Abstract G194 Table 1

Patient data categories	Laparoscopic	Open	P-Value
Males (%)	53.3	86.7	0.046
Neurological impairmenent (%)	66.7	100	0.014
Mean age of surgery (years)	7.68 (sd 5.22)	7.32 (sd 5.37)	–
Gastrostomy performed (%)	53.3	60.0	0.713
Other procedure performed (e.g. pyloroplasty) (%)	0.0	46.7	0.003
Mean procedure time (mins)	236 (sd 63)	184 (sd 51)	0.023
Length of high dependency stay (days)	2 (0–6)	3 (1–6)	0.006
Length of hospital stay (days)	4 (2–12)	8 (6–43)	0.003
Length of follow up (years)	1.57 (sd 1.9)	6 (sd 3.7)	0.001
Clinical recurrence (%)	7.7	28.6	0.163

Methods A retrospective review was carried out including all Boix-Ochoa Fundoplications performed by a single surgeon in the same institution from 1995–2010. All available case notes from the laparoscopic group were analysed, these were matched to a similar number from the open group. Demographic, pre-operative, peri-operative and follow-up data were collated. Surgical outcomes were compared in terms of post-operative complications, length of stay, follow up period and clinical recurrence rates. Data were analysed in Microsoft Excel 2003 and SPSS 16.0. The groups were found to be non-parametric. Mann-Whitney U-test and Chi-squared distribution tests were applied. Statistical significance was taken to be $p < 0.05$.

Results 71 procedures were recorded during the study period. 49 were open, 22 were laparoscopic. Notes were available for 15 patients in the laparoscopic group. These were matched with 15 patients from the open group.

The laparoscopic group had more females and less neurologically impaired children. The length of stay post laparoscopy was halved compared to open surgery, but the mean operative time was more than 25% longer. The length of follow-up is longer in the open cohort due to the study design. Clinical recurrence rates were statistically similar between the two groups.

Conclusion This is a small retrospective analysis of this procedure performed by one surgeon in a single centre. Boix-Ochoa Fundoplication appears to be equally effective when performed either open or laparoscopically. The duration of high dependency and hospital stay are significantly reduced with the laparoscopic procedure.

G195 NEONATAL CRANIAL ULTRASOUND: AN AUDIT OF TRAINEE OPPORTUNITY AND COMPLIANCE

doi:10.1136/archdischild-2013-304107.207

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Aims To produce departmental guidelines citing clinical indications regarding the frequency and appropriateness of cranial ultrasound scanning.

To improve documentation and planning of scans to improve time management.

To enhance trainee opportunities in performing and interpreting scans under expert supervision, ultimately leading to improved service provision and confident independent practise.

Methods

Part 1

Senior speciality paediatric trainee questionnaire to frame context of audit: to assess confidence in performing and interpreting (P&I) cranial ultrasound scans (CrUS) on modified Likert scale; data interpretation questions (published questionnaires, author's permission to use) to gauge ability to identify abnormalities, to decide immediate management and discuss prognosis.

Part 2

Full audit cycle of CrUS compliance, implementation and assessment of changes. Audit (cycle 1) over 12-day consecutive period with re-audit 6 months later (cycle 2) after implementing changes.

Results

Part 1

Trainees reported little confidence with P&I.

All identified major abnormality in each image with sensible answers provided regarding management, however limited information regarding prognosis.

Part 2

Cycle 1

Poor compliance, documentation and lack of follow up.

Loose scans with no date, time or comment.

No baby had a Standard Electronic Neonatal Database (SEND) CrUS form completed.

Changes implemented

Weekly teaching with Radiologist experienced in CrUS.

Comprehensive guideline including indications and separate proforma for every baby admitted to the unit prompting an assessment for CrUS.

Posters next to scanner and computers to remind users to document findings on SEND.

Presentation of results.

Cycle 2

Improved compliance rate from 60.0% to 71.4%

Improved documentation from 28.6% to 100% including signature and level of supervision.

80% of scans documented had plan for follow up scan.

No baby had SEND CrUS form completed.

