Conclusion Hormonal evidence of gonadal failure is more common post-HSCT in females than males. Growth and thyroid adverse effects are rare. Children with haemoglobinopathy seem to have a decreased burden of endocrine late-effects post-HSCT compared with oncology patients.

G96 A NATIONAL SURVEY OF EVALUATION AND TREATMENT OF HYPERTENSION IN PAEDIATRIC PATIENTS WITH DIABETES

doi:10.1136/archdischild-2013-304107.108

M Gupta, P Raffeeq. *University Hospital of North Staffordshire, Stoke on Trent, UK*

Aims We conducted a postal survey of paediatric diabetic units in NHS Hospitals across the United Kingdom regarding their practise of evaluation and management of hypertension in paediatric patients with both Type 1 and Type 2 diabetes.
Methods A questionnaire was sent to different units across the UK. Addresses of units were identified from the directory of diabetic care 2008. Questionnaires were sent to 151 units in month of June 2012. Response was awaited for 12 weeks. 69 responses were received. The data were analysed using Microsoft excel.
Results Out of 151 units 69 units replied, giving a response rate of 45%. Of the units that replied, 10% of the units have written guidelines. 88% of the units have some form of age and height based chart to identify hypertension. 50% of the units check blood pressure annually during diabetic annual review whilst other more frequently. Only 45% of the units consider microalbuminuria as a trigger to initiate investigation. 73% of the units undertake 24 hours ambulatory blood pressure monitoring prior to starting antihypertensive therapy. For further confirmation and management of hypertension 62% of the units refer these children for joint management with nephrologist. Our survey revealed a wide variation and inconsistencies in practise of evaluation and management of hypertension in this high risk patient group. There is also a variation in the choice of antihypertensive medication amongst different units.
Conclusion There is a need for national consensus on evaluation and management of hypertension in children with diabetes which will help in standardisation of the care and consequently reduce the morbidity related to its long term complications.

G97 RANGE OF URINARY STEROID METABOLITE RATIOS IN CHILDREN UNDERGOING INVESTIGATION FOR SUSPECTED DISORDERS OF STEROID SYNTHESIS

doi:10.1136/archdischild-2013-304107.109

[1]A Lucas-Herald, [1]M Rodie, [1]N Liu, [2]K Rankin, [2]N Watson, [1]M Donaldson, [1]MG Shaikh, [3]J McNeilly, [2]D Shapiro, [1]SF Ahmed. *[1]Department of Child Health, RHSC Yorkhill, Glasgow, UK; [2]Department of Biochemistry, GRI, Glasgow, UK; [3]Department of Biochemistry, Southern General Hospital, Glasgow, UK*

Background Calculation of a urinary steroid metabolite ratio (uSMR) may be a useful method of improving diagnostic yield when investigating disorders of steroid hormone synthesis.
Objective and hypothesis: To investigate the range of uSMR in children with suspected disorders of steroid hormone synthesis.
Population/Methods Ten ratios were calculated on steroid metabolite data analysed by GC-MS in urine samples collected between 2008–2010 from 219 children who were undergoing investigations. To obtain reference data, urine samples were also analysed in 89 children with no background of endocrine concerns and who had a urine sample collected at presentation to the hospital with an acute illness.
Results Of the 89 reference children, 36(40%) were male and median age at time of the test was 3 yrs(range,1month-11yrs). Of the 219 endocrine patients, 64(29%) were boys. In 129(59%) cases, a urine sample was collected to investigate early or exaggerated signs of adrenarche. Median age at test was 7.4yrs(1day-18yrs). Median and ranges of 2 steroid ratios used in the diagnosis of 21-hydroxylase deficiency are demonstrated in the Table.

Abbreviations: 17HP: 17-hydroxypregnanolone, PT: pregnanetriolone, THE: tetrahydrocortisone, THF: tetrahydrocortisol.

Abstract G97 Table 1

	<6months	6months – <10yrs	10yrs-18yrs
17HP/ (THE+THF+5alphaTHF)			
Reference boys	0.014(0.005–0.08)	0.005(0.00–0.25)	0.025(0.003–0.08)
Affected boys	0.014(0.005–0.102)	0.008(0.001–0.37)	0.017(0.001–0.183)
Reference girls	0.11(0.025–0.005)	0.006(0.00–0.033)	0.011(0.003–0.069)
Affected girls	0.026(0.006–0.089)	0.008(0.001–0.08)	0.02(0.003–0.089)
PT/(THE+THF+5alphaTHF)			
Reference boys	0.024(0.008–0.031)	0.021(0.00–0.283)	0.108(0.025–0.482)
Affected boys	0.046(0.003–0.186)	0.027(0.003–0.103)	0.049(0.019–0.693)
Reference girls	0.012(0.009–0.035)	0.019(0.006–0.128)	0.065(0.029–0.223)
Affected girls	0.039(0.013–0.187)	0.039(0.005–0.351)	0.085(0.044–0.299)

Conclusions These novel data show that reference ranges for urinary steroid metabolite data need to be age matched. Most children with suspected disorders of steroid synthesis have a ratio which is within the reference range and the identification of outliers will lead to better targeting of genetic analyses.

