IN CHILDREN WITH CONGENITAL HEART DISEASE LESS THAN ONE YEAR IN COMPARISON WITH HEALTHY CHILDREN

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Introduction Sideropenic anemia is prevalent in all children with congenital heart disease, especially in children with signs of heart failure.

Objectives The purpose of this study is to determine the prevalence of sideropenic anemia in children with CHD and compares these results with data of health children less than one year in Kosova population.

Methodology Between 2000 and 2010 4236 children were evaluated retrospectively clinically and by echocardiography for congestive heart failure (CHF) caused by CHD. CHD was diagnosed in 832 patients (19.6%) while 78 patients (1.84%). Also from the study have been exclude children with complex CHD caused central cyanosis. In all patients were analyzed heart failure symptoms, hemoglobin levels, age of diagnosis, duration of hospitalization per year and death during medical attendance.

Results Anemia was present in 78% of children with CHD, and in 85% children with CHF. Hospitalization days per year in anemic patients had a significantly higher than in non-anemic patients (mean 32.5 ± 39.6 days per year versus 12.3 ± 14.3 days per year ($p < 0.05$)). There was not found significant relation onset of heart failure symptoms and the risk of developing anemia between anemic and non-anemic patients. The evaluation showed also needed for the two times longer period of the treatment of patients with CHD with antianemic medication in compare with healthy anemic children.

Conclusion Anemia is prevalent in pediatric patients with CHD especially patients with heart failure. Study showed no higher mortality in anemic patients.

510 A NOVEL MYH7 VARIANT IDENTIFIED IN A CHILD WITH RESTRICTIVE CARDIOMYOPATHY

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Restrictive cardiomyopathy (RCM) is very rare in children and usually associated with a poor prognosis. Identification and thorough