Conclusions Trainee confidence in P&I scans improves with regular Radiology teaching sessions. Dedicated guidelines and proforma improve assessment for scanning, compliance, documentation and work load planning; this improves patient care and enhances service provision. Future action: to standardise CrUS guidelines throughout the Neonatal Network to improve continuity of care.

G196(P) RESIDUAL SMALL BOWEL LENGTH PREDICTS RAISED D-LACTATE WHEN SCREENING FOR BACTERIAL OVERGROWTH IN CHILDREN WITH INTESTINAL FAILURE

doi:10.1136/archdischild-2013-304107.208

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Aims Small bowel bacterial overgrowth (SBBO) may cause non specific symptoms in children with intestinal failure (parenteral nutrition (PN) >28days). Rapid detection of raised serum D-lactate (DL) may be a clinically useful non invasive marker of SBBO. We present the first large cohort of DL in a tertiary referral centre, in patients with current or recent intestinal failure (IF) with new symptoms suggestive of SBBO.

Methods Retrospective review over a 3 year period (01/01/2009 to 31/12/2011) of Patients with IF (0–18 years) and suspected SBBO was done. Demographics, aetiology of IF, symptoms, recent radiology and treatment were recorded. In those with short bowel syndrome, length of remaining small bowel was expressed as percentage of expected small bowel length appropriate for age (SBL) using a published formula. Raised DL was identified as >20μmol/L and recurrence as DL >20μmol/L at least 4 weeks apart and with standard treatment (rehydration, withholding or alteration of feeds, bicarbonate and/or antibiotics).

Results Out of total cohort of 209, 49 patients (28 males; age range 0.16–13.07 and mean 4.76 years) were screened for DL. Aetiology for IF was bowel resection due to congenital malformation (17), necrotising enterocolitis (15), dysmotility (6) and enteropathy (11). 25/49 had raised DL and 24/49 did not have raised DL. There was no

statistically significant difference in risk factors for raised DL comparing age, bowel resection, absence of ileo-caecal valve, abnormalities on barium study and use of proton pump inhibitors. SBL was significantly shorter (p = 0.001) in raised DL group (median 29.6%; range 11.4–100) than in group without (median 100%; range 19.10–100). Patients with <35% SBL, had 77% sensitivity for developing raised DL. Relationship to feed could not be analysed due to lack of accurate information on patients' carbohydrate intake. Response to treatment was available in 12/25 and all had improvement in symptoms with fall in DL. Recurrence occurred in 48%.

Conclusion Children with IF due to <35% expected SBL, when screened, have a 77% likelihood of having SBBO shown by raised DL. Screening in at risk patients allows prompt detection and treatment of SBBO. Recurrence is common necessitating prolonged antibiotic regimens.

G197(P) HEPATIC HAEMANGIOMA AND CONJUGATED HYPERBILIRUBINEMIA – A CASE REPORT

doi:10.1136/archdischild-2013-304107.209

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Background Infantile hepatic haemangioma, the most common benign vascular tumour of the liver in childhood, presents within the first months of life. 80% present in infancy and nearly half have associated cutaneous hemangiomas. Other extrahepatic lesions may also be present including pulmonary and cerebral haemangiomata.

Subjects and Methods A term neonate presented with respiratory distress, unstable blood sugars and was small for gestational age. She was referred to a liver unit for management of hepatic haemangioma.

Results We describe a neonate who presented with hepatic haemangioma, cardiac failure and conjugated hyperbilirubinemia which was due to hypopituitarism. This combination of clinical disease has not previously been reported. The diagnosis of hypopituitarism was considered because the infant had low blood sugars with prolonged conjugated jaundice during the initial assessment and treatment. Although jaundice is associated with large hepatic haemangiomata it is generally unconjugated unless there is a degree of biliary obstruction associated with the size of the haemangioma. Following diagnosis of hypopituitarism, commencement of replacement therapy with hydrocortisone and thyroxine resulted in resolution of symptoms and stabilisation of her condition.

Conclusion This is an unusual presentation of hypopituitarism, and could have been overlooked in view of the other pathology present with adverse consequences for her future health and development.

