Abstracts of the BSPGHAN Virtual Annual Meeting,
27–29 April 2021

#FGDebate - join in every month
Frontline Gastroenterology publishes articles that accelerate adoption of innovative and best practice in the fields of gastroenterology and hepatology. Frontline Gastroenterology is especially interested in articles on multidisciplinary research and care, focusing on both retrospective assessments of novel models of care as well as putative future directions of best practice. Specifically Frontline Gastroenterology publishes articles in the domains of clinical quality, patient experience, service provision and medical education.

Stay a step ahead with Online First
We publish all our articles online before they appear in a print issue, keeping you at the cutting edge of gastroenterology and hepatology. Online First articles are available as full text and typeset pdf format. They have not yet been paginated for inclusion in an issue of the journal but have been peer reviewed, accepted for publication and copy edited.

Guidelines for Authors and Reviewers
Full instructions are available online at http://fg.bmj.com/ifora. Articles must be submitted electronically (http://submit-fg.bmj.com). Authors retain copyright but are required to grant Frontline Gastroenterology an exclusive licence to publish http://fg.bmj.com/ifora.licences.dtl

Subscription Information

Frontline Gastroenterology is co-owned by the BMJ Publishing Group and the British Society of Gastroenterology. It is published quarterly and forms part of a subscription to Gut.

Frontline Gastroenterology personal rates
2021
ISSN 2041-4137 (print); 2041-4145 (online)
Print (includes online access at no additional charge) £175
Gut rates 2021
ISSN 0017-5749 (print); 1468-3288 (online)
Personal print (includes online access at no additional charge) £405
Online only £219
Institutional print £1,013
Online only – Site licences are priced on FTE basis and allow access by a whole institution;
Residents of some EC countries and Canada must pay VAT for online subscriptions: for details contact-us
For more information on subscription rates or to subscribe online please visit fg.bmj.com/pages/contact-us

Contact Details

Editorial Office
Frontline Gastroenterology
BMJ Journals, BMA House, Tavistock Square
London, WC1H 9JR, UK
E: info fg.bmj.com
Twitter: @FrontGastro BMJ

Production Editor
Teresa Jobson
E: production fg.bmj.com

British Society of Gastroenterology
3 St Andrew’s Place, Regents Park,
London NW1 4UB, UK
T: +44 (0)20 7935 3150
T: +44 (0)20 7487 3734
E: membership bsg.org.uk
http://www.bsg.org.uk

Customer support
For general queries and support with existing and new subscriptions:
W: support.bmj.com
T: +44 (0)20 7111 1105
E: support@bmj.com

Self-archiving and permissions
W: bmj.com/company/products-services/rights-and-licensing/
E: bjm.permissions@bmj.com

Advertising
W: bmj.com/company/for-advertisers-and-sponsor/

Display Advertising ROW
Sophie Fitzsimmons
T: +44 (0)20 3655 5612
E: sfitzsimmons@bmj.com

Online Advertising ROW
Marc Clifford
T: +44 (0)20 3655 5610
E: mclifford@bmj.com

Display & Online Advertising Americas
American Medical Communications (AMC)
T: +1 973 214 4374
E: rgordon@americanmedicalcomm.com

Reprints

Author Reprints
BMJ Reprints Team
E: admin.reprints@bmj.com

Commercial Reprints ROW
Nadia Gurney-Randall
M: +44 (0)7866 262 344
E: ngurneyrandall@bmj.com

Commercial Reprints Americas
Ray Thibodeau
T: +1 267 895 1758
M: +1 215 933 8484
E: ray.thibodeau@contentednet.com

For all other journal contacts
http://fg.bmj.com/contact-us
Abstracts of the BSPGHAN Virtual Annual Meeting, 27–29 April 2021

A1 Plenary
A9 Poster presentations
A51 Author index
Plenary

FAECAL VOLATILE ORGANIC COMPOUNDS IN PAEDIATRIC INFLAMMATORY BOWEL DISEASE

Salma Belnour, Rachael Slater, Marcus KH Auth, Rafeeq Muhammed, Christine Spray, Duolao Wang, Chris Probert, Stephen Allen. University of Liverpool; Liverpool School of Tropical Medicine; Alder Hey Children’s Hospital NHS Foundation Trust; Birmingham Children’s Hospital NHS Foundation Trust; Bristol Royal Hospital for Children

Faecal volatile organic compounds (VOCs) result from the metabolism of the intestinal mucosa, gut microbiota and the environment. Profiling of faecal VOCs in children with different IBD sub-types and disease distribution and activity may shed light on underlying disease mechanisms.

Method We assessed faecal VOCs by gas chromatography-mass spectrometry in a prospective, observational study of children with suspected inflammatory bowel disease (IBD) attending 3 specialist clinics. We tested whether the abundance of faecal VOCs differed according to IBD versus other gastrointestinal disorders, IBD subtype and response to treatment in IBD.

Results We characterised faecal VOCs in 132 children in whom IBD was diagnosed and 132 non-IBD controls. 162 (61.4%) were boys. Mean age was 12.2 years (SD 3.0). In total 214 (81.1%) were white, 35 (13.3%) were Asian and 15 (5.7%) of other ethnic background. There were 78 (29.5%) children with Crohn's disease (CD), 38 (14.4%) with ulcerative colitis (UC) and 16 (6.1%) IBD-unclassified. The most common diagnosis in controls was a functional gastrointestinal disorder.

The mean abundance of 16 VOCs was significantly lower in IBD than controls whereas phenol and propan-1-ol were higher in IBD (p=0.001). Some short chain fatty acids (butanoic, pentanoic and hexanoic acids) were lower in IBD than controls (p<0.03).

The two compounds that were more abundant in IBD than control (propan-1-ol and phenol) returned to control levels post-treatment (figure 1).

Within IBD, the subtype (CD versus colitis (UC and IBD-unclassified)) described a small amount of variation (3%, p=0.006), with three faecal VOCs (6-methylhept-5-en-2-one; benzaldehyde; 4-methylphenol) significantly different in abundance between CD and colitis (t-test, p<0.05).

Conclusion/interpretation Propan-1-ol and phenol, higher in abundance in IBD than controls and returning to control levels post-treatment, may indicate abnormal amino-acid metabolism in pre-treatment IBD; phenol may be pro-inflammatory. Further analysis of VOCs may provide insights into underlying disease mechanisms in paediatric IBD.

LONG-TERM OUTCOMES OF PAEDIATRIC LIVER TRANSPLANTATION USING ORGAN DONATION AFTER CIRCULATORY DEATH (DCD); COMPARISON BETWEEN FULL AND REDUCED GRANTS

Amr Alnagar, Kejd Bici, Thamara Perera, Darius Mirza, Paolo Muesan, E Ong, Girish Gupte, Indra Van Mourik, Jane Hartley, Deirdre Kelly, Khalid Sharif. Birmingham Women’s and Children’s NHS Foundation Trust; General Surgery Department, Faculty of Medicine, Alexandria University, Egypt; University Hospitals Birmingham NHS Foundation Trust

Background Increasing numbers of successful paediatric liver transplantation (PLT) with improved survival rates reaching 90% at 10 years resulted in more children being listed for PLT but this was not associated with matching expansion in graft pool resulting in graft shortage. Reports including our published early experience showed promising short and intermediate term outcomes from DCD grafts in children.

Aim To compare long-term outcomes of full size and reduced DCD grafts in terms of incidence of complications as well as survival of both recipients and grafts.

Methods This is a retrospective review of PLTs using DCD grafts. Patients were divided into those who received full or reduced grafts. Data was collected for comparison of pre-transplant recipient parameters, donor parameters, operative parameters, post-transplant recipient parameters and outcomes. Laboratory markers were checked at discharge, 1- and 5-years post-transplant.

Results 14 PLTs from DCD donors between 2005 and 2018 were identified; 9 full size and 5 reduced grafts. Donors of both groups were Maastricht category III donors. Functional warm ischemia time did not show significant difference while
cold ischemia time was significantly longer in reduced graft group. Recipients of full grafts were significantly older, heavier in weight and tend to wait significantly longer on transplant waiting list. The main indications for PLT were biliary atresia and Alpha-1 anti-trypsin deficiency. Recipients of reduced grafts were sicker pre-transplant. Post-transplant hospital and PICU stay were longer in the reduced group but this was not significant. Only significant laboratory difference was at 1-year post-transplant as albumen and creatinine were significantly higher in the full graft group while ALT was significantly higher in the reduced graft group. There was no significant difference between two groups in terms of long-term complications. 3 patients in each group survived more than 5 years post-transplant. one child was re-transplanted in the reduced group due to portal vein thrombosis, this patient received another DBD graft then unfortunately died due to liver failure. One child from full graft group also died from a non-graft related cause (figures 1, 2).

### Abstract O2 Table 1

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Full DCD graft</th>
<th>Reduced DCD graft</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recipient age at transplant (months)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean ± SD.</td>
<td>143.4 ± 66.1</td>
<td>40.5 ± 53.8</td>
<td>0.012*</td>
</tr>
<tr>
<td>Median (Min. – Max.)</td>
<td>180 (11 – 216)</td>
<td>7 (0.8 – 120)</td>
<td></td>
</tr>
<tr>
<td>Recipient weight at transplant (kg)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean ± SD.</td>
<td>41.6 ± 19.9</td>
<td>11.2 ± 10.9</td>
<td>0.012*</td>
</tr>
<tr>
<td>Median (Min. – Max.)</td>
<td>43 (10 – 73)</td>
<td>5.3 (3 – 28.4)</td>
<td></td>
</tr>
<tr>
<td>Waiting time (days)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean ± SD.</td>
<td>170.8 ± 142.8</td>
<td>21.2 ± 18.8</td>
<td>0.012*</td>
</tr>
<tr>
<td>Median (Min. – Max.)</td>
<td>168 (4 – 487)</td>
<td>22 (1 – 49)</td>
<td></td>
</tr>
</tbody>
</table>

Pre-transplant recipient condition:
1. Admitted electively from home.
2. Hospitalized for interactable variceal bleeding.
3. Hospitalized for worsened liver function or nutritional rehabilitation.
4. Recurrent episodes of cholangitis ± external biliary drainage.
5. Super urgently listed for acute liver failure ± ventilatory and renal support.

Cold ischemia time (Hours):
Median (Min. – Max.) 6.2 (4.2– 9) 8.2 (7 – 8.8) P=0.038*

Biliary complications
- stricture 2 (22.2%) 1 (20%) 0.497
- stricture + leak 1 (11.1%) 0% 0.921

Laboratory markers at 1 year:
- ALT Mean ± SD. 20.6 ± 13.3 123.8 ± 102.6 0.016*
- AST Mean ± SD. 15 (14 – 53) 113.5 (31 – 237)
- Bilirubin Mean ± SD. 29.6 ± 11.6 81.7 ± 62.7 0.497
- Mean ± SD. 26 (17 – 51) 96 (13 – 136)
- Mean ± SD. 33.5 ± 31.3 19.3 ± 13.8 0.921
- Median (Min. – Max.) 16 (6 – 71) 14 (9 – 35)
- Albumen Mean ± SD. 45.3 ± 2.1 40 ± 6.2 0.047*
- Mean ± SD. 45 (41 – 48) 40.5 (32 – 47)
- Urea Mean ± SD. 5.3 ± 1.1 4.1 ± 1.0 0.081
- Median (Min. – Max.) 5.6 (3.8 – 6.7) 4.1 (3.2 – 5)
- Creatinine Mean ± SD. 52.6 ± 11.8 28.3 ± 13.4 0.016*
- Median (Min. – Max.) 51 (31 – 73) 26 (16 – 45)

Vascular complications
- PVS 1 (11.1%) 1 (20%) 0.081
- PVT 0 (0%) 1 (20%) 0.081
- Rejection 3 (33.3%) 2/5 (40%) 0.081
- Re-operation:
  - Re-transplantation 0 (0%) 1 (20%)
  - Biliary re-construction 2 (22.2%) 0 (0%)

### Summary

14 PLTs from DCD grafts (9 full and 5 reduced) were identified. Recipients of full grafts were older and heavier while reduced graft recipients were sicker in the pre-transplant period. Both groups demonstrated comparable graft and patient survival as well as long-term complications rates. 

### Conclusion

Selected DCD grafts are potential source to widen the graft pool in children.
THE UK PAEDIATRIC LIVER TRANSPLANT PROGRAMME DURING THE COVID-19 PANDEMIC

Introduction The UK has been severely affected by the COVID-19 pandemic. The impact on the adult population has been disproportionately higher when compared to children with consequent challenges to organ donation and liver transplantation (LT). Across the three UK paediatric liver centres there has only been a very small number of patients who tested positive for COVID-19 and all made a speedy and full recovery. We report here the response during the pandemic across the 3 paediatric LT centres.

Methods A series of nationally agreed policy changes affecting the liver procurement, listing and transplant process were agreed during regular meetings with LT centre directors and NHSE. Actions at a local and national level were agreed to protect and maintain the paediatric LT programmes.

Results During the study period, there was a significant reduction in the adult population in the mean number of weekly liver offers, donors and LTs compared to before the pandemic with signs of recovery between the 1st and 2nd UK lockdown periods (figure 1). More specifically the number of livers offered nationally was reduced from an average 30 – 40/week to only <10/week during the 1st wave in the March-April period. The number of children on the LT list during the study period across all 3 centres was 74 in total with 17 (23%) super-urgent and 57 (77%) electives, which was comparable to previous years.

Overall, 65–80 paediatric LTs are performed annually across the UK’s 3 paediatric centres.

From March-November 2020 there were 58 (82%) elective and 13 (18%) super urgent (acute liver failure & hepatoblastoma) paediatric LTs performed.

Donor Brain Dead (DBD) and Donor Cardiac Dead (DCDC) LTs were 54 (76%) and 3 (4%), respectively. Living related LT (LRLT) programme was sustained comprising 20% (DCDC) LTs were 54 (76%) and 3 (4%), respectively. Living related LT (LRLT) programme was sustained comprising 20% (DCDC) and 13 (18%) super urgent (acute liver failure & hepatoblastoma) paediatric LTs performed.

Donor Brain Dead (DBD) and Donor Cardiac Dead (DCDC) LTs were 54 (76%) and 3 (4%), respectively. Living related LT (LRLT) programme was sustained comprising 20% of LTs performed.

The number of paediatric LTs performed during the pandemic was comparable to those performed yearly since 2016. The number of LT per paediatric centre for King’s College Hospital (KCH), Birmingham Children’s Hospital (BCH) and Leeds Liver Unit were 40 (56%), 15 (21%) and 16 (23%), respectively with excellent outcome. A 13-year-old girl from KCH diagnosed with Wilson disease presented with liver failure and became COVID-19 positive whilst listed. She underwent LT soon after becoming COVID-19 negative. No perioperative mortality was reported with excellent outcome so far in all.

Conclusion The current COVID-19 pandemic had a significant impact on the UK adult LT programme. The paediatric programme LT was preserved despite a decrease in organ offering and retrieval nationally plus limitations on adult intensive care resources at a regional level. Overall, paediatric LT outcome remained very good.

