**G107** A POPULATION BASED STUDY OF DEHYDRATION WITH HYPERNATRAEMIA IN BREAST FED INFANTS

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Dehydration with hypernatraemia has been described as complicating exclusive breast feeding in at least 47 cases in the literature. As part of a geographically defined review of readmission to hospital in the neonatal period, we looked at cases of dehydration with hypernatraemia. Cases were exclusively breast fed, had a history of poor feeding and had weight loss corrected by rehydration. The serum sodium in cases was 150 mmol/l or above.

There were 928 readmissions to hospital during 1998. Of these 34 had lost more than 10% of their birthweight. Of these, eight met the case definition. All had lost more than 15% of birthweight. No baby had a subsequent diagnosis made which could have retrospectively explained the hypernatraemia. One infant had convulsions.

There were 32015 births in the region during 1998, giving a minimum population incidence of 2.5 per 10 000 livebirths. This figure will underestimate the true incidence as this condition is almost confined to primiparous breastfeeding mothers. Breastfeeding rates are low in the Northern Region.

This study suggests that this disorder is not rare and represents an extreme form of unsuccessful breastfeeding. As with the other cases in the literature, the cardinal clinical feature of this problem is weight loss. Efforts to prevent this condition will benefit from strategies aimed at the promotion of successful breastfeeding if excessive weight loss is not ignored.

**G108** PSYCHIATRIC ASPECTS OF CHRONIC FATIGUE SYNDROME (CFS) IN CHILDHOOD: COMPARISON WITH JUVENILE ARTHRITIS (JIA) AND EMOTIONAL DISORDERS (ED)

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**Aims:** to explore clinical specificity in CFS.

**Methods:** detailed standardised research interviews and Questionnaires with children and parents attending paediatric or psychiatric clinics with CFS (N=28), JIA (N=30), and ED (n=27). Mean age: 15 years; range: 11 to 18 years.

**Results:** Marked illness related impairment—including school non-attendance—was highest in CFS (87%, vs 38% JIA and 27 ED); psychopathology was higher in CFS than in JIA (one-year prevalence of 78% vs 26%); personality problems were present in 66% ED, 44% CFS and 12% JIA. Parental health problems were higher in CFS and ED than in JIA (maternal mental distress in 45%, 36% and 15% respectively), so was maternal emotional over-involvement with the child and family burden derived from the child’s illness. Children with CFS had a pre-morbid history of repetitive infections (21% vs 4% JIA and nil ED) and school absence: (29% CFS vs 11% JIA and 9% ED).

**Conclusions:** functional illness-related impairment in psychologically vulnerable children would appear clinically specific to childhood CFS.

**G109** NEUROIMATERIAL ASPECTS OF SUBDURAL HAEOMORRAGHES

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**Background:** Most subdural haemorrhages (SDH) in infancy arise from Shaken Baby Syndrome, a severe form of child abuse. SDH has an incidence of 21/100,000 in children under 2 years, (37/100,000 under 6 months). A diagnosis of SDH is confirmed on cranial imaging, principally CT or MRI. Despite American guidelines (AAP section on Radiology, 2000) children are incompletely investigated.

**Aims and method:** We reviewed the neuroradiological findings of 50 children who sustained an SDH or subdural effusion when they were under two years of age between 1992–2000. All cases were reviewed by a Paediatric Neuroradiologist who was blinded to the original report. We identified specific radiological features associated with SDH secondary to physical child abuse and propose a protocol for neuroimaging in suspected SDH in infancy.

**Results:** Neuoradiological review of images identified abnormalities not previously reported. There was wide variation in protocols used for neuroimaging. In a significant number of cases MRI altered initial CT diagnosis or added information to support the diagnosis of NAI. Interhemispheric bleeds and SDH in multiple sites or of different ages were almost exclusively seen in NAI.

**Conclusions:** We recommend guidelines for neuroimaging suspected SDH in infants. Scans should be reported by a neuroradiologist with experience in NAI. First line investigation should be CT scan, MRI should be re-imaging technique of choice. CT should be considered in all infants referred for child protection investigation especially if under 6 months old or with neurological signs or retinal haemorrhage or fractures.


**G110** ANOGENITAL WARTS AND SEXUAL ABUSE

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**Aims:** To establish incidence of sexual abuse in children with anogenital warts and to identify factors associated with abuse.

**Methods:** Retrospective review of case notes from 1995–2000 of children with anogenital warts appearing before age 12 years.

**Results:** These are available on 75/88 cases. 43 were girls, 48 were under three years when the warts appeared. In 25 sexual abuse was considered likely because there were diagnostic genital findings of abuse or serious concerns established by social services investigation. 17/25 were girls and 15/25 were less than three years old.

Factors associated with likely abuse are shown in the table.

**Abstract G110**

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Abuse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family history of anogenital warts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>in mother of child &lt; 3 yrs</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>in mother of child &gt; 3 yrs</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>in father</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>in mother's partner</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>in the child</td>
<td>18</td>
<td>5</td>
</tr>
<tr>
<td>Site of warts in girls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>perianal</td>
<td>22</td>
<td>6</td>
</tr>
<tr>
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<td>4</td>
</tr>
<tr>
<td>genital</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>buttock or groin</td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>

Results of wart typing were presented.

**Conclusion:** There is a high incidence of abuse in children referred with anogenital warts—1 in 3 in our study. The likelihood of abuse is increased if warts are present in the genital area in girls (p < 0.01) or if there is a known history of warts in the mother's partner. Abuse should be considered even if there is a history of skin warts. All children with anogenital warts should be referred for specialised assessment.
ACUTE SEXUAL ASSAULT—OUT OF HOURS EXAMINATIONS FOR CHILD SEXUAL ABUSE

A.J. Bennett, S. Snelling. Royal Liverpool Children’s Hospital, Alder Hey, Liverpool

Aims: To describe the demographics and personal and family characteristics of children examined out of hours for the evaluation of acute sexual assault.