G198(P) PLASMA ARGININE LEVELS AND BLOOD GLUCOSE CONTROL IN VERY PRETERM INFANTS RECEIVING TWO DIFFERENT PARENTERAL NUTRITION REGIMENS

doi:10.1136/archdischild-2013-304107.210

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Background and Introduction We have previously shown that improving early protein intake is associated with a reduction in insulin-treated hyperglycaemia in preterm infants <29 weeks gestation. The effect of amino acids (AA) on insulin secretion is well described in preterm infants with arginine recognised as a potent secretagogue. We hypothesised that low arginine levels would be associated with an increase in insulin-treated hyperglycaemia and higher mean daily blood glucose levels (day1–15) in infants born <29 weeks gestation.

Abstract G198(P) Table 1 Mean (SE) blood glucose (mmol/l; 5 day time periods) and insulin use (total days, d1–15)

Group	d1–5(C)	d6–10(C)	d11–15(C)	Insulin	d1–5(H)	d6–10(H)	d11–15(H)	Insulin
lowARG	6.9(0.3)	8.6(0.4)	7.1(0.4)	110	8.2(0.4)	9.9(0.4)	7.6(0.4)	203
highARG	6.6(0.6)	7.3(0.4)	6.0(0.5)	30	6.7(0.4)	8.3(0.6)	6.6(0.4)	66
p value	0.58	<0.05	0.11		<0.01	0.02	0.11	

Methods We performed a secondary analysis on previous randomised controlled trial data comparing hyperalimentation (H) and control (C) regimens. The hyperalimentation regimen provided 20% more carbohydrate than the control regimen. Daily carbohydrate and protein intake data and mean daily blood glucose and insulin use data from the first 15 days of life were substratified according to high (highARG) or low (lowARG) arginine levels on day 8–10 using a reference population based median plasma level (57micromol/l).

Results In group C, substratification identified 41 lowARG and 19 highARG infants. There were no differences in basic demographic factors, carbohydrate or protein intake. Hyperglycaemia peaked on day 5–10. Low arginine levels were associated higher mean daily blood glucose levels (day 6–10) and more insulin treatment (Table 1; group C). In group H, substratification identified 33 lowARG and 22 highARG infants. LowARG infants were of lower gestation and birthweight (p <0.01) There were no differences in carbohydrate or protein intake. Low arginine levels were associated higher mean daily blood glucose levels (day 1–5, 6–10) and more insulin treatment (Table 1; group H).

Conclusion Low plasma arginine levels in very preterm infants are associated with poorer blood glucose control.

G199(P) USE OF FISH-OIL BASED INTRAVENOUS LIPID EMULSION AS A RESCUE IN INFANTS WITH INTESTINAL FAILURE-ASSOCIATED LIVER DISEASE WHO DEVELOP SEPSIS

doi:10.1136/archdischild-2013-304107.211

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Aims In infants with intestinal failure-associated liver disease (IFALD), it is known that episodes of sepsis can be accompanied by a significant deterioration in liver function. We hypothesised that an intravenous lipid emulsion (ILE) comprised solely of fish oil, high in omega-3 fatty acids, such as Omegaven®, may protect the liver in these infants during episodes of sepsis. Our aim is to describe the potential role for Omegaven® as a rescue therapy in infants with sepsis and established IFALD.

Methods A mixed source ILE containing both omega-3 and omega-6 fatty acids (SMOFlipid®) was used as first-line in infants at high risk of IFALD. When infants with IFALD developed sepsis, Omegaven® was used as the sole ILE for up to 14 days. A retrospective review of their case notes was conducted.

Results Omegaven® was well tolerated in all infants. 7 infants had Omegaven® treatment during a 14-month period (August 2011-October 2012). Median birth weight was 1000g (range 527–1870). Median gestation at birth was 30 weeks (range 24–34). Of the 7 patients, 2 had gastrochisis and 5 had necrotising enterocolitis (NEC). One patient with gastrochisis developed NEC. 2 patients were late transfers at 4–5 months of age from other hospitals with severe and progressive IFALD. Both subsequently died. Median age at start of Omegaven® was 63 days (range 7–189). 3 patients did not