G98 MULTIDISCIPLINARY ASSESSMENT FOR BARIATRIC SURGERY IN ADOLESCENTS: A PILOT PROJECT FROM A NATIONAL REFERRAL SERVICE

doi:10.1136/archdischild-2013-304107.110

[1]ME Ford-Adams, [1]H Mortimer, [2]D Bevan, [2]SS Datta, [2]MT Lax-Pericall, [1]A Desai. *[1]Department of Paediatrics, Kings College Hospital NHS Foundation Trust, London, UK; [2]Dept of Child & Adolescent Psychiatry, Institute of Psychiatry at the Maudsley, London, UK*

Introduction Obesity has medical, social, psychological, familial and dietary underpinnings. We report the results of multidisciplinary assessments in adolescent bariatric surgery patients in the UK.
Aim 1. Multidisciplinary assessment of patients prior to bariatric surgery. 2. Compare outcomes from bariatric surgery to conventional treatment in the obesity clinic.
Methods 2F, 2M, mean age 14 yrs (12–18yrs) were selected for bariatric surgery. One boy with Oestegenesis Imperfecta (OI) had decrease mobility secondary to excess weight. Mean BMI 45kg/m^2 (38–52 kg/m^2). They were jointly assessed by a paediatrician and paediatric surgeon. Investigations completed: Full blood count, electrolytes, Vitamin D, liver ultrasound, fasting insulin and glucose. Secondary assessment by dietetics and child psychiatry looked at as binge patterns, night eating, comorbid psychopathology and family functioning. Quality of life score (Impact on weight on Quality-Kids IWQOL) and Becks Anxiety inventory (BAI) were performed. Operations were performed by a paediatric surgeon and experienced adult bariatric surgeon. Three had lap bands fitted, the boy with OI underwent a sleeve gastrectomy. Pre and post surgery data were collected.
Results All surgical patients lost weight over 3 months. Mean loss –10kg/m^2 (5–17 kg/m^2). The non surgical group had a mean gain +1.9kg/m^2 (–4 – 10 kg/m^2). Improvement in clinical parameters was also seen: insulin resistance (HOMA-IR) fell from 4.5 to 1.7, mean systolic blood pressure (mmHg) dropped 139 to 126, mean waist circumference (cm) from 121 to 116 cm, hepatic steatosis disappeared in 3 patients who demonstrated it and Vitamin D (µg/l) levels rose from 10 to 35.4. There were no significant complications. Constipation and nausea reported in 2 of the 4. All patients reported improvement in their well being. IWQOL improved mean scores in

the body esteem domain increased from 48 to 81. BAI scores reduced from 22.5 to 5 in 2 patients.

Conclusion Multidisciplinary assessment is important in selecting patients for bariatric surgery. This surgery should be performed in centres that can provide this. Improvements in quality of life are significant and important to monitor to sustain weight loss. Longer term follow-up is necessary to maintain weight loss and monitor progress.

G99(P) GROUP EDUCATION IN ADOLESCENT DIABETES TRANSITION

doi:10.1136/archdischild-2013-304107.111

[1]H Reid, [2]L Potts, [2]K Agostini, [2]J Luscombe, [2]R Thompson, [2, 3]P Hindmarsh, [2, 3]RM Viner, [2, 3]B White. *[1]School of Medicine, University College London, London, UK; [2]Children and Adolescent Diabetes Service, University College Hospital London, London, UK; [3]Institute of Child Health, University College London, London, UK*

Aims Education is a key component of the transition process. We piloted a half-day group education session for young people (YP) and their parents.

Methods All YP in the diabetes service aged 14–19 years were invited via letter, email (if address available) and/or telephone. Eligible participants were invited to book using a commercial web-based booking platform. Education was in the form of expert-delivered didactic group sessions and a parent workshop. Members of the adult diabetes team introduced their service and were available to meet families. Attendees completed evaluation forms at the end of the session.

Results Demographics: 25/130 (19%) of eligible YP and 21 parents attended. 1/23 (4%) eligible YP aged 14 years attended, 8/50 (16%) aged 15–16 attended, 16/52 (28%) aged 17–18 years attended and 1/5 (20%) aged 19y attended. 17/25 (68%) YP in attendance were male. The mean (SD) HbA1c of attendees was 8.1% (1.4) vs 8.4% (1.7) for non-attendees (p,0.05, t-test). 24/25 (96%) attendees had type 1 diabetes.

Booking and attendance: Of those invited by email: 21/34 (62%) of YP opened the email, 30/39 (77%) of parents opened the email. The predominant barrier to attendance was exam commitments.