Results: Sixty two children were examined in total with a median age of 14 (IQR 13–15) years; of these 59 (95%) were female. Perpetrators were strangers in 24 (39%), extra-familial but known to the victim in 34 (55%) and familial in 4 (6%) cases. Alcohol had been consumed by the victim in 23 (37%) cases in the period immediately prior to the assault. Previous involvement with Social Services was identified in 19 children including 3 on the Child Protection Register and 4 subject to a Care Order; 13 children were either currently or previously looked after by the Local Authority. 19 (31%) admitted to being previously sexually active including 2 who had either previous or current sexually transmitted disease. Behaviour problems were identified in 31 (50%), with school difficulties in 37 (60%), additional educational needs in 12 (19%) and school exclusion in 12 (19%).

Conclusions: Victims of acute sexual assault are vulnerable and socially excluded with a high incidence of mental health problems and educational difficulties. Perpetrators are usually from outside the immediate family. It is essential that these children are recognized as needing multi-agency assessment and therapeutic support.

FRACTURES IN CHILDREN UNDER 3 YEARS OF AGE

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Aims: To study the types, patterns and circumstances of fractures in children under 3 years of age presenting to the Accidents and Emergency (A & E) in a busy District General Hospital. The secondary aim was to evaluate if any cases suspicious of non-accidental injury (NAI) were missed.

Methods: Notes of children with fracture seen between 1.4.99 to 31.12.99 were scrutinised. Demographic details, presenting complaints, mechanisms of injury, types of fracture and action taken were noted. Those with features of “high risk” of NAI i.e. (a) age below 1 year, (b) incompatible history, (c) presence of other injuries, (d) late presentation and (e) high risk fractures (e.g. metaphyseal fractures, spiral fractures, multiple/old fractures) were analysed separately.

Results: A total of 97 children were seen. The mean age was 1.9 (SD 0.7), Range 0.2–3.0 years. There were 77 (79.4%) witnessed injuries and “fall at home” was the commonest (55%). Pain (36%) and not moving arm (23%) were the commonest complaints. The fractures included radius/ulna (35%), tibia/fibula (17%), humerus, clavicle (14%) each and skull (7%). One “high risk” feature was seen in 32% of children, 2 features in 11% and 2% had 3 features. Only 12/97 (12.5%) were suspected to have NAI in the A & E department and referred to the Paediatric Department.

Conclusions: Without clear-cut guidelines for the referral of fractures in small children, NAI is often not considered and missed in a busy A & E Department usually manned by inexperienced doctors. Following this audit, guidelines were issued.

DELIBERATE BRIDGING TO CARDIAC TRANSPLANT IN CHILDREN: THE UK EXPERIENCE

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Introduction: In the paediatric age group in the UK there are more donor hearts available than there are recipients. Despite this children are still dying on the waiting list. In an effort to extend survival we have employed a paracorporeal ventricular assist device (Medos HIAB) in children in whom we felt were dying.

Methods: Eligible children were admitted to PICU, with a diagnosis of dilated cardiomyopathy and evidence of impending multorgan failure. If listed for transplantation they were considered for a ventricular assist device.

Results: Between 1997–2000 8 children were supported. Their median age was 5.7 years (range 1.5–17 years). The median length of support was 8 days (range 3–11 days). 5 children were successfully bridged to transplantation and 4 survived to hospital discharge. Problems seen include bleeding requiring reexploration, thromboembolic events, infection, jaundice and renal failure. The 4 survivors are all neurologically intact.

Conclusions: Ventricular assist devices as a bridge to transplantation are feasible. There are complications and a 50% mortality. Criteria for patient selection need to be better defined. The benefits of such a costly program alongside a transplant program remains to be established.

CAN ROUTINE PULSE OXIMETRY HELP TO DETECT CARDIAC MALFORMATIONS IN THE ASYMPTOMATIC NEWBORN?

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Aim: To assess routine measurement of post-ductal oxygen saturation in the diagnosis of structural cardiac malformation in the newborn.

Methods: Oxygen saturation was measured over two minutes, after the age of two hours and before discharge, in one foot of all babies not admitted directly to the neonatal unit. Babies with fractional (as opposed to functional) oxygen saturation (SaO₂) < 95% were clinically examined, and, if a repeat measurement was no higher, an echocardiogram was performed. All babies with cardiac malformations were identified from databases maintained at the regional cardiology referral unit and the regional congenital malformation survey.

Results: There were 4695 livebirths in eighteen months from 1.4.99. Measurements were made in more than 99% of eligible babies. A SaO₂ level < 95% was found in 4% of babies but in only 1% did this persist. Cardiac malformations have been found in 35 babies (7.5/1000). Attention was first drawn to five of these by low SaO₂ (Fallot’s tetralogy; pulm atresia with intact septum; pulm atresia with VSD; persistent arterial duct; coarctation with VSD). Four more, first noticed for other reasons, also had low SaO₂ (subaortic VSD; common atrooom with VSD and pulm atresia; coarctation with VSD and hypoplastic aortic arch; Fallot’s tetralogy). Low SaO₂ also first drew attention to five other babies ill for other reasons (SVT with cardiomyopathy; hypertrophic cardiomyopathy; subdural haematoma requiring surgical intervention; septo-optic dysplasia; spontaneous pneumothorax).

Conclusions: Newborn babies with significant cardiac malformations are often asymptomatic initially and the yield from clinical examination is poor. Measuring post ductal saturation in all newborn babies is easy and appears promising. We are evaluating a larger cohort.