GOSH-UCLH TRANSITION IN NEUROGASTROENTEROLOGY AND MOTILITY: EMBRACING READY STEADY GO HELLO

Introduction/Background In the last decade, Neurogastroenterology & Motility (N&M) has become a medical speciality in both paediatric and adult gastroenterology, encompassing gastrointestinal (GI) conditions from classic motility disorders, such as achalasia and intestinal pseudo-obstruction, to functional GI disorders (FGID). The latter represents one of the most challenging and common groups of disorders managed by both primary care practitioners and GI specialists. Appropriate transition is particularly challenging due to the complexity of this group of patients and a holistic approach, including dietetic, psychology, psychiatry, social work, physiotherapy and occupational therapy, is characteristically required. In the last year, a formal transition pathway has been developed at our centre between GOSH and UCLH N&M services.

Aim We aimed to review the clinical features and the complex needs of a group of young people transitioned from a paediatric to adult N&M.

Method All patients aged 13–24 transitioned to the UCLH N&M service over a period of 6 months were retrospectively reviewed. Demographic data, diagnosis, diet, biopsychosocial complexities, including multiple speciality involvement, polypharmacy, and known psychiatric and/or neurodevelopmental disorders were reported.

Results Ninety-two patients (70.7% Female) under the neurogastroenterology adolescent and young-adult service were included into the analysis, of which 72.8% were 13–18 years of age. Twenty-seven patients (29.3%) were diagnosed with an underlying motility disorders, 59 (64.1%) with FGID and 8 (8.7%) with GI-allergy. The majority of patients (80.5%) were under one or more additional medical specialities, with 28.3% under 3 or more medical specialities. Polypharmacy was common within this cohort, with 61% of patients being on 3 or more medications, whilst only 1.1% of patients required no medication to manage the symptoms. The majority of patients (56.5%) had mental health or developmental needs, such as anxiety (25%), depression (12%), eating disorders (5.4%) and learning difficulties (14.1%). Psychological interventions were necessary in 69% of the patients, whilst dietetic interventions in 76% of patients.

Summary/Conclusion Our study confirms the need for multidisciplinary support from the specialist adolescent medicine team to provide medical and psychological care when highly demanding complex patients are transitioned between a paediatric and an adult N&M services. Our data strongly supports a specialist adolescent transition hub model to ensure the delivery of developmentally appropriate healthcare, which has been shown to improve long-term health outcomes for young people with complex conditions. Although N&M expertise at
Introduction The prevalence of cow’s milk protein allergy (CMPA) in infants with gastroschisis has been reported as high as 45%, which is significantly higher than in the general infant population (0.5–1% of breast-fed babies and 5–7% in formula-fed babies). We aimed to define the prevalence of CMPA in infants with gastroschisis and type 2 or 3 intestinal failure (IF) and compare this to other groups of infants with type 2 or 3 IF.

Methods We obtained the pharmacy records of PN prescription lasting more than 28 days (i.e. IF type 2 and 3) for infants born between July 2015 and June 2020 in our tertiary intestinal rehabilitation centre. We only included infants presenting in the first year of life with type 2 or 3 IF related to a gastrointestinal disorder, other than enteropathies. We recorded the underlying cause of IF and the number of patients clinically diagnosed with CMPA. The diagnosis of CMPA was made by the clinical team on the basis of gastrointestinal symptoms, presence of macroscopic blood in the stools and lack of any other alternative diagnosis with symptom resolution after initiation of a hydrolysed or amino acid-based formula. We then obtained the feeding records of the patients and noted the number of infants on a hydrolysed and amino acid-based formula during their hospitalisation and at the last recorded dietetic follow up.

Results Out of 112 infants, 23 were diagnosed with gastroschisis and 29 with necrotising enterocolitis (NEC); 25/29 surgically managed. CMPA was diagnosed in 3/23 (13%) infants with gastroschisis, 5/25 (20%) of infants with surgically managed NEC and 5/60 (8%) of infants with other causes of IF type 2 and 3. Out of 23 patients with gastroschisis, only one was discharged home on PN with no concerns of CMPA. Out of the total 112 infants, 98 presented with IF type 2 and only 7 (7%) were also diagnosed with CMPA, while 14 were discharged on home PN with 6 (43%) also diagnosed with CMPA – table 1. An amino acid-based formula was trialled in 30/112 (27%) infants at some point during their hospitalisation while a hydrolysed formula was used in 54/112 (48%) infants with type 2 and 3 IF, in order to treat fat and sugar malabsorption, with 57% of children continuing to take a hydrolysed formula at the last recorded dietetic follow up. Three out of the 13 children with CMPA (2 with gastroschisis) have tolerated a dairy containing diet later on.

Conclusions The prevalence of CMPA in infants with gastroschisis and type 2 or 3 IF is much lower than that previously reported. CMPA is most prevalent in infants with surgically managed NEC and IF 2 or 3 while the prevalence of CMPA in IF type 3 in general is significantly higher. The use of hydrolysed formula for the management of malabsorption may be masking the diagnosis of CMPA in children with IF type 2.
Attendance logs and feedback forms were available for 53 sessions. A total of 2369 attendances were logged, with a median of 41 attendees per session (IQR 31–54). Attendees from 22 countries have participated in these sessions. A total of 810 survey feedback forms were received, with a median of 14 forms received per session (IQR 10–18). 32% were filled in by PGHAN Grid trainees, 23% by consultants, 15% by clinical fellows. Allied Health Professionals (AHPs) comprised 6% of feedback returns. 54% of survey feedback respondents accessed the teaching sessions from home.

An average of 98% (95% CI 96.3–99.2) survey respondents strongly agreed/agreed that the sessions were relevant to their learning. 97% (95% CI 96–98.7) of survey respondents strongly agreed/agreed that the sessions delivered of high quality.

Discussion The BSPGHAN series has been a positive initiative arising from the pandemic, providing access to high quality PGHAN education when local availability was paused, and giving a platform for the society internationally. Our report shows that the BSPGHAN Education Series has been well-received by attendees. The virtual sessions are more accessible compared to in-person teaching sessions, as evidenced by the high percentage of feedback respondents accessing the sessions from home.

Looking ahead, the BSPGHAN Education Group, set up in October 2020, will play a vital role in the further development of the Education Series. Sessions are recorded and made available to BSPGHAN members on the BSPGHAN website further work may include creating online learning modules centred around these recordings. AHP involvement is an area for development for 2021, we hope to include more topics that will be relevant to their interests.

Acknowledgments We thank all speakers for contributing to the teaching programme, and to all trainees who have devoted their time and efforts towards organising and running the teaching programme.

Case

We present a male teenager with a background of severe eczema since infancy, multiple food allergies and seasonal allergic rhinoconjunctivitis since early childhood. Systemic immunosuppressants including ciclosporin and methotrexate had failed to control his severe eczema. At the age of 15 years he developed dysphagia associated with difficulty swallowing food. He had no bolus obstruction or vomiting but did experience nausea. He was already on a PPI for suspected gastro-oesophageal reflux. An upper GI endoscopy with biopsies at multiple levels revealed a concentric ring appearance in the mid oesophagus. The histology showed >30 eosinophils per high power field with heavy spongiosis; both the macroscopic and microscopic findings were consistent with a diagnosis of eosinophilic oesophagitis (EoE). He was initially treated with oral budesonide but showed no response after 3 months (either clinically or at reassessment endoscopy). He then received an exclusive elemental diet for 10 weeks but still showed no resolution of his EoE.

A multidisciplinary decision with the dermatologists and gastroenterologists was made to stop his methotrexate and elemental diet and to treat with Dupilumab as a single agent, primarily to treat his severe eczema. After 12 months of treatment his eczema had almost completely resolved and his dysphagia was markedly improved. A repeat upper GI endoscopy showed 3–4 eosinophils per high power field, in keeping with adequately treated EoE.

Discussion EoE is a condition strongly associated with food allergies and atopy. Its diagnosis requires the presence of symptoms (including persistent dysphagia, food impaction or GORD that fails to respond to treatment), histological findings of >15 eosinophils per high power field in at least 1 biopsy and the exclusion of other causes. The incidence appears to be increasing with males in their 3rd and 4th decade being most commonly affected.

ESPGHAN have designed an algorithm for the recommended treatment for EoE in children and young people. They recommend the use of either topical steroids or an exclusion/elemental diet. If one of these proves ineffective they advise trying the other modality.

EoE is thought to be mediated primarily by food allergies triggering type 2 helper T-cell activity, resulting in release of IL 4, IL 5 and IL 13 cytokines. Dupilumab is a monoclonal antibody which inhibits IL4 and IL13 signalling and has been shown to be effective in control of atopic eczema. A recent randomized controlled trial (RCT) in adults has shown significant improvement in symptoms and endoscopic features of EoE with Dupilumab versus placebo. A phase 3 double-blind RCT evaluating efficacy and safety of Dupilumab vs placebo for EoE in adolescents and adults is ongoing.

Conclusion This is the first paediatric case report of Dupilumab being successfully used to treat both EoE and stubborn eczema which had failed to respond to other immunosuppressants. This was a very complex case due to the extensive atopy since infancy and the need to go beyond the current guidelines to treat his EoE.

### Abstracts

**O7**

DUPILUMAB – REPORT OF RESOLUTION OF REFRACTORY EOSINOPHILIC OESOPHAGITIS ALONGSIDE SUCCESSFUL TREATMENT OF ATOPIC ECZEMA

Kathryn Allan, Aswatha Rabindranathnambi, Jane Ravenscroft, Sabarrnathan Loganathan. Nottingham University Hospitals NHS Trust

10.1136/flgastro-2021-bspghan.7

**Case**

We present a male teenager with a background of severe eczema since infancy, multiple food allergies and seasonal allergic rhinoconjunctivitis since early childhood. Systemic immunosuppressants including ciclosporin and methotrexate had failed to control his severe eczema. At the age of 15 years he developed dysphagia associated with difficulty swallowing food. He had no bolus obstruction or vomiting but did experience nausea. He was already on a PPI for suspected gastro-oesophageal reflux. An upper GI endoscopy with biopsies at multiple levels revealed a concentric ring appearance in the mid oesophagus. The histology showed >30 eosinophils per high power field with heavy spongiosis; both the macroscopic and microscopic findings being consistent with a diagnosis of eosinophilic oesophagitis (EoE). He was initially treated with oral budesonide but showed no response after 3 months (either clinically or at reassessment endoscopy). He then received an exclusive elemental diet for 10 weeks but still showed no resolution of his EoE.

A multidisciplinary decision with the dermatologists and gastroenterologists was made to stop his methotrexate and elemental diet and to treat with Dupilumab as a single agent, primarily to treat his severe eczema. After 12 months of treatment his eczema had almost completely resolved and his dysphagia was markedly improved. A repeat upper GI endoscopy showed 3–4 eosinophils per high power field, in keeping with adequately treated EoE.

**Discussion**

EoE is a condition strongly associated with food allergies and atopy. Its diagnosis requires the presence of symptoms (including persistent dysphagia, food impaction or GORD that fails to respond to treatment), histological findings of >15 eosinophils per high power field in at least 1 biopsy and the exclusion of other causes. The incidence appears to be increasing with males in their 3rd and 4th decade being most commonly affected.

ESPGHAN have designed an algorithm for the recommended treatment for EoE in children and young people. They recommend the use of either topical steroids or an exclusion/elemental diet. If one of these proves ineffective they advise trying the other modality.

EoE is thought to be mediated primarily by food allergies triggering type 2 helper T-cell activity, resulting in release of IL 4, IL 5 and IL 13 cytokines. Dupilumab is a monoclonal antibody which inhibits IL4 and IL13 signalling and has been shown to be effective in control of atopic eczema. A recent randomized controlled trial (RCT) in adults has shown significant improvement in symptoms and endoscopic features of EoE with Dupilumab versus placebo. A phase 3 double-blind RCT evaluating efficacy and safety of Dupilumab vs placebo for EoE in adolescents and adults is ongoing.

**Conclusion**

This is the first paediatric case report of Dupilumab being successfully used to treat both EoE and stubborn eczema which had failed to respond to other immunosuppressants. This was a very complex case due to the extensive atopy since infancy and the need to go beyond the current guidelines to treat his EoE.

**O8**

IS ANTI-TISSUE TRANSGLUTAMINASE ANTIBODY TITRE GREATER THAN FIVE TIMES UPPER LIMIT OF NORMAL SUITABLE FOR NO-BIOPSY PATHWAY DIAGNOSIS OF COELIAC DISEASE?

1Daniyal Raja, 2Dharamveer Basude, 3Siba Paul. 1University of Exeter – Medical School; 2Bristol Royal Hospital for Children; 3Yeovil District Hospital

10.1136/flgastro-2021-bspghan.8

**Background**

The coeliac disease (CD) guidelines were updated by ESPGHAN in 2020 confirming that children (0–16yrs) with TGA-IgA titres >10x upper limit of normal (>10xULN) and positive EMA result can safely be diagnosed with CD via the no-biopsy pathway (NBP). This practice is well adopted in the UK and has led to prompt diagnosis, reduction of the burden on endoscopy services and significant cost saving to the NHS. The COVID-19 pandemic has led to unprecedented challenges for the health service especially endoscopy services. We rarely observed non-diagnostic histopathology TGA-IgA ≥5x ULN in our unit which receives referrals from whole of Southwest England.
Aims To explore the relationship of TGA-IgA/C21 ≥5x ULN with histological diagnosis of CD in children referred to a single large tertiary centre.

Methods Prospectively recorded data for children diagnosed with CD following endoscopy over 14-year period (September 2006 to August 2020) was analysed. The data included age, sex, reason for screening, indication for endoscopy, TGA-IgA levels at endoscopy, and histological findings. Where quantitative TGA-IgA was unavailable or not recorded were excluded from the analysis. Statistical analysis was performed using \( \chi^2 \) analysis and \( p<0.05 \) was considered significant.

Results 947 children had endoscopy, but 871 had complete data and were included in final analysis. 772/871 received a histological confirmation of CD by Marsh-Oberhuber histological grading (MO-HG) 2 to 3c. 441 had TGA-IgA/C21 and 439 (99.5%) had a positive histological diagnosis. The likelihood of a positive biopsy with TGA-IgA/C21 titre (439/441) compared to TGA-IgA <5 ULN titre (333/430) has strong statistical significance (\( p<0.00001 \)). Two children of 441 who had MO-HG <2 actually had TGA-IgA >10 ULN. The mean and median ages of the patients with confirmed CD (n=772) was 8.68 years and 9.1 years respectively (range 0–17 years), with a male to female ratio ≈ 1:2. Figure 1 shows the outcome of the 947 children who had endoscopy.

Conclusion This study showed that 99.5% of children with TGA-IgA/C21 ≥5xULN had clear histological confirmation of CD with \( p<0.00001 \) compared to TGA-IgA/C21 <5xULN. For the same advantages of the current NBP and considering the challenges posed by the COVID-19 pandemic, changing the guidance to TGA-IgA/C21 ≥5xULN appears to be safe and secure for diagnosis of CD in children.