Acceptability and ratings: Mean (SD) YP rating for the session was 8.1 (0.9) in a 10-point Likert scale (1 = very poor, 10 = excellent). Mean (SD) parent ratings were 8.6 (1.4). After the session, 14% of YP reported they were "ready to move to adult services", 59% "more ready to move to adult services", 18% "equally ready" and 0% "less ready". Sessions most frequently rated by YP as "useful" were "rights and jobs" (77%), "having a healthy baby" (64%), "driving and diabetes" (59%) and "alcohol and diabetes" (59%); parents most rated "driving and diabetes" (94%) "rights and jobs" (75%), "adult clinic" (75%) and "insulin pumps in adult services" (75%).

Conclusions An expert-delivered group transition education session shows promise as an effective and easy to deliver tool for preparing adolescent patients for adult life with diabetes. Further exploratory work is needed to optimise this model and measure its effectiveness.

G100(P) HYPERINSULINAEMIC HYPOGLYCAEMIA OF SHORT DURATION – CAN IT BE ASSOCIATED WITH SEVERE HYPOGLYCAEMIC BRAIN INJURY?

doi:10.1136/archdischild-2013-304107.112

C Gilbert, K Morgan, L Hinchey, P Shah, K Hussain. *Paediatric Endocrine Department (Hyperinsulinism), Great Ormond Street Hospital, London, UK*

Background Neurological damage is a known risk associated with hyperinsulinaemic hypoglycaemia (HH). Insulin suppresses ketone body formation and hence no alternative fuels are available for the brain to use; however it is not yet known how long HH has to last to cause brain injury. We report that neurological damage can occur after a short time in term, normal weight infants with diazoxide responsive HH.

Aim To describe the clinical course and neurological outcome of 3 term neonates with severe hypoglycaemic brain injury who were not diagnosed with HH for at least 72 hours.

Methodology 3 patients who presented in the neonatal period with biochemically confirmed HH were recruited. Detailed clinical information was collected including MRI brain reports.

Results All three term neonates were discharged home after 24–36 hours of birth. Birth weight range was 2730–3460 gms and each delivery was classified as normal vaginal births with no associated risk factors for HH. All infants presented to the Emergency department on day 3 to 4 of life with non-specific symptoms like poor feeding and lethargy. However all of them were noted to have jerky and seizure like movements. Biochemically, all had their true blood glucose levels less than 0.6 mmols/L with raised insulin and suppressed ketone body formation They all successfully responded to small doses (5mg/kg/day) of Diazoxide (two of them are off Diazoxide now and had transient hyperinsulinism). Each neonate had MRI brain due to clinical neurological concerns within the first few weeks of life that showed significant evidence of hypoglycaemic brain injury like gross white matter changes with parieto-occipital infarcts.

Conclusion It is very important for early identification and prompt management of HH as untreated severe hypoglycaemia can result in severe brain injury and subsequent neurodevelopmental handicap. Term infants with no risk factors are often difficult to identify due to non-specific symptoms. Parental education to recognise early symptoms of hypoglycaemia would be recommended and prompt medical advice should be sought. Blood glucose levels should be of utmost priority for babies presenting to A&E with non specific symptoms such as poor feeding/lethargy etc.

G101(P) THE 0.12 FORMULA FOR THE MANAGEMENT OF HYPOGLYCAEMIA AND HYPERGLYCAEMIA IN CHILDREN WITH TYPE 1 DIABETES MELLITUS: VALIDATION AND SAFETY DATA

doi:10.1136/archdischild-2013-304107.113

[1]L Yazbeck, [2]M Watson, [2]N Ninis, [2]S Wassouf. *[1]Clinical Genetics, Kennedy Galton Centre, London, UK; [2]Paediatrics, Imperial College NHS trust, London, UK*

Background The life of patients with diabetes mellitus is populated with hypo- and hyperglycaemias, both of which are associated with inherent dangers.

Existing formulas attempting to quantify patients' insulin requirements have proved ineffective and rather arbitrary[1]; they are based on estimations of 24 hour consumptions of insulin and carbohydrates in the average person.

Objective This paper tests the effectiveness of the 0.12 formula that is based on patient's weight and carbohydrates consumption. It calculates glucose and insulin sensitivity and guides the treatment of hypo- and hyperglycaemia, specifically for each patient.

Method Data from the Continuous Glucose monitoring system (CGMS) applications and the associated food diary were used to assess the blood sugar achieved after hypo- and hyperglycaemia treatment. This was compared to that expected via the 0.12 formula using the Wilcoxon statistical analysis.

Results 20 and 42 patients were assessed for hypoglycaemia and hyperglycaemia respectively.

In either treatment, there was no statistically significant difference between expected and achieved blood sugar; p-values were 0.53 and 0.072 respectively.

Furthermore, insulin sensitivity derived using the 0.12 formula was compared to that calculated through the historically popular 100 rule[1]. Wilcoxon statistical analysis showed significant statistical difference between the two formulas; p-value 0.0025, (confidence interval +/− 0.000484).