SUSTAINED CLINICAL AND FINANCIAL BENEFITS OF A NUTRITION SUPPORT TEAM

Michelle Butcher, Tracey Johnson, Gabis Chana, Sue Protheroe, Theo Wong, Wolfram Haller. Birmingham Women’s and Children’s hospital

10.1136/lgastro-2021-bspghan.9

Background The evidence-based standard for optimal nutritional support is the multidisciplinary approach of a Nutrition Support Team (NST). Following a pilot study in 2012 showing reduced usage and wastage of parenteral nutrition (PN) a business case was accepted in 2014 to fund the NST at Birmingham Children’s Hospital (BCH). The initial focus of the team was to reduce PN usage and between 2012–2016 we reported a reduction in PN days of 20%. There was also an increase in the use of standard bags from 6% to 14.5% and a reduction in wastage from 5% to 3%. Cost savings were estimated to exceed £150,000. Between 2017–2020 the NST has continued to work at reducing PN use but have actively sourced more standard bags and improved education of clinical teams on appropriate use of standard PN.

Aim To assess whether there has been a sustained reduction in overall PN usage, a further increase in standard bag usage and reduction in wastage between 2017–2020.

Methods PN usage and PN wastage data for 2017–2020 was collated using the BCH pharmacy database. Data included number of PN referrals, total number of PN days per month, % standard bags and % wastage. This was compared with data from 2012–2016. Wastage was defined as unused and discarded PN.

Results Mean PN usage has fallen from 752 PN days/month in 2016 to 634 in 2020 showing a further 15% reduction in
the total number of PN bags used (figure 1). This is despite an increase in the mean number PN referrals from 26/month in 2016 to 39/month in 2020.

Mean% standard bag usage has increased from 14.5% in 2016 to 29.5% in 2020 (figure 2)

There is minimal change in wastage (figure 3) but wastage varied widely between different specialities (surgery: 2.2%, oncology and haematology: 3.6% and Paediatric Intensive Care (PICU) 7.3%).

Summary and conclusion The interventions of the NST have resulted in continued reduction in the number of PN days despite an increase in referral numbers, suggesting shorter episodes of PN.

A sustained increase in the percentage of standard bags 2017–2020 is attributed to more frequent consideration of standard PN, particularly when starting and weaning PN. Using clinical expertise the NST has introduced a wider range of standard PN bags. This has also contributed to increased standard PN use without compromising the quality of nutritional support.

There are a number of factors that contribute to reducing PN wastage including using standard bags as these can be recycled. The study has not been able to demonstrate any major impact of standard bag use on overall PN wastage. Wastage is multifactorial and data recording for PN wastage has been optimised to enable thorough evaluation of contributing factors. Most specialities have demonstrated reduced PN wastage, but wastage on PICU remains high. This clinical area will be prioritised for additional NST involvement in 2021.

Abstract 09 Figure 1

Abstract 09 Figure 2

Abstract 09 Figure 3
across the UK. Approximately 62.7% of these centres had at least one Consultant Paediatrician with SPIN in Gastroenterology. The region with the largest percentage of secondary centres with SPIN doctors was KSS (Kent, Surrey, Sussex) with 91.7%, followed by Scotland with 83.3%. On the other hand, Northern Ireland and the North West of England had the lowest percentages. Southampton, Chelsea and Westminster and Bristol are the LSC which provide the highest number of outreach support. However, nearly a 1/3 of the LSC in the UK do not provide any outreach clinics.

Discussion/Conclusion
The results of this pioneering project highlight the wide variance in availability of SPIN doctors and outreach clinics in different regions across the UK. The lack of significant correlation amongst different analysed variables may suggest that this variability is secondary to unquantifiable factors such as geographical reach/constraints, intent and local funding policies. We believe this information is valuable to local, regional and national service commissioning groups in the redirection of efforts and resources to target populations where more urgent intervention is required. Points can be learnt from the top performing regions to improve delivery and establish uniformity of care. This project not only identifies the need for continued work in this domain, but also provides a foundation and structure for further analysis of the current services offered in secondary care.

Background
Achalasia is a primary oesophageal motor disorder of unknown aetiology. Incidence of 0.18/100,000 extrapolates to 23 new presentations per year in the UK. An ESPGHAN Survey revealed that 76% present to gastroenterology services. Management expertise is shared between paediatric gastroenterologists and paediatric surgeons.

Recent evidence shows that serial pneumatic balloon dilatations (PD) is equally effective compared to Laparoscopic Heller’s myotomy with Dor fundoplication (HM) for type 1 and type 2 Achalasia. Peroral Oesophageal Myotomy (POEM) is most effective in Type 3 and resistant Achalasia and is not widely available. This is reflected in American College of Gastroenterology and European Society of Gastrointestinal Endoscopy guidelines. However, few UK paediatric gastroenterology, hepatology and nutrition (PGHAN) centres offer pneumatic balloon dilatations and hence patients may have limited options.

The Bristol PGHAN service has offered Pneumatic balloon dilatation as an option from 2010. Over time, practice has evolved from ad hoc dilatations to serial dilatations with a management algorithm. Families frequently choose PD as it is
less invasive and a day-case procedure. Other advantages include no surgical scars and ability for repeat procedures if symptoms recur. For the health service, PD is a more cost-effective action compared to HM.

**Methods** We analysed retrospective data from all paediatric patients who underwent pneumatic balloon dilatations from 2010 to 2020 in our centre.

**Results** In a ten-year period, 37 pneumatic dilatations were performed on 13 patients (7 male, 6 female), all with endoscopic guidance only. The median age at first dilatation was 12.7 years (range 5.4–15.7). Two patients had a prior diagnosis of eosinophilic oesophagitis. One patient had been managed as having an eating disorder before finally being diagnosed with achalasia. Two patients had a previous Heller’s myotomy and had been referred to our service following symptom recurrence.

Thirteen patients had diagnostic barium swallow prior to treatment, with 10/13 showing abnormalities (results for the remaining 3/13 were unavailable). Oesophageal manometry (changed from standard manometry [SM] to High resolution manometry [HRM] in 2016) was performed in 7/13 patients.

Four patients were classified with type 1 achalasia, 2 patients with type 2 achalasia (HRM) and the remainder were uncategorised (SM).

All patients had improvement in dysphagia, chest pain and regurgitation. However, 3 patients had a partial response to PD, with 2 proceeding to modified Heller’s myotomy and 1 patient having POEM.

Only one complication was recorded, with one patient requiring post-operative admission due to vomiting (known episodic vomiting). There were no incidences of perforation.

Figure 1 shows the current algorithm for the management of paediatric achalasia in our centre.

**Conclusions** Recommendations for the optimal management of Achalasia have changed with time. Centres should offer equal access to PD and HM and decisions made individually, taking into account patient preference. PD in the paediatric population is safe, even when repeated sets of dilatations are needed. Achalasia is a rare disorder, and we advocate for centres with the requisite expertise to be developed as supra-regional centres.

**Poster presentations**

**P01 A CASE OF POSSIBLE AUTOIMMUNE PANCREATITIS**

*Sally Buxton, 1Paul Bellis, 2Manu Nayar, 1Bruce McLain, 1Anirban Mukhopadhyay, 1Raj S Parmar, 1Julian Thomas. 1Great North Children’s Hospital, Newcastle; 2Royal Victoria Infirmary, Newcastle

10.1136/fgastro-2021-bsgphan.12

**Introduction** Autoimmune pancreatitis is a rare paediatric condition with management driven by adult guidelines. However, case reports suggest that the paediatric disease presents...
A CHILD WITH AN ANTENATAL DIAGNOSIS OF A CYST IN ABDOMEN – A CASE REPORT

Muhammad Ghias, Win Zaw. Northampton General Hospital NHS Trust

10.1136/flgastro-2021-bspghan.13

Objectives and Study To describe a case which posed difficulties in diagnosing an infant with biliary atresia.

Methods and Results A term female infant was born by normal delivery with no significant perinatal events. The antenatal scan had showed a cystic abdominal mass ($9 \times 8 \times 10$ mm) of unknown origin.

An ultrasound scan was done on Day 4 of life. It showed an $8 \times 9 \times 8$ mm very well-defined spherical fluid filled mass lying in the position of the second part of the duodenum. This was adjacent to but not apparently arising from the head of the pancreas. Radiologically it was thought to be a duplication cyst.

She continued to be fed well. She was seen at the clinic on Day 27 for prolonged jaundice. Her total bilirubin was 152 $\mu$mol/l with conjugated bilirubin of 120.5 $\mu$mol/l and ALT of 54IU/L. Further investigations were done.

Ultrasound scan on Day 30 showed similar findings to the previous one. The cyst was adjacent to the duct but not connected. There was no dilatation of bile duct.

MRCP was done on Day 34. It showed a 6 mm cyst adjacent to distal CBD and no connection between the cyst and the duct. Intrahepatic and CBD were not dilated.

Serial LFT were showed high level of conjugated fraction of bilirubin as well as gamma GT. Initially the stools were pigmented but they became pale and urine became darker on Day 29.

She was then transferred to the Tertiary Liver unit where she underwent liver biopsy which showed plugs of bile, canalicular cholestasis and periductal fibrosis.

On Day 41, she underwent surgery for Kasai procedure. The intraoperative cholangiogram showed a cystic structure with no connection with the biliary tree. Intraoperative findings were suggestive of biliary atresia.

Abstract P02 Table 1

<table>
<thead>
<tr>
<th>Age</th>
<th>Bilirubin</th>
<th>Conjugated Bili</th>
<th>ALT</th>
<th>AST</th>
<th>ALP</th>
<th>GGT</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>152</td>
<td>120</td>
<td>54</td>
<td>-</td>
<td>365</td>
<td>-</td>
</tr>
<tr>
<td>28</td>
<td>157</td>
<td>121</td>
<td>55</td>
<td>-</td>
<td>391</td>
<td>1693</td>
</tr>
<tr>
<td>29</td>
<td>163</td>
<td>129</td>
<td>57</td>
<td>103</td>
<td>390</td>
<td>1656</td>
</tr>
<tr>
<td>31</td>
<td>156</td>
<td>124</td>
<td>47</td>
<td>91</td>
<td>374</td>
<td>1303</td>
</tr>
<tr>
<td>33</td>
<td>159</td>
<td>127</td>
<td>48</td>
<td>94</td>
<td>396</td>
<td>1171</td>
</tr>
</tbody>
</table>

Conclusion The presence of a cystic structure at the porta hepatis without intrahepatic biliary ductular dilatation goes towards the diagnosis of biliary atresia, in the antenatal period. Cassacia et al found that anechoic small cyst in the hepatic hilum is highly suspicious of BA.

Presence of a triangular cord sign which is the visualisation of the fibrotic cord in the portal hilum is one of the hallmarks of sonographic imaging with a positive predictive value of 95% 4. We were not able to identify this sign. The utility of MRCP has not been encouraging in view of the cost, varying results and the need for immobilisation.

This case has demonstrated to have a low threshold of diagnosing BA in the presence of antenatal diagnosis of cyst at the porta hepatis and early referral to the tertiary centre is advisable.
A CURIOUS CASE OF AUTOIMMUNE HEPATITIS AND ACQUIRED PARTIAL LIPODYSTROPHY

1Christopher Bakewell, 1Astor Rodrigues, 2Rachel Williams, 3Grish Gupte, 1Kavindra Dayasiri, 1Sheetha Anand. 1Oxford University Hospitals NHS Foundation Trust; 2Cambridge University Hospitals NHS Foundation Trust; 3Birmingham Women’s and Children’s Hospital NHS Foundation Trust

Background The lipodystrophies are an extremely rare group of metabolic conditions. In acquired partial lipodystrophy (APL), the predominant clinical feature is a progressive, symmetrical reduction of adipose tissue which typically begins during the pre-adolescent period. While the pathogenesis of APL is likely to be complex and heterogeneous, a subset of these patients are reported to develop associated autoimmune conditions, including hepatitis. This has led some to implicate an underlying autoimmune process.

Method We report an ultra-rare case of a 17-month-old boy who presented to hospital with a Henoch-Schönlein Purpura-like illness and subsequently developed anti-LKM-1 positive autoimmune hepatitis (AIH) as well as clinical features of Acquired Partial Lipodystrophy.

Results In this child, the features of lipodystrophy occurred at a very early age and in association with a relatively mild hepatitis. We document his challenging path from first presentation, through to the diagnosis of AIH and APL and discuss his ongoing management. Despite an encouraging reduction in liver transaminases following dual immunosuppression, no improvement was observed in his adipose tissue distribution.

Conclusions Cases of autoimmune hepatitis occurring in association with acquired partial lipodystrophy are extremely rare. The primary aim of this report is therefore to familiarise the PGHAN community with this uncommon association. While much is still unknown about the link between these conditions, we use this case to discuss the current evidence for their shared pathogenesis.

A DIAGNOSTIC DILEMMA: CASE REPORT OF A YOUNG BOY WITH ABDOMINAL TUBERCULOSIS WHO WAS INITIALLY THOUGHT TO HAVE CROHN’S DISEASE

Alice Findlay, Natasha Burgess, Marco Gasparretto, Ahmed Kadir, Sandhia Naik, Nick Croft, Protima Deb. The Royal London Hospital

Introduction Tuberculosis (TB) like Crohn’s disease can affect any part of the gastro-intestinal (GI) tract including anus, peri toneum and hepato-biliary system. The clinical manifestations of abdominal tuberculosis are non-specific and can mimic various GI disorders especially Crohn’s disease which can cause delay in diagnosis and management.

History and Presentation A 14-year-old boy was diagnosed with small bowel ileal Crohn’s disease in 2016 based on clinical symptoms of abdominal pain and weight loss, biochemical features of a raised ESR but normal CRP at presentation and a distorted ileocaecal valve (ICV) with inflammatory changes seen both macroscopically and microscopically at colonoscopy with radiological confirmation of short segment ileal disease on MRL. He was treated with exclusive enteral nutrition for induction of remission, however his ESR remained elevated and he required escalation to Azathioprine within 3 months of diagnosis for continued symptoms of abdominal pain and ongoing weight loss. His clinical course over the next 2 years remained unchanged with a persistently raised ESR and continued disease around ICV and distal ileum in spite of immunomodulator therapy.

Treatment and Investigation Prior to commencing biologic treatment for active Crohn’s disease, he had an Elispot and was found to be positive. This was felt to be consistent with latent TB infection for which he had 3 months of chemoprophylaxis with Rifampicin and Pyridoxine. Following this, his symptoms of abdominal pain resolved, and he gained 5 kg for the first time since his diagnosis of CD. Moreover, his ESR completely normalised. His repeat mri showed a significant improvement of the inflammation in the ileum as well as around the ICV. This was also confirmed with repeat colonoscopy which was markedly improved from previously although still had abnormal distortion of the ICV. His clinical response to the TB treatment and radiological and endoscopic improvement following the TB chemoprophylaxis led to the suspicion of intestinal TB as the correct diagnosis.

Clinical Background and Progress He was born in the UK. He had a BCG scar. His grandmother was diagnosed with TB in India in 2010. She had visited the UK prior to the diagnosis and stayed with the family for 6 months. She was unwell with cough and weight loss at that time. Both his mother and father had been exposed to her also and his father was also receiving treatment for latent TB now. Based on the history of TB exposure and the clinical, biochemical, endoscopic and radiological improvement following latent TB treatment, he went on to complete a full 6-month course with 4 drug initiation for abdominal TB.

Summary and Conclusion Abdominal tuberculosis should be considered as a differential diagnosis in patients with Crohn’s disease. Careful evaluation of clinical, biochemical, radiological and histological findings can aid in distinguishing between the two conditions, leading to early diagnosis and management.
gastroenterologist. The objectives of this service evaluation were to assess satisfaction rates with the DLC and establish GFD compliance rates of patients attending the DLC.

**Subjects and Methods** Patients who had attended the DLC in the previous year were invited to partake in the service evaluation. The method was two online questionnaires. The satisfaction questionnaire had previously been utilised in the same centre to assess satisfaction with the service prior to the change to a DLC service. The dietary compliance questionnaire had previously been utilised in another paediatric study.

**Results** The patient population response rate was 40% (n=28). 61% of respondents were ‘extremely likely’ to recommend the DLC to friends and family if similar care was needed. 61% of respondents were ‘fully compliant’, 32% of respondents were ‘compliant with errors’ and 7% of respondents were ‘non-compliant’ with a GFD. 79% were ‘fully compliant’ in the age-group 3–11 years compared to 43% in the age-group 12–18 years. Chi-square analysis showed this difference was approaching statistical significance (p=0.053). The responses to the question ‘My child eats food labelled ‘May contain traces of gluten or wheat’’ stratified by the two age-groups showed that 86% of respondents in the age-group 3–11 years responded ‘no’ whereas 50% of the respondents in the age-group 12–18 years responded ‘no’ to this question. Chi-square analysis showed that this difference reached statistical significance (p=0.043).

**Summary and Conclusion** A comparison between the satisfaction survey results performed prior to the service change shows that there is an increased proportion of respondents from the DLC service who were ‘extremely likely’ to recommend the service to a friend or family member (61%) compared to the previous service (38%). During the two year period since the DLC service has been in place, two patients from 70 patients who are reviewed in the DLC required referral to the gastroenterologist. Significant financial savings are associated with a DLC compared with the previous service. The compliance rates of the overall population group and the lower compliance rates in the adolescent sub-group found are in accordance with the available literature. The questionnaire was able to identify some areas where adolescents were falling down in their compliance to a GFD and this informed the development of an online education resource.

**Methods** We looked at retrospective data 20011–2020 of our IBD case load to identify how many had a negative/low faecal calprotectin (low FC) at diagnosis, this limit was set at <80, which is the current value for our hospital laboratory. Positive/raised faecal calprotectin (high FC) was any value >80. Our local database was used to identify IBD patients and the hospital electronic patient records system was searched for faecal calprotectin values at time of diagnosis (pre-treatment).

**Results** A total of 198 patients were diagnosed with IBD in the time frame investigated. 17 (9%) patients had a negative faecal calprotectin at diagnosis, 118 (60%) had a positive value, and 63 (32%) had no documented value (figure 1). The difference in FC values was significantly different between the low FC and high FC group, p<0.0001 (Mann-Whitney test, figure 3). The median age at diagnosis was 14 yrs (2–16 yo) in the low FC group, and 12 yrs (1–17 yo) in the high FC group (figure 2). The distribution of IBD diagnosis in the

---

**A SINGLE CENTRE DESCRIPTION OF IBD PATIENTS WITH NEGATIVE FAECAL CALPROTECTIN AT DIAGNOSIS**

Harween Dogra, Vinod Kolimarala, Bukunola Kukoyi, Babu Vadamalayan. King’s College Hospital

101136@gastro-2021-bspghan.17

**Introduction** In the past 10 years faecal calprotectin has been increasingly used in Paediatrics, as in adults, to screen for inflammatory bowel disease (IBD). Faecal calprotectin is a calcium and zinc binding protein expressed by neutrophils and can be detected in stool when there is infiltration of the mucosa with neutrophils, as in IBD. Discussion around diagnostic values in Paediatrics have shown young children can have falsely elevated faecal calprotectin and studies have suggested values over 200, or some over 800, as a positive indication to investigate further for IBD. However, there are limited descriptions of IBD patients with negative faecal calprotectin and how this may influence investigation and management.

**Methods** We looked at retrospective data 20011–2020 of our IBD case load to identify how many had a negative/low faecal calprotectin (low FC) at diagnosis, this limit was set at <80, which is the current value for our hospital laboratory. Positive/raised faecal calprotectin (high FC) was any value >80. Our local database was used to identify IBD patients and the hospital electronic patient records system was searched for faecal calprotectin values at time of diagnosis (pre-treatment).

**Results** A total of 198 patients were diagnosed with IBD in the time frame investigated. 17 (9%) patients had a negative faecal calprotectin at diagnosis, 118 (60%) had a positive value, and 63 (32%) had no documented value (figure 1). The difference in FC values was significantly different between the low FC and high FC group, p<0.0001 (Mann-Whitney test, figure 3). The median age at diagnosis was 14 yrs (2–16 yo) in the low FC group, and 12 yrs (1–17 yo) in the high FC group (figure 2). The distribution of IBD diagnosis in the

---

**Abstract P06 Figure 1** Total of 198 IBD patient reviewed, 63 with no documented FC (faecal calprotectin), 17 with low normal FC and 118 with high/raised FC

**Abstract P06 Figure 2** Median age of patients with low normal FC (faecal calprotectin) is 14yo, 5 patients with Crohn’s disease, 6 patients with Ulcerative colitis, 6 patients with IBD-U. Median age of patients with high/raised FC is 12yo, 61 patients with Crohn’s disease, 43 patients with Ulcerative colitis, 14 patients with IBD-U

---

**Abstract P06 Figure 3** There was a significant difference in FC (faecal calprotectin) values between the normal/low FC and raised/high FC groups, ***p<0.0001 (Mann-Whitney test)**
low FC compared to the high FC groups was Crohn’s Disease 30% v 52%, Ulcerative colitis 35% v 36%, and IBD-U 30% v 12%. The low and high FC values were significantly different (p<0.0001) in all diagnostic sub-groups (figures 4, 5 and 6).

Conclusion A small but significant percentage of our IBD patients had a negative faecal calprotectin at diagnosis. The majority did, during disease monitoring, develop a raised faecal calprotectin. Due to variation in local guidelines between centres, these patients may not have been fully investigated at initial presentation and therefore would have had a delay in diagnosis. This work demonstrates that a negative faecal calprotectin does not always reassuringly exclude IBD. That if low FC is used to decide not to investigate further, it should continue to be monitored if patients are symptomatic. It is not known whether a low FC at diagnosis represents an early stage of disease. We now aim to look at disease progression for our low FC group to investigate whether starting management at this point delays need for escalation of treatment.
decision. Reactive TDM is performed in response to a disease flare, whereas proactive TDM consists of periodic TDM to allow treatment optimization and prevention of possible flares. In the main, GI centres recommend the use of TDM as opposed to an empirical management of patients on anti-TNF. However, there are a limited number of studies that have addressed whether proactive TDM leads to improved clinical outcomes in comparison to reactive TDM.

**Aim** The aim of this study was to investigate if proactive TDM improves patient disease management by reducing the risk of treatment failure due to LoR and/or development of anti-drug antibody.

**Patients and Methods** We conducted a single-centre prospective observational study to accrue data on proactive TDM between June 2019 and June 2020. We compared this group to a historical cohort of patients with IBD treated at the same centre using reactive TDM between 2014 and 2017.

**Results** 30 children with IBD (16 M, mean age at diagnosis 11.47 ± SD 2.93, median 12, range 3–16) started on anti-TNF treatment between June 2019 and June 2020, were prospectively recruited (current follow-up duration: average 7.1 months ± SD 3, median 6.4, range 3.1–13). 10 had ulcerative colitis (UC), 19 had Crohn’s (CD) and one had IBD-U CD-like. 37 children (20 M), 6 with UC and 31 with CD, were included in the retrospective cohort managed with reactive TDM. (Table 1).

More patients in the proactive TDM cohort (22/30) were managed by escalating the IFX regime (i.e. 10 mg/Kg 8 – 6 or 4 weekly) compared to the reactive TDM cohort (14/37) (chi-square 8.396, P 0.00376).

In the cohort managed with reactive TDM, a higher number of patients developed high titre anti-IFX antibody (> 50 U/ml) post induction (12/37 vs 3/30) (chi-square 4.798, P 0.0285).

The need for switching to different biologics was significantly higher in the reactive TDM cohort (22/37) compared to the proactive TDM cohort (1/30) (chi-square 23.15, P < 0.00001).

**Conclusions** The introduction of proactive TDM resulted in a significant reduction of patients requiring switch of their primary biologic and saw an increase in mean trough levels due to timely dose escalation. The results of this study are early indicators that proactive TDM offers a better method of managing children with IBD on IFX therapy compared to reactive TDM with the potential of additional clinical benefits such as reducing the risk of developing adverse drug reactions due to high antibody titres.

**Abstract P07 Table 1**

<table>
<thead>
<tr>
<th>Proactive TDM cohort (recruited June 2019 – June 2020)</th>
</tr>
</thead>
<tbody>
<tr>
<td>number</td>
</tr>
<tr>
<td>age (mean (years) ± SD, median, range)</td>
</tr>
<tr>
<td>age at start of IFX treatment (mean (years) ± SD, median, range)</td>
</tr>
<tr>
<td>current follow-up duration (mean (months) ± SD, median, range)</td>
</tr>
<tr>
<td>number of patients requiring IFX escalation</td>
</tr>
<tr>
<td>number of patients with positive antibody at week 14</td>
</tr>
<tr>
<td>number of patients requiring a switch to a different biologic</td>
</tr>
<tr>
<td>number of patients requiring IBD-related surgery</td>
</tr>
</tbody>
</table>

The OTSC® device appears effective in a limited number of situations in older and larger children including anastomotic ulcers, closure of leaking percutaneous endoscopic gastrostomy (PEG) fistula/site following removal, gastric perforation and bleeding peptic ulcers. The operator should be an experienced endo-therapeutic endoscopist with specific OTSC® training, and the type and size of the OTSC® device should be carefully considered, along with any co-morbidities of the

---

Introductions Over The Scope Clips (OTSC®) have developed valuable indications in adult endoscopy. These indications include: non-variceal gastrointestinal (GI) bleeding, anastomotic bleeding, closure of fistulae such as gastro-cutaneous and post-gastrostomy persistent fistulae closure. Different clip sizes are available, the smallest being 8.5–9.8 mm in diameter with its loading device on the tip of the endoscope increasing the device and endoscope intubation diameter to 14.6 mm. This may present challenges in terms of the size of the patient in whom it might be used. OTSC® appear effective and safe when appropriate training is received in adult interventional endoscopy. There are no reported case series of OTSC® in children. We undertook a service evaluation of our recent experience with this technology in a regional/national referral paediatric endoscopy unit.

**Methods** The hospital database was searched to identify cases where OTSC® was used for indications other than acute non-variceal GI bleeding. A retrospective collection of data including demographics, presentation, anthropometry, co-morbidities, efficacy and complications was done. Post-procedure follow up was identified in the clinic or in-patient setting. Special emphasis was laid on resolution or recurrence of the original indication, and any complications related to the procedure.

**Results** Seven patients (3 male) were identified in whom the OTSC® procedure had been performed between February 2018 and February 2020. Median age was 10.8 (range 5.2–16.6) years. Median weight was 27.08 (range 18.2–44.3) kg. The patient profile, indications for the procedure and the outcome are detailed in table 1. Successful outcome was achieved in 5/7 patients and a complication of an oesophageal perforation occurred in 1/7 which healed without surgical intervention.

**Conclusion** The OTSC® device appears effective in a limited number of situations in older and larger children including anastomotic ulcers, closure of leaking percutaneous endoscopic gastrostomy (PEG) fistula/site following removal, gastric perforation and bleeding peptic ulcers. The operator should be an experienced endo-therapeutic endoscopist with specific OTSC® training, and the type and size of the OTSC® device should be carefully considered, along with any co-morbidities of the
<table>
<thead>
<tr>
<th>Serial</th>
<th>Age at the time of procedure</th>
<th>Sex</th>
<th>Weight (Kg)</th>
<th>Height (cm)</th>
<th>Background</th>
<th>Indication</th>
<th>ASA</th>
<th>Procedure details</th>
<th>Effect</th>
<th>Follow up</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>14 year 6 months Male</td>
<td>Male</td>
<td>22.0</td>
<td>113.3</td>
<td>NBAS mutation. SOPH anomaly. Portal Hypertension with oesophageal varices.</td>
<td>Continuous leakage of Peg site with skin excoriation</td>
<td>3</td>
<td>OTSC®11 mm/6t.</td>
<td>Leakage stopped straightaway</td>
<td>Outpatient follow-up in a week no leakage. However, the leak restarted after two weeks. Two months follow up – no further leak. 3 months – recurrence of symptoms. Surgical closure performed – no further leak</td>
</tr>
<tr>
<td>2</td>
<td>6 year 5 months Female</td>
<td>Female</td>
<td>20.9</td>
<td>117.8</td>
<td>Hirschsprung’s disease. Total colonic Duhamel pull through surgery at 3 years.</td>
<td>Anastomotic ulcer with poor response to: - steroid enema - probiotics - sulfasalazine - CMP free diet - Wheat exclusion - Liquid paraffin - gut decontamination - APC.</td>
<td>2</td>
<td>OTSC®12 mm/6t of large ulcer. APC of 3 small ulcers. Olympus PCF-H290T</td>
<td>Improved haemoglobin and blood indices.</td>
<td>Outpatient in 6 weeks – no further bleeding PR. Procedure repeated after 17 months due to fresh anastomotic ulcer. The site of first OTSC® noted to be fully healed.</td>
</tr>
<tr>
<td>3</td>
<td>16 year 7 months Female</td>
<td>Female</td>
<td>37.9</td>
<td>138.7</td>
<td>NEC. Short bowel syndrome. Congenital heart disease (TOF). Colostomy for high stool output at the age of 15 years. Severe learning difficulties Epilepsy. Recurrent pancreatitis.</td>
<td>Gastric bleed due to ulcer</td>
<td>3</td>
<td>OTSC®[mini]10 mm/3t Olympus GIF-H290</td>
<td>Bleeding stopped at the site of ulcer.</td>
<td>Eventually developed severe haemorrhagic pancreatitis. (RIP)</td>
</tr>
<tr>
<td>4</td>
<td>8 year 5 months Male</td>
<td>Male</td>
<td>27.0</td>
<td>131.1</td>
<td>Gastrochisis – primary closure day 1. More than 20 laparotomies. Home PN</td>
<td>Ileo-ileal anastomotic ulcer not responding to: - conventional treatment - Haemostatic clips - APC - not amenable to surgery.</td>
<td>3</td>
<td>OTSC®12 mm/6t. Olympus PCF-H290T</td>
<td>No further drop in haemoglobin.</td>
<td>Endoscopy after 7 weeks – No bleeding. Not requiring central venous access anymore.</td>
</tr>
<tr>
<td>6</td>
<td>5 year 3 months Male</td>
<td>Male</td>
<td>19.25</td>
<td></td>
<td>Unexplained multisystem disorder Developmental impairment Past IWD faltering growth requiring PEG. Coombs Positive anaemia with thrombocytopenia</td>
<td>PEG site leak</td>
<td>3</td>
<td>OTSC®11/6t Olympus GIF-H290. Anchoring (AC) forceps and abrading brush used.</td>
<td>Immediate closure</td>
<td>No further leakage after 7 months of procedure</td>
</tr>
</tbody>
</table>
patient that may preclude success and/or lead to potential complications such as oesophageal perforation.

**P09**

**ASSESSING VITAMIN E STATUS IN PARENTAL NUTRITION (PN) POPULATION IN ACCORDANCE TO ESPGHAN GUIDANCE: COMPARING SERUM VITAMIN E LEVELS TO VITAMIN E:CHOLESTEROL RATIO**

Helen Vanker, Timothy James Morris, Andrew Fagbemi, Ahmed Kadir. 

North West Deanery – Royal Manchester Hospital; Royal Manchester Hospital; London Deanery

10.1136/flgastro-2021-bspghan.20

**Introduction** 

ESPGHAN guidance recommends measuring both serum vitamin E and its lipid ratio to accurately monitor vitamin E status amongst paediatric patients on PN. Alpha-tocopherol, the surrogate marker for vitamin E, is affected by lipid levels and as concentrations rise, vitamin E deficiency can be missed. Vitamin E deficiency can result in neurological sequelae. With cases reported in children with chronic cholestasis with normal vitamin E level but low vitamin E:cholesterol ratio. To our knowledge this is the first study evaluating the impact of these recommendations.

**Method** 

In February 2020, at Royal Manchester Children’s Hospital, 34 children (<17 years old) were administered home PN. In this cohort the cholesterol ratio was utilised to determine the vitamin E:lipid ratio. Retrospective serum vitamin E level, cholesterol level, vitamin E:cholesterol ratio and hepatic profile were collected from the electronic laboratory system for specimens received between October 2019 to February 2020. Data were collated and analysed within Microsoft Excel 2017. Two patients did not have vitamin E:cholesterol ratio performed and were excluded resulting in a final study population of 32 patients, see table 1.

**Results**

A positive relationship (R² = 0.6707) between cholesterol and vitamin E levels was demonstrated as seen in figure 1. In the cohort, the mean vitamin E and cholesterol levels were within the normal range but vitamin E:cholesterol ratio elevated, see table 2. High proportion of children had normal serum vitamin E level (75%, n=24), whilst levels were low in 4 patients (12.5%) but elevated in the remaining (12.5%, n=4). The majority (n=30; 94%) had a normal cholesterol levels with elevated levels in the remaining (n=2). Many patients (66%, n=21) had an elevated vitamin E:cholesterol ratio with this being normal in the remaining patients (n=11;34%). Notably, no patients had a low ratio.

**Abstract P09 Table 1**

<table>
<thead>
<tr>
<th>Study Demographics</th>
<th>Overall Cohort (n=32)</th>
<th>Abnormal Hepatic Profile (n=13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>16 (50%), 16 (50%)</td>
<td>6 (46%), 7 (54%)</td>
</tr>
<tr>
<td>Age (month, years)</td>
<td>6.6 (9month-15years)</td>
<td>7 (2-14years)</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>19.5 (8.46 – 44.8kg)</td>
<td>19.6 (9.1-32kg)</td>
</tr>
</tbody>
</table>

**Abstract P09 Table 2**

The mean values for the overall cohort and those with hepatic dysfunction

<table>
<thead>
<tr>
<th>Overall Population (n=32)</th>
<th>Abnormal Hepatic Profile (n=13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin E level (11.6–34.8 mmol/L)</td>
<td>24.4 (10.0 – 52.4)</td>
</tr>
<tr>
<td>Cholesterol level (0 – 4 mmol/L)</td>
<td>2.9 (1.9 – 7.9)</td>
</tr>
<tr>
<td>Vitamin E: Cholesterol Ratio</td>
<td>8.5 (4.75–12.60)</td>
</tr>
<tr>
<td>Cholesterol Ratio</td>
<td>8.2 (4.75–12.6)</td>
</tr>
</tbody>
</table>

**Abstract P09 Figure 1**

Within the entire cohort (n=32) the relationship between cholesterol and vitamin E levels
Patients with low vitamin E level (n=4) all had a normal vitamin E:cholesterol ratio. Thus, in accordance with the ESPGHAN guidance1 these patients had a normal vitamin E status. In this subgroup, if the serum vitamin E level alone had been measured these patients would have undergone PN adjustments which were not clinically indicated.

Hepatic profile was performed in 94% (n=30) and derangement was noted in 41% (n=13). In this sub-cohort, the mean vitamin E, cholesterol levels and vitamin E:cholesterol ratio were similar to the entire cohort, see table 2. One patient demonstrated cholestasis (raised ALP and GGT) and associated abnormal synthetic liver function (raised PT time, normal albumin) with a normal vitamin E:cholesterol ratio (and cholesterol level) but high vitamin E level; thus, deficiency would not have been missed.

No patients had a low vitamin E:cholesterol ratio. These results are not keeping with other studies. This could be attributable to the small study size. Also, as increased age is a risk factor for elevated lipid levels, this paediatric only population could be a limitation of this study.

Conclusion In accordance with the ESPGHAN guidance this study demonstrated the utility of measuring the vitamin E:cholesterol ratio to define the vitamin E status amongst the home PN population with potentially associated economical and logistical benefit.

P10 CASE REPORT: MUCINOUS ADENOCARCINOMA OF COLON IN AN ADOLESCENT

Suchandra Pande, Nitin Patwardhan. Leicester Royal Infirmary

10.1136/flgastro-2021-bspghan.21

Introduction/Background Colorectal carcinoma (CRC) is commonly found in adults. CRC in the paediatric population is extremely rare.

Paediatric patients with CRC present with non-specific symptoms (abdominal pain, obstructive symptoms, anaemia) and may have an abdominal mass – similar to the presentation in adults.

Primary GI malignancies constitute ~2% of paediatric neoplasms. On the other hand, paediatric CRC comprises a small proportion of all CRC. Diagnosis of CRC in the paediatric population is usually delayed due to its rarity and therefore low index of suspicion. CRC in children can be associated with Polyposis Syndromes and inflammatory bowel disease (IBD). Sporadic CRC in children is rare.

We report a case of mucinous adenocarcinoma of the colon in a 17-year old female who presented with abdominal pain, altered bowel habit, anaemia and developed bowel perforation while awaiting colonoscopy. Diagnosis was confirmed on histology of resected caecum and ascending colon.

Case report A 17-year old adolescent girl was admitted under general paediatric team with abdominal pain, blood in stool, feeling tired, possible low-grade fever. She was noted to have severe anaemia (Hb 47 g/L); other blood results unremarkable. She was treated with intravenous antibiotics and received blood transfusion. Her abdominal pain and diarrhoea improved. There is no family history of any bowel disorder. Her stool sample culture was negative. Calprotectin was >1000 microgram/gm raising suspicion of IBD. Ultrasound abdomen showed ‘some faecal loading in caecum and ascending colon’, otherwise unremarkable. She was discharged with plan for colonoscopy within 4 weeks.

Three weeks later she re-attended with acute severe abdominal pain and was re-admitted under gastroenterology team. She had an extremely tender abdomen with guarding in right iliac fossa. CT abdomen showed localised perforation in ascending colon with a mass and extensive fat stranding. She underwent an emergency laparotomy, right hemicolecotomy with ileostomy formation.

Results The details of the resected tumour are given in table 1 below.

She was referred to Adult Colorectal Surgical and Oncology team and was started on adjuvant chemotherapy following MDT discussion.

Discussion Diagnosis of CRC in paediatric patients remains an incidental finding due to nonspecific symptoms and low level of suspicion. Therefore, it usually gets diagnosed at advanced stage and bears poor prognosis. Although CRC is more common in older adults its incidence is increasing in younger age group including <20-year olds. Mucinous adenocarcinoma comprises >50% of all paediatric CRC and has a poor prognosis.

Conclusion Though CRC presents with non-specific symptoms in children and adolescents, this case is presented to raise awareness of its possibility. Input from the Adult Colorectal MDT is recommended for further management.

P11 CHARACTERISTICS OF CHILDREN WITH INTUSSUSCEPTION IN PEUTZ-JEGHERS SYNDROME IN A SPECIALIST CENTRE OVER A 10 YEAR PERIOD

1Vaia Zouzo, 2Claire Brooks, 3Claire Kulke, 4Elizabeth Renji, 5Fiona Cameron, 6Sarang Tamhne, 7Manjula Nair, 8Jeng Haw Cheng, 9Naima Malik, 10Marcus Kh Auth.
1Alder Hey Children’s Hospital; 2Liverpool Women’s Hospital; 3Birmingham Women’s and Children’s Hospital

10.1136/flgastro-2021-bspghan.22

Introduction Children with Peutz-Jeghers syndrome (PJS) are at high risk of intussusception and bowel resection from small intestinal polyp formation. Little data has been published on early warning signs and prevention. We contributed to recent ESPGHAN guidelines, which recommended to start screening investigations from the age of 8 years in 3-yearly intervals. In spite of meticulous endoscopic and imaging screening, three of our patients developed intussusceptions.

Aim
1. To identify patient characteristics and polyp features in PJS patients with intussusceptions compared to patients without this complication.

<table>
<thead>
<tr>
<th>Abstract P10 Table 1 Tumour Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Histology</td>
</tr>
<tr>
<td>Poorly differentiated signet ring cell/mucinous adenocarcinoma with localised tumour perforation and serosal involvement;</td>
</tr>
<tr>
<td>MMR protein proficient</td>
</tr>
<tr>
<td>TNM8 Staging</td>
</tr>
<tr>
<td>pT4a pN2b, V1, R0</td>
</tr>
<tr>
<td>KRAS, NRAS, BRAF mutation</td>
</tr>
<tr>
<td>Not detected</td>
</tr>
<tr>
<td>CEA</td>
</tr>
<tr>
<td>2 ug/L (0–5)</td>
</tr>
<tr>
<td>Post-Surgery CT scan</td>
</tr>
<tr>
<td>No evidence of mediastinal or axillary node involvement; no pulmonary or liver metastases.</td>
</tr>
</tbody>
</table>
2. To review if a more cautious surveillance protocol may be beneficial for children with PJS considered being at increased risk.

Subjects and Methods All patients were confirmed to have PJS by genetic analysis (STK 11 mutation).

Patient A underwent endoscopic surveillance every 2–3 years. At 9 years video capsule endoscopy (VCE) revealed one stalked small polyp and some areas of fresh blood in the small bowel, so double-balloon-enteroscopy (DBE) performed and two polyps removed. 4 years later the patient presented with sharp abdominal pain for two weeks associated with a mass in LIF, reduced appetite and required semi-urgent laparoscopic resection.

Patient B was diagnosed de novo at the age of 11 years due to lip and mucosal freckling. In addition to upper and lower GI endoscopy, small bowel imaging was booked but patient did not adhere to recommendations. Following pathological VCE, urgent booking for DBE was made but postponed by the family. The child presented then acutely with small bowel intussusception, underwent an urgent laparotomy and resection.

Patient C was diagnosed at the age of 8 years, presenting with anaemia, acute abdominal pain and non-bilious vomiting. An urgent ultrasound abdomen revealed small bowel intussusceptions, leading to laparotomy and resection. Intraoperative enteroscopy was performed with removal of two further polyps 10-15 cm from the resected bowel.

Results Review of 7 PJS patients without intussusceptions during the same 10 year period did not demonstrate significant differences in age of presentation, presence of polyps in stomach, or duodenum. Regarding small intestinal polyp formation, 2 of control patients had small intestinal polyps, one of them referred for DBE and the other one did not require DBE resection.

Summary and Conclusion
1. In our cohort of children with PJS, presence of small intestinal polyps was the only risk factor for intussusceptions. Intussusceptions occurred in 5/10 of all children with small intestinal polyps.
2. Dynamics of small intestinal polyps appear variable, but occurred earlier or in shorted intervals than recommended by ESPGHAN guidelines.
3. Although small bowel investigations can be difficult for some children with PJS, we recommend that they should be performed not later than 8 years of age. Due to absence of early warning signs for intussusceptions, if small intestinal polyps are found, small bowel imaging under optimal imaging conditions should be repeated annually and also immediately when children are symptomatic.
4. Centres are encouraged to enroll patients in the upcoming ESPGHAN polyposis group PJS registry.

Abstract P11 Table 1 Characteristics of PJS patients with intussusceptions

<table>
<thead>
<tr>
<th>Patients characteristics</th>
<th>Patient A</th>
<th>Patient B</th>
<th>Patient C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at diagnosis (y) ; gender</td>
<td>5.3, female</td>
<td>11, female</td>
<td>8.4, female</td>
</tr>
<tr>
<td>Family history of PJS</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Age at Intussusception (y)</td>
<td>15.7</td>
<td>12.9</td>
<td>1.8</td>
</tr>
<tr>
<td>Time since diagnosis (y)</td>
<td>10.3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Last endoscopic assessment (interval since presentation with Intussusception)</td>
<td>endoscopy (6 mts): Stomach: x 30 sessile polyps (&lt;8 mm), x 1 sessile polyp 10 mm</td>
<td>Endoscopy (18 mts): Stomach: x1 sessile polyp (2 × 3 cm) – not removed as no inpatient bed available</td>
<td>-</td>
</tr>
<tr>
<td>Previous Imaging (interval since presentation with Intussusception)</td>
<td>Barium meal and FT (2.2y): some filling defects in small bowel, no large polyp</td>
<td>VCE (4 m): small polyps in duodenum, slow transit from duodenum to jejunum, polyps in proximal and distal jejunum</td>
<td>US$ abdomen: abnormal loop in central abdomen, very suspicious of intussusception</td>
</tr>
<tr>
<td>Surgery</td>
<td>1. No intussusception identified</td>
<td>1. Jejunal small bowel intussusception with polyp as a lead point</td>
<td>1. x2 ileo-ileal Intussusceptions each with a pathologic lead point of a polyp</td>
</tr>
<tr>
<td>Small bowel resection (cm)</td>
<td>15</td>
<td>100</td>
<td>45</td>
</tr>
</tbody>
</table>
Background Eosinophilic oesophagitis (EOE) is a chronic immune-mediated inflammatory disease of the oesophagus, characterised by symptoms of oesophageal dysfunction and eosinophilic infiltration at oesophageal biopsy. Despite a growing body of research surrounding EOE, our understanding of its natural history and optimal management remains limited. To shed more light on this, the clinical characteristics, diagnosis and management of patients diagnosed with EOE presenting to our tertiary Paediatric Gastroenterology unit were studied.

Methods Case notes and electronic records of children diagnosed with EOE were reviewed retrospectively from a two-year period (July 2018 to July 2020). Children were eligible for inclusion if they had 1) histological confirmation of the presence of >15 eosinophils per high power field in at least one oesophageal mucosal biopsy taken at endoscopy; and 2) been discussed in the Paediatric Gastroenterology MDT for clinical-pathological correlation. Children with concomitant inflammatory diseases were excluded. Data on presenting features, investigations, management and response to treatment were collated and analysed using Microsoft Excel (Version 16.43).

Results A total of 28 children with a diagnosis of EOE fulfilled inclusion criteria for this study, 20 (71.4%) males with a mean (SD) age of 8.91 (4.22) years. A quarter of children were referred by general practitioners and the remainder by hospital paediatricians and surgeons. Symptoms of dyspepsia and dysphagia predominated among 64.3% and 46.4% of subjects respectively. For 55.6% of children an allergic condition was also present, most commonly food allergy (42.9%) (figure 1). Blood eosinophils were elevated in 78.6% of children (mean (SD) 0.64 (0.43)). Twenty-four (88.9%) children had been started on a proton-pump inhibitor (PPI) prior to initial endoscopy and 63.6% were PPI-responsive. Macroscopic features of EOE were evident in 65.4% of subjects. Upon diagnosis, 24 children (85.7%) were reviewed by a dietician and started on an elimination diet (75% empiric versus 25% testing-directed). At subsequent review, 83.3% had clinically improved although only 52.9% showed histological evidence of improvement at reassessment. Mean (SD) time between initial endoscopy and reassessment was 10.5 (8.39) months. A further 12 children (28.6%) went on to have at least one more endoscopy. Topical steroid treatment with fluticasone was reserved as a second line treatment and given to three children (10.7%). Limitations to this study include the retrospective design, limiting comparison of treatment approaches and evaluation of longer-term outcomes among children with EOE.

Conclusion In a cohort of children with EOE diagnosed at Leicester Royal Infirmary, male sex predominated whilst symptoms of dyspepsia or dysphagia, a history of atopy and elevated blood eosinophils were highly prevalent. Over 80% of children showed a clinical improvement with PPI therapy and dietary measures alone, highlighting the benefit of robust dietetic support. However, clinical improvement did not always correlate with endoscopic improvement. Moreover, escalation to second-line steroid treatment was uncommon, in part due to local challenges procuring orodispersible budesonide, which is not licensed in children.

Clinical features significantly associated with higher risk of catheter-related bloodstream infection (CRBSI) in children on long-term parenteral nutrition (PN)

\textsuperscript{1}Maria Giovanna Puoti, \textsuperscript{2}Chiara D’Eusebio, \textsuperscript{3}Zafar Zaidi, \textsuperscript{1}Hannah Littlechild, \textsuperscript{1}Emily King, \textsuperscript{1}Jutta Koglmeier, Susan Hill, \textsuperscript{1}Great Ormond Street Hospital; \textsuperscript{2}University Hospital of Turin

Objectives and study Catheter-related bloodstream infection (CRBSI) is a common and serious complication of parenteral nutrition (PN). We aimed to determine incidence and risk factors for CRBSI in children receiving long-term home PN at home for Intestinal Failure (IF).

Methods Diagnosis of CRBSI was based on clinical manifestations of infection such as fever, rigors, and/or hypotension together with positive blood culture obtained via the central venous catheter (CVC) and absence of other potential sources of infection. The incidence of CRBSI was measured as number of catheter-related episodes per 1000 catheter days. Data regarding potential risk factors for CRBSI such as young age <5 years, oral/enteral feeding, enteral tube feeding, enterocutaneous stoma, number of CVC lumens, absence of ileocoeal valve (ICV), number of PN and lipid infusions/week were recorded.

Results The study group included 58 children (26 male, aged 7.2±4.6 years). Aetiology of IF included gastro-intestinal motility disorder (26/58), short bowel syndrome (SBS) (21/58) and enteropathy (Ent) (11/58). There were a total of 58414 catheter observation-days. Thirty-one of 58 (53.4%) children (15 M, aged 5.8±4.3 years) were diagnosed with 108 CRBSIs, a rate of 1.85/1000 catheter days. The median (range) number of CRBSI episodes per patient was 1 (0–14). The median days receiving PN was 1391 (range 75–1565), the median weekly PN infusion frequency was 7 days (range 1–7) and the median weekly lipid infusion was 3 days (range 0–9).
Background It is important to identify patients with monogenic IBD since management including response to biologics and surgery plus the role of stem cell transplantation may differ from classical IBD. We report on the 2020 Position paper of the PORTO group of ESPGHAN for the use of genomics to diagnose monogenic causes of IBD.

Methods Paediatric IBD specialists from the Paediatric IBD Porto group of the European Society of Paediatric Gastroenterology, Hepatology and Nutrition (ESPGHAN) and specialists from several monogenic IBD research consortia reached a consensus of standard of care. Our systematic literature review covered indications, technologies (targeted panel, exome and genome sequencing), gene panel setup, cost-effectiveness of genetic screening, and requirements for the clinical care setting.

Results Next-generation DNA sequencing technologies are recommended to diagnose monogenic causes of IBD in routine clinical practice, embedded in the setting of multidisciplinary patient care. Routine genetic screening is not recommended for all IBD patients but instead genetic testing should be considered in the context of age of IBD onset (infantile IBD, very early onset IBD, paediatric or young adult IBD) and on further key criteria such as family history, relevant comorbidities and extraintestinal manifestations. Genetic testing is also recommended in advance of hematopoietic stem cell transplantation. We present a diagnostic algorithm that includes a gene panel of seventy-five monogenic IBD genes. We discuss how these recommendations can be implemented from 2021 onwards into the UK NHS health care system. Lastly, we present a UK-focused health care utilisation pathway highlighting the available UK clinical resources, clinical targeted panel sequencing and exome sequencing strategies in the UK, and regional immune validation pathways.

Summary Genomic technologies should be considered an integral part of patient care to investigate patients at risk for monogenic forms of IBD in the UK.
Functional constipation

<table>
<thead>
<tr>
<th>#</th>
<th>Functional constipation</th>
<th>#</th>
<th>Constipation</th>
<th>Dietary review/m</th>
<th>modification 4</th>
<th>GOR 1</th>
<th>Stool softener/laxative 4</th>
<th>Cow’s milk allergy 1</th>
<th>Symptom/stool diary 2</th>
<th>Abdominal pain 1</th>
<th>PPI 1</th>
<th>Possible polyp 1</th>
<th>Rifaximin 1</th>
<th>Anal sphincter Botox injection 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/4 (20.6)</td>
<td>9</td>
<td>Dietary review/ modification 4</td>
<td>20.6</td>
<td>Constipation</td>
<td>69.2</td>
<td>GOR 1</td>
<td>7.7</td>
<td>Stool softener/laxative 4</td>
<td>7.7</td>
<td>Symptom/stool diary 2</td>
<td>7.7</td>
<td>PPI 1</td>
<td>7.7</td>
<td>Probaltic 1</td>
</tr>
</tbody>
</table>

# Results

In total, 53/228 (27.6%) children had an FGID according to the Rome IV criteria. The most common diagnoses were IBS (27; 42.9%) and functional constipation (13; 20.6%); 10 children (18.9%) had two FGIDs. Clinical diagnoses and clinical management varied markedly within each Rome IV diagnosis (table 1).

# Conclusion

Use of the Rome IV criteria in routine practice is achievable and would likely better capture the clinical burden of these common conditions through greater consistency in clinical diagnosis. In addition, use of the criteria would encourage quality improvement projects and research to better inform clinical management.

# P17 DO NAFLD PATIENTS ENGAGE WITH ADDITIONAL WEIGHT MANAGEMENT SUPPORT BETWEEN APPOINTMENTS?

Helen Mortimer, Sara Mancell, Emer Fitzpatrick. King’s College Hospital; King’s Liver Centre

Background and Aim With the exponential increase in diagnosis of non-alcoholic fatty liver disease (NAFLD) in children and young people (CYP) in the UK, the numbers of CYP attending tertiary NAFLD clinics continues to rise. Though there is no convincing evidence that pharmacological therapy can halt or reverse disease, there is strong evidence that 5–10% weight loss can improve or reverse the condition. From a liver surveillance perspective, appointments with bloods and imaging every 6–12 months are deemed sufficient, but are not adequate to support diet and lifestyle changes. The purpose of this study was to determine whether patients and their parents/carers engaged with input between appointments, and whether it improved weight loss.

Subjects and Methods All patients who attended NAFLD clinic requiring weight management support (January - August 2018) were offered follow up between appointments. A phone call or email was sent within six weeks of the appointment. Where phone calls were unanswered a message was left, and a letter sent if no answering service. If there was no response, no further contact attempts were made. Clinical, biochemical and anthropometric data were collected on all CYP who attended clinic; patients were reviewed 6–12 monthly. Diagnosis of NAFLD was made by paediatric hepatologist with biopsy or a combination of radiological and biochemical data on exclusion of all other known causes of liver disease. CYP were excluded if they attended another dietetic service regularly, were achieving sufficient weight loss, or weight management was not the primary reason for review. Body mass index (BMI) was calculated and converted to z-scores (WHO criteria).

Results During the study period 33 CYP (11F) were offered additional follow up; all agreed. Mean (SD) age was 15.0 (2.15) years at initial appointment. A phone call was requested by 17(52.0%) and 16(48.0%) preferred email. Contact was made with the parent/carer in 19 cases (58%) and 14(42%) directly with the CYP. Contact was made with 15(45%), nine (60%) by phone and six (40%) by email. Of those who received additional follow up five (33%) had a second contact and one (3%) a third contact. Mean (SD) follow up time was 37.9 (2.41) weeks. For the 24(73%) patients with both initial and follow up data, mean (SD) BMI z-score at initial appointment was 3.19(0.53) and follow up 3.23(0.62). There was no difference between responders/non-responders in BMI z-score.

Summary and Conclusions Although all the CYP agreed to have additional follow up, only 45% responded. The preference for contact was via phone and with parent/carer. A limitation was that only one attempt was made to reach each
EFFECTIVENESS OF HOME BOWEL PREPARATION FOR EMERGENCY: A UK PROSPECTIVE SURVEY OF SEVERE GI

To pave the way forward a patient questionnaire evaluating the current service and seeking opinions regarding regular, remote follow up would be valuable.

INTRODUCTION
The North of Scotland Paediatric Gastroenterology, Hepatology and Nutrition Network (NoSPGHN) manages children over an area of 53,000 km². Travel distances to Royal Aberdeen Children’s Hospital (RACH) were previously felt to preclude the adoption of home bowel preparation (HBP) for elective colonoscopies but a trial period of HBP commenced in March 2020. The same drugs (senna and Picolax) were used for inpatient bowel preparation (IPBP) or HBP but the timings were changed for HBP to complete all doses on the day prior to procedure to allow travel to RACH. This audit evaluates the impact of this change of practice.

METHODS
All children undergoing elective colonoscopy at RACH between December 2019 and November 2020 were identified. Electronic were records reviewed to determine IPBP vs HBP, distance to RACH from patient’s home, bowel preparation score, morning or afternoon list, requirement for intravenous (IV) fluids during the procedure, day case procedure and length of stay. Bowel preparation score was derived from the Aronchick Scale and converted as follows: 0 (unacceptable), 1 (poor), 2 (fair), 3 (good) and 4 (excellent).

RESULTS
Summary The high standard of bowel preparation achieved with IPBP was maintained when delivered at home, despite some children travelling >100 miles and having travelling times of >3 hours. Delivering all doses of drugs on the day prior to procedure did not affect the quality of bowel preparation for afternoon lists. There is a trend to a higher proportion of children with HBP receiving IV fluids during anaesthetic which may suggest that some are dehydrated. The proportion of day case procedures has increased from 0% to 72%, which since March 2020, has saved NHS Grampian £18,000.

Conclusion Home bowel preparation delivered on day prior to procedure is well tolerated and as effective as inpatient delivered, even for children with long travelling times to hospital. Covid-19 distancing measures have reduced the number of available inpatient beds so HBP has aided bed management in addition to providing a cost saving. The risk of dehydration may be higher for HBP and guidance will be changed to increase the emphasis on oral fluid intake, including during travelling time, on day of procedure.

P19 EFFICACY OF THIOPURINES IN PREVENTING INFlixIMAB ANTIBODY FORMATION WHEN USED IN DUAL THERAPY: EXPERIENCE FROM A SINGLE TERTIARY PAEDIATRIC GASTROENTEROLOGY DEPARTMENT

Muhammad Azim Muhammad Amin, Vansha Datta, Danica Hapuarachchi, Loveday Jago, Andrew Faibbeni, Ahmed Kadiir. Royal Manchester Children Hospital, Manchester

Background and Aim There is evidence that shows addition of an immunomodulator (azathioprine or mercaptopurine) to Infliximab (IFX) therapy reduces antidrug antibodies, however, published evidence remains quite limited in paediatric population. We conducted a review to observe whether there is any correlation between the drug level of azathioprine metabolites, that is 6-thioguanine nucleotides (6-TGN) and development of anti-IFX antibodies (Abs) in inflammatory bowel disease (IBD) patients.

Method This is a retrospective study of patients with IBD based on a single tertiary paediatric gastroenterology department that had their levels monitored from March 2016 until March 2020. We defined maximum drug efficacy based on consensus on ESPGHAN management of IBD in paediatric and our lab references (235–450 pmol/8 × 108). In order to maintain consistencies, we included patients on 8 weekly 5 mg/kg of Infliximab infusion regimen who had their azathioprine metabolites measured within 3 months from starting. Fishers test and Pearson correlation were used to test the correlation between the drug level of azathioprine metabolites and development of IFX Abs.

Results 36 (58%) out of 62 patients were included in this study based on the above criteria (median age 14.25). Mean level of 6-TGN was lower in anti-IFX Abs-positive patients compared to anti-IFX Abs-negative patients (316.2 vs 322.8) with 6.607±57.51 (CI -123.5–110.3, p=0.91). There is a positive correlation between positive anti-IFX abs with lower level of Azathioprine metabolites with coefficient at 0.47 (p=0.05).

Conclusion Our data demonstrates there is positive correlation between lower levels of azathioprine metabolites and positive anti-IFX abs level, hence suggestive of the importance of adherence to treatment to ensure longevity usage infliximab in IBD patients.

P20 EMERGENCi: A UK PROSPECTIVE SURVEY OF SEVERE GI BLEEDING (REQUIRING UPPER GI ENDOSCOPY) AND EMERGENCY ENDOSCOPY IN UNDER 16s

1Natasha Thom, 1Martina Voliorani, 1Ramya Kirupananthan, 1Polychronis Kemos, 2Nicolai Croft. 1Paediatric Gastroenterology, Royal London Children’s Hospital, Barts Health NHS Trust, London; 2Blizard Institute, Barts and the London School of Medicine, Queen Mary University of London

Objectives EMERGENCi is a prospective, national, cohort study of emergency endoscopy and severe upper GI bleeds in children. Objectives were to produce national data of the clinical presentations, patient co-morbidities, indications, waiting times and endoscopic treatments for emergency endoscopy.

Methods Units were identified through the UK Paediatric Gastroenterology and Paediatric Surgical Societies (BSPGHAN & BAPS). Once registered, fortnightly emails were sent over a 6 month period asking for reports in <16 years of severe upper

A22
GI bleeds requiring endoscopy (UGIB) and/or other emergency upper endoscopies (OEE). Cases were reported in REDCap.

**Results**

28 centres provided denominator data with regard to the services they provide (covering 90% of the UK population). 22 provided prospective data for UGIB and 18 for OEE covering 70 and 60% of the UK population respectively.

98 cases were reported over a 6 month period: 34 UGIB, 55 OEE, (38 foreign body and 17 others); 9 less severe UGI bleeds not fitting the definitions were excluded from further analysis.

Of 25 centres reporting, 14(56%) had 0 UGIB and 20/25 (80%) had ≤2 over the 6 months. Endoscopic interventions for GI bleed were undertaken in only 6/25 centres.

The mean age of the UGIB group was 6.7 years, 29% were ≤1 year. 19(56%) had significant co-morbidities. Presenting symptoms were one or both of melaena and haematemesis. Of the 20 providing sufficient data for a Sheffield score, 25%(4/20) were high (≥8) at presentation (median score 2.5, range 1–24, interquartile range 3.25). Main findings at endoscopy; 8(24%) had no abnormalities, 14(41%) had UGI ulcers (6 duodenal, 6 gastric and 2 oesophageal), 9(26%) oesophagitis and gastritis, 8(24%) varices.

13(38%) required endoscopic treatment, 6 for varices, 4 for GU, 2 DU, 1 for blood in upper GI tract. 3 required surgery. Two patients died, one within 48 hours of the bleed in PICU in the context of sepsis and multi-organ failure. 14 patients required inter-hospital transfer, median time from hospital presentation to endoscopy was 97 hours for patients needing transfer and 24 hours for those not.

For the OEE (N=55), mean age was 6.3 years, 26% ≤1 year. 21(38%) had significant co-morbidities. Main indications were foreign bodies (25, 45%) - coins (15), battery (2), button battery (5), magnets and a toy. 13(24%) food bolus obstruction, 11(20%) caustic substance ingestion, 5 oesophageal strictures. 9(16%) endoscopies revealed no significant findings, 37(65%) required treatment at endoscopy, 50% (27 patients) had required inter-hospital transfer. Median time from first hospital presentation to endoscopy was 21 hours in those requiring transfer and 14 hours in those not.

**Conclusions** This is the first national prospective study of its kind examining the most urgent and severe endoscopy cases in under 16s. These data indicate that very small numbers of centres are performing endoscopic treatments for severe UGI bleeds. Inter-hospital transfers appears to be much quicker for surgical indications than UGIB although we did not find evidence of poor outcomes in the UGIB due to delayed transfer. The planning, location and skill mix of national emergency endoscopy services require careful consideration.

**P21 EXPERIENCES IN DIETARY MANAGEMENT OF EOSINOPHILIC OESOPHAGITIS**

Sarah Khweir, Lucy Jackman, Edward Gaynor, Leanne Goh. Great Ormond Street Hospital

10.1136/flgastro-2021-bspghan.31

**Introduction**

Patients with eosinophilic oesophagitis (EOE) are currently treated with medication (proton pump inhibitors (PPI)/topical steroids), diet restriction and dilation. Diet therapy consists of dietary exclusion of specific foods. A ‘step-up’ approach is usually recommended, considering empirical 1–2 food (milk ± wheat) exclusions then 4-food (additional elimination of soya and egg), then 6-food (with additional elimination of nuts and seafood). Once in remission, individual reintroductions with endoscopic reassessment, helps guide the minimum number of food exclusions required to maintain this. At Great Ormond Street Hospital (GOSH), the GIANTS (gastro-intestinal, allergy, nutrition and therapy service) was a new service initiated in March 2018, managing all existing and newly diagnosed EOE patients at GOSH. This service evaluation project aimed to explore the most common strategies in dietary exclusions and how this impacted on growth and remission of EOE within our cohort.

**Methods**

Retrospective electronic patient records review from March 2018-March 2020. Newly diagnosed patients on diet therapy under GIANTS were included. Patients who had been diagnosed prior to the inception of GIANTS and those with significant comorbidities e.g. trachea-oesophageal fistula were excluded.

**Results**

There were 13 newly diagnosed patients (excluding those with comorbidities) with EOE in the GIANTS service. Of these patients, four patients (30%) completed diet therapy. One patient was unable to complete a milk exclusion and chose medicinal therapy. Children were 3 female, 1 male with a mean age of 7.4 years at diagnosis. Two patients commenced a milk free diet, one had a milk and soya free diet and the fourth had a milk, wheat and soya free diet. Three of four of these patients achieved remission. Three of four patients had trialled drug therapy (PPI) first with no histological remission. BMI z-score did not change between when the children were first diagnosed to achieving disease remission (mean BMI z-score -0.28 to -0.29). All patients had regular access to a dietitian.

**Conclusion**

In this small service evaluation, medicine was the preferred treatment choice for families. This is likely due to the burden of changing the diet has on a family and a patient’s quality of life. However, 75% of this cohort achieved histological remission on diet therapy. PPI appeared ineffective in this small patient group. Empirical food elimination via a step-up approach appears helpful in these patients, reducing burden of excessive exclusions and also reduced number of endoscopies when considering reintroduction of these foods. Growth appeared unaffected with no concerns with BMI. All patients on diet therapy had regular input with the dietitian, supporting the need for specialised dietetic input within gastrointestinal allergy. Whilst these findings are supported in the guidelines, more research is needed to look at which diet strategy is the most effective and how this is achieved, including how many previous treatments and endoscopies a patient has required. Achieving remission rates as timely as possible is crucial not only for the patient’s quality of life but also to reducing the need for repeated endoscopies within short time-frames.
Abstracts

A24

Frontline Gastroenterology 2021;12(Suppl 1):A1–A52

affecting hepatocanalicular transporters. It leads to intrahepatic accumulation of toxic bile acids with clinical features including pruritus, malabsorption and vitamin deficiencies. Chronic cholestasis leads to liver fibrosis which can progress to cirrhosis and end-stage liver disease. Effective treatment of these transport defects is a clinical and scientific challenge.1

Fibrates were first noted to reduce hepatic alkaline phosphatase (ALP) isoenzyme levels during their development as cholesterol-lowering agents in the 1970s, which appeared to be related to their effect on peroxisome proliferator activated receptor PPAR-α receptor. Since then, several case reports and pilot studies have demonstrated the efficacy of fibrates in reducing serum biomarkers of cholestasis in patients with incomplete response to ursodeoxycholic acid (UDCA) monotherapy.2

Aim To assess the effect of fenofibrates on pruritus and biochemical laboratory values in children with non-obstructive cholestatic liver diseases.

Subject and Methods A prospective study, included 71 paediatric patients suffering from non-obstructive cholestatic liver diseases. They were recruited from outpatient clinics at The National Liver Institute, Menoufia University, Egypt and Dr. Yassin Abdel Ghaffar Charity Centre for Liver Diseases & Researches, Cairo, Egypt. Patients were divided into 2 groups:

• Therapy group (T-group): Received UDCA, 10–30 mg/kg/d orally and Fenofibratein (FF) 10–20 mg/kg orally, once per day. This group included 23 patients.
• Control group (C-group): Received UDCA acid 10–30 mg/kg/d by oral rout and included 30 patients.

Informed consents were obtained from the patients or careers and the study was registered as a clinical trial. Both groups were followed up for 4 months with regular review visits at zero, 1 month and 4 months with the following data:

1. Full history taking including the points of the pruritus grading score (PGS),
2. Thorough clinical examination with stress on presence of pruritus marks

3. Investigations: Liver function tests and FBC with every visit
4. Total serum bile acids, lipid profile and abdominal ultrasound at the start of the study and after 4 months.

Endpoints were defined:

1. Four months’ follow up visit (± 2 weeks)
2. 2- Developing serious side effects that needed change in their therapy (increased PGS, ALT or bilirubin >1.5x baseline).

Abstract P22 Table 2 Comparison between patients in T gp and C gp regarding the clinical outcomes after 1 month and 4 months of therapy

<table>
<thead>
<tr>
<th>Outcome</th>
<th>T-gp (n=23)</th>
<th>C-gp (n=30)</th>
<th>P1 value</th>
<th>T-gp (n=18)</th>
<th>C-gp (n=26)</th>
<th>P2 value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean PGS (&lt;19)</td>
<td>6.5±4.5</td>
<td>8.2±5.8</td>
<td>0.36</td>
<td>3.2±3</td>
<td>7.0±5.4</td>
<td>0.07</td>
</tr>
<tr>
<td>Decreased PGS &lt; 1.5 base line</td>
<td>4</td>
<td>5</td>
<td>0.02*</td>
<td>10</td>
<td>9</td>
<td>0.034*</td>
</tr>
<tr>
<td>Pruritus mark (%)</td>
<td>10 (45%)</td>
<td>12 (40%)</td>
<td>0.56</td>
<td>4 (22%)</td>
<td>7</td>
<td>0.35</td>
</tr>
<tr>
<td>Abdominal pain (%)</td>
<td>1 (4.3%)</td>
<td>2 (6.6%)</td>
<td>0.55</td>
<td>2 (11.1%)</td>
<td>4</td>
<td>0.62</td>
</tr>
<tr>
<td>ALT (IU/L)</td>
<td>179±178</td>
<td>159.1</td>
<td>0.302</td>
<td>104.2</td>
<td>131.5</td>
<td>0.767</td>
</tr>
<tr>
<td>Decreased ALT &lt;1.5 x base line</td>
<td>2</td>
<td>5</td>
<td>0.396</td>
<td>4</td>
<td>0</td>
<td>0.02*</td>
</tr>
<tr>
<td>AST (IU/L)</td>
<td>250.6±198.5</td>
<td>208.1±198.5</td>
<td>0.412</td>
<td>125.2</td>
<td>187.4</td>
<td>0.047*</td>
</tr>
<tr>
<td>GGT (IU/L)</td>
<td>153.2±117.4</td>
<td>301.6±117.4</td>
<td>0.160</td>
<td>133.8</td>
<td>326.0</td>
<td>0.026*</td>
</tr>
<tr>
<td>ALK (IU/L)</td>
<td>445.3±338.5</td>
<td>470.7±338.5</td>
<td>0.599</td>
<td>471.0</td>
<td>418.7</td>
<td>0.167</td>
</tr>
<tr>
<td>ALB (g/dl)</td>
<td>3.9±0.7</td>
<td>5.5±0.7</td>
<td>0.700</td>
<td>4.2±0.6</td>
<td>3.9±0.8</td>
<td>0.422</td>
</tr>
<tr>
<td>BA (umol/lit)</td>
<td>-</td>
<td>-</td>
<td>NA</td>
<td>79.3</td>
<td>124.2</td>
<td>0.001*</td>
</tr>
<tr>
<td>PT (seconds)</td>
<td>264.9±206.9</td>
<td>250.6±206.9</td>
<td>0.198</td>
<td>198.5±198.5</td>
<td>0.577</td>
<td>105.2</td>
</tr>
<tr>
<td>INR</td>
<td>1.2±0.3</td>
<td>2.0±0.2</td>
<td>0.120</td>
<td>1.1±0.1</td>
<td>1.8±2.8</td>
<td>0.105</td>
</tr>
<tr>
<td>TB (mg/dl)</td>
<td>11.7±5.2</td>
<td>11.3±5.2</td>
<td>0.219</td>
<td>6.1±6.4</td>
<td>8.5±6.8</td>
<td>0.369</td>
</tr>
<tr>
<td>DB (mg/dl)</td>
<td>7.1±6.4</td>
<td>7.7±5.7</td>
<td>0.998</td>
<td>4.2±4.1</td>
<td>7.1±4.9</td>
<td>0.196</td>
</tr>
<tr>
<td>TG (mg/dl)</td>
<td>126.2±114.6</td>
<td>250.6±114.6</td>
<td>0.412</td>
<td>125.2</td>
<td>187.4</td>
<td>0.047*</td>
</tr>
<tr>
<td>CHOL (mg/dl)</td>
<td>11.8±3.4</td>
<td>13.2±3.4</td>
<td>0.853</td>
<td>12.5±3.4</td>
<td>1.165</td>
<td></td>
</tr>
<tr>
<td>HDL (mg/dl)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>NA</td>
<td>79.3</td>
<td>124.2</td>
<td>0.001*</td>
</tr>
<tr>
<td>LDL (mg/dl)</td>
<td>115.9±102.8</td>
<td>115.9±102.8</td>
<td>0.516</td>
<td>79.3</td>
<td>124.2</td>
<td>0.001*</td>
</tr>
<tr>
<td>Neutrophil count</td>
<td>6.1±6.4</td>
<td>5.5±0.7</td>
<td>0.700</td>
<td>4.2±0.6</td>
<td>3.9±0.8</td>
<td>0.422</td>
</tr>
<tr>
<td>WBC (thousands/cm)</td>
<td>124.2±105.2</td>
<td>124.2±105.2</td>
<td>0.577</td>
<td>79.3</td>
<td>124.2</td>
<td>0.001*</td>
</tr>
<tr>
<td>Neutrophil risk factor</td>
<td>1.165</td>
<td>1.165</td>
<td>0.853</td>
<td>12.5±3.4</td>
<td>1.165</td>
<td></td>
</tr>
</tbody>
</table>

Abstract P22 Table 1 Pruritus Grading Score

<table>
<thead>
<tr>
<th>Item</th>
<th>Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distribution</td>
<td>Solitary site 1</td>
</tr>
<tr>
<td>Frequency</td>
<td>Multiple sites 2</td>
</tr>
<tr>
<td>Severity</td>
<td>Generalized 3</td>
</tr>
<tr>
<td>Severity</td>
<td>Episodic 1</td>
</tr>
<tr>
<td>Severity</td>
<td>Frequent 3</td>
</tr>
<tr>
<td>Severity</td>
<td>Continuous 5</td>
</tr>
<tr>
<td>Severity</td>
<td>Rubbing 1</td>
</tr>
<tr>
<td>Severity</td>
<td>Scratching 1</td>
</tr>
<tr>
<td>Severity</td>
<td>Localized excoriations 3</td>
</tr>
<tr>
<td>Severity</td>
<td>Generalized excoriations 5</td>
</tr>
<tr>
<td>Sleep disturbance</td>
<td>Rare 0</td>
</tr>
<tr>
<td>Sleep disturbance</td>
<td>Occasional 2</td>
</tr>
<tr>
<td>Sleep disturbance</td>
<td>Frequent 4</td>
</tr>
<tr>
<td>Sleep disturbance</td>
<td>Totally restless 6</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
</tr>
</tbody>
</table>
The changes in all parameters and discontinuation rates in the two groups were compared after one and four months of the therapy.

**Results** In total 71 patients were included in the study, 18 patients of them lots follow up during the study, while 53 continued. There were no significant differences in the baseline demographic and biochemical baseline data between the two groups (P>0.05).

After one month, there was statistically significant difference between the two groups in the PGS as it decreased by <1.5x base line in the T-group compared to the C-group (P<0.02).

After four months, there were statistically significant between the 2 groups regarding decreased ALT levels below 1.5x base line levels, AST, GGT and bile acid levels in favour of the T-group (P< 0.02, 0.047,0.026 and 0.001 respectively).

**Summary and Conclusion** The use of FF in combination with UDCA provided satisfactory clinical outcomes, which could be a promising alternative, but patients should be monitored closely as side effects may occur despite achieving improvements in pruritus.

**REFERENCES**


**P23**

**FIRST REPORTED CASE OF AN INTERLEUKIN-2 RECEPTOR ß DEFICIENCY IN AN INFANT BORN TO NON-CONSANGUINEOUS PARENTS, PRESENTING WITH FAILURE TO THRIVE AND ENTEROPATHY**

Katherine Cornelius, Jennifer Evans, Joanne May, Amar Wahid. Noah’s Ark Children’s Hospital for Wales, Cardiff, UK. 10.1136/flgastro-2021-bspghan.33

**Introduction** Failure to thrive is not an uncommon paediatric presentation with multiple, often easily treatable, aetiologies. Immune dysfunction is a rare cause which often manifests with a combination of inflammatory and infectious pathology.

**Aim** We present a rare cause of immune deficiency, the first reported case attributable to this genetic abnormality in the absence of consanguinity, presenting with immune mediated enteropathy.

**Method** A five-month-old female presenting with bronchiolitis symptoms, was found to be failing to thrive. Her weight was on the 0.4th centile, gaining just 200 g in the preceding eight weeks.

The first born to non-consanguineous parents of Pakistani descent, she was born at 39 weeks’ gestation weighing 2.52 kg. There was no significant family history and she had breastfed successfully for the first three months, growing along the 9th centile, and meeting developmental milestones.

By seven months she was 1 kg below the 0.4th centile, weighing the same as at three months. Bottle refusal and a failure to wean to solids accompanied chronic diarrhoea, oral and perianal inflammation, and eczematous dermatitis. Amino acid nasogastric feeds resulted in a small weight gain, but no relief of systemic symptoms.

Developmental delay and soft dysmorphic features were apparent, and she developed recurrent fevers, polyarticular swelling affecting knees and joints of the hands and feet, widespread lymphadenopathy, and chronic bilateral uveitis.

**Results** Double negative T cell levels were elevated, inflammatory markers and liver enzymes were persistently high and cytomegalovirus (CMV) IgG was positive. Hypergammaglobulinemia and numerous autoantibodies were demonstrated. Faecal calprotectin was markedly raised, and endoscopy revealed nonspecific acute on chronic inflammation of the duodenum and stomach.

By 12 months of age, total parenteral nutrition and pulsed methylprednisolone, followed by oral prednisolone had been started. Symptoms improved, she began to gain weight and make developmental progress.

Full genome sequencing and parental genetic analysis identified an autosomal recessive interleukin-2 receptor ß (IL2RB) mutation, giving a diagnosis of IL2RB deficiency.

The patient is now recovering following haematopoietic stem cell transplantation, with the aim of definitive cure.

**Conclusion** Interleukin-2 is involved in building protection against autoimmune disease by stimulating T-cell differentiation. Genetic mutations in its receptor are exceptionally rare, with only four homozygous defects identified in seven infants, one neonate, and two fetuses, all conceived to consanguineous marriage partners. Common clinical manifestations amongst the seven surviving the neonatal period reflect the underlying immune dysregulation with enteropathy, arthritis, uveitis, dermatitis and hypergammaglobulinemia, together with a susceptibility to respiratory and herpesvirus infections. Inflammatory features were prominent in this case but she went on to develop symptoms of CMV illustrating the conundrum of managing inflammation with underlying immunosuppression.

Failure to thrive, diarrhoea, eczema and recurrent viral infections are not uncommon in paediatrics. However, when rare aetiology is responsible, the journey from presentation to diagnosis can be long.

The time from presentation to referral for definitive treatment was remarkably quick in this case. This is testament to the exceptional collaborative multidisciplinary working across sub specialties, leading to a prompt diagnosis and definitive management.

**P24**

**FOOD REINTRODUCTION PATTERN IN CHILDREN WITH COMPLEX GASTROINTESTINAL FOOD ALLERGY**

Lucy Jackman, Sarah Khweir, Dawn Colter, Rosalynn Flynn, Osvaldo Bonelli, Leanne Goh, Edward Gaynor. Great Ormond Street Hospital. 10.1136/flgastro-2021-bspghan.34

**Introduction and Objective** Gastrointestinal food allergy (GIFA) is a common condition in paediatric age and both IgE-mediated and non-IgE-mediated reaction are well recognised underlying mechanisms involved in its pathogenesis. Due to the non-specificity of GI symptoms, GI allergic reactions may significantly overlap with a number of other GI disorders, making the diagnosis lengthy and confusing (Heine, 2015). Moreover, in this patient cohort, prolonged food exclusions are common and possibly unnecessary. In our retrospective study, we explore the impact of multidisciplinary team (MDT) approach on the food reintroduction rate in a group of children seen in a tertiary GI allergy service.

**Method** 108 patients (83 new, 25 follow up) were seen between April 2019 and April 2020 in an MDT setting...
including gastroenterologist, allergist, dietitian, psychologist and clinical nurse specialist. Of those, 32 children witheosinous oesophagitis (EOE) alone were excluded. Hence, 76 patients [61%, (n=46) non-IgE mediated allergy, 4% (n=3) IgE mediated allergy, 27% (n=20) combined IgE, non-IgE and EO, 10% (n=7) had other food triggered conditions] were retrospectively reviewed.

**Results** 97% (n=74) of children were following exclusion diets for ≥12 months, with a mean of 5 excluded foods (median 4, IQR 2, 6). At the follow-up, the mean number of foods excluded had reduced to 3 (median 2.5, IQR 1, 5); p <0.0001. Milk (n = 59; 78%) was the most common excluded food, whilst fish/shellfish (n=18; 24%) was the least. Over 12 months 55% (n=42) of patients introduced at least 1 food into their diet and 16% (n=12) of patients reintroduced between 75-100% of excluded foods. The dietitians provided on average 3 contacts to patient, in the form of face-to-face appointments or telephone appointments (range 1–16).

**Conclusion** In children with GIFA, long-term unnecessary food exclusions should be avoided, due to the relationship with poor growth, feeding difficulties and nutritional deficiencies (Meyer, 2018). Despite the fact that the majority of them had been following long-term exclusion diets, over half of patients were able to reintroduce at least one food into their diet.

In this cohort, the MDT approach, which brings together professionals from different backgrounds to pave the most effective management pathway for the patient, has shown to be highly beneficial in supporting patients and their families to reintroduce foods into their diets. However this requires ongoing support for many families’ in-between medical appointments to achieve this goal.

This small centre outcome demonstrates some positive impacts of MDT approach, which should become the standard model of care in children with complex GIFA.

**REFERENCES**


**P26**

HECILOBACTER PYLORI CULTURE IN ROUTINE PRACTICE: A PAEDIATRIC RETROSPECTIVE STUDY

Rime Hicham, Mary Ann Ritchie, William Ennis, Margaret Murray, Pamela Saunders, Kamaljit Khalsa, Ashutosh Deshpande, Andrew R Barclay, Diana M Flynn, Rachel Taylor, Richard Hansen. ¹Department of Paediatric Gastroenterology, Royal Hospital for Children, Glasgow, UK; ²Department of Microbiology, Glasgow Royal Infirmary, Glasgow, UK; ³Department of Microbiology, Southern General Hospital, Glasgow, UK; ⁴Scottish Microbiology Reference Laboratory, Glasgow Royal Infirmary, Glasgow, UK; ⁵Department of Microbiology, Queen Elizabeth University Hospital, Glasgow, UK

**Introduction** Helicobacter pylori is usually acquired in early childhood. The systematic use of standard eradication therapy regimes has resulted in a rising prevalence of antibiotic-resistant strains and a decreasing efficiency of H. pylori eradication therapy. The latest ESPGHAN guidelines (2016) suggest only investigating H. pylori in pediatric patients who would benefit from treatments and to base the eradication therapy on susceptibility testing.

Our local practice has been to test symptomatic children with H. pylori stool antigen and to treat with a standard...
triple therapy as a first line. If a second attempt at eradication fails, children have oesophagogastroduodenoscopy (OGD) on a dedicated gastroenterology/microbiology H. pylori culture list. Subsequent antibiotic therapy is then based on antibiotic sensitivity.

**Aims** Our primary objective was to study the benefit of H. pylori eradication therapy based on culture and sensitivity in our population. Our secondary objective was to describe the sensitivities of the enumerated H. pylori.

**Subjects and Methods** We retrospectively included all paediatric patients who had undergone OGD for H. pylori culture in Royal Hospital for Children, Glasgow between 2014 and 2020. We collected data from patient electronic records. H. pylori colonisation was based on the presence/absence of the organism on histopathology. Eradication was assessed by either H. pylori stool antigen or subsequent gastric biopsy histopathology.

**Results** In total, 20 patients were included with a median age of 10.1 (7.6–12.4) years. In keeping with our local practice they had a median of 2 attempts at eradication therapy before being referred for H. pylori culture. On these 20 patients, 15 patients (75%) had a confirmed colonisation by H. pylori on histopathology, 14 of these patients (93%) had successful culture of H. pylori, 1 (7%) had a failed culture.

On these 14 cultures, 1 (7%) had initial growth but failed sensitivities. 3 H. pylori cultures (21% of positive culture) were fully sensitive to amoxicillin, metronidazole and clarithromycin. 4 (28%) were resistant to a single agent (50% to metronidazole and 50% to clarithromycin). 5 (35%) were resistant to both clarithromycin and another agent (80% to metronidazole and 20% to amoxicillin) and 1 (7%) was fully resistant to these 3 antibiotics.

After sensitivity-based eradication therapy, 7 patients (50% of positive cultures) had ongoing H. pylori colonisation (3 confirmed on repeated OGD, 4 confirmed on a positive stool antigen), 4 (28%) had confirmed eradication (3 confirmed on repeat OGD and 1 on negative stool antigen), and 2 results are still awaited. Out of the 7 patients who failed eradication, 6 (85%) patients had resistant organisms and the remaining patient had poor treatment compliance.

**Conclusion** Our dedicated H. pylori list has excellent culture recovery (93%), but its set-up can be challenging.

**Design study** We conducted a retrospective electronic records review of pIBD patients who received FCM infusion from November 19-20

**Results** 24 patients (13 M) received 26 infusions in the period reviewed. The median age was 14.5(12.6–15.9). From all the children, 7(29.2%) were diagnosed with Ulcerative Colitis (UC), 16(66.7%) with Crohn’s Disease and 1(4.2%) with IBD-Unclassified (IBDU). The timing of infusion coincided with: admitted with new diagnosis of pIBD, [10(41.7%)], flare of disease [9(37.5%)], and elective admission [5(20.8%)].

**Conclusion** HP is frequently seen with FCM infusion. The fall in phosphate post FCM infusion was found to be statistically significant for serum phosphate levels. There were no statistically significant association, on univariate analysis, between the delta change in serum phosphate levels and the features of patient demographics or biochemical markers.

**Abstract P27 Table 1**

<table>
<thead>
<tr>
<th>Biochemical markers</th>
<th>Baseline</th>
<th>Post-infusion</th>
<th>Delta change</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serum phosphate</td>
<td>1.19 ± 0.26</td>
<td>0.71 ± 0.40</td>
<td>-0.48 ± 0.35</td>
<td>p&lt;0.005*</td>
</tr>
<tr>
<td>Ionized calcium</td>
<td>2.35 ± 0.09</td>
<td>2.37 ± 0.11</td>
<td>0.02 ± 0.09</td>
<td>p&lt;0.284</td>
</tr>
<tr>
<td>Serum potassium</td>
<td>4.03 ± 0.52</td>
<td>4.21 ± 0.37</td>
<td>0.17 ± 0.62</td>
<td>P&lt;0.177</td>
</tr>
<tr>
<td>Serum magnesium</td>
<td>0.82 ± 0.08</td>
<td>0.77 ± 0.18</td>
<td>-0.01 ± 0.07</td>
<td>P&lt;0.221</td>
</tr>
</tbody>
</table>
and statistically significant; though none of the patient demographic features or serological markers were found to be associated with the delta change in phosphate to predict high risk patients. The median recovery time of 14 days is less than what is reported in adult reviews. FCM infusions need pre-assessment, counselling and post infusion monitoring to assess effectiveness and recovery.

**P28** INCIDENCE OF SECONDARY ADRENAL SUPPRESSION AFTER PROLONGED USE OF GLUCOCORTICOID THERAPY FOR CHILDREN WITH INFLAMMATORY BOWEL DISEASE

1Virginia Chatzidaki, 2Rebecca Renji Chungath, 1Sarah Tamhne, 1Marcus Auth, 1Fiona Cameron, 1Manjula Velayudhan Nair, 1Jeng Haw Cheng, 1Stephen Allen, 1Elizabeth Renji, 1Jo Blair, 1Alder Hey Children’s Hospital Trust; 1Newcastle medical school

10.1136/flgastro-2021-bspghan.38

**Introduction** Glucocorticoids (GCs) are used in all forms of paediatric inflammatory bowel disease (IBD) for their anti-inflammatory and immunosuppressive effect. Prolonged GC treatment may suppress the hypothalamic-pituitary-adrenal (HPA) axis causing secondary adrenal suppression (SAS), despite using a weaning regime, necessitating the use of hydrocortisone for replacement. The incidence and severity of SAS is poorly predictable and may be related to both the cumulative dose of GCs, but also to individual factors. Standard and low dose short Synacthen tests (SST, LDSST) are used to assess recovery of the HPA axis following a prolonged course of steroids.

**Aims** To report:

1. the incidence of SAS following GC treatment for IBD in our centre
2. the time to HPA axis recovery in patients with SAS
3. risk factors for SAS

**Patients and Methods** 33 children with IBD (19M, 10–18 years) previously treated with GCs, who had been investigated for SAS from 01/01/2017 and 30/10/2020 were identified. Baseline information including age, sex, somatometric parameters, IBD diagnosis, age at diagnosis and maintenance treatment were collected. All their GC courses (n=47) in the past (4/7) and/or high dose IV steroid (3/7). 23 children had their HPA axis recovery tested after 24 GC courses with LDSST (19/24, 79.2%) or SST (5/24, 20.8%). 16/23 children had steroid courses of ≥12 weeks, and 7/23 had a shorter course (<11 weeks) but had extended courses in the past (4/7) and/or high dose IV steroid (3/7).

**Results** Of the 33 children, 15/33 (45.5%) had ulcerative colitis (UC), 10/33 (30.3%) had Crohn’s Disease (CD) and 8/33 (24.2%) were unclassified (IBDU). 10 children that were tested after GCs therapy. Our data support previous reports that additional factors to the duration of treatment with GCs, as the use of high dose of intravenous GCs, may influence the risk of SAS.

The mean duration of courses that induced SAS was 154±86.8 days compared to 131.6±63 days in those without SAS, t=0.44, p=0.33, and the previous days of exposure were 219±95 days for those with SAS compared 316.5±154.2 days for those without SAS, t=−1.2, p=0.13.

High dose IV methylprednisolone (10–20 mg/kg) was used in 5/24 (20.8%) courses with 5/5 (100%) and 3/5 (60%) inducing HPA axis suppression on the first testing and retesting respectively. Standard dose (1.6 mg/kg) IV methylprednisolone followed by oral weaning GC course was used in 9/24 (37.5%) courses and 5/9 (55.6%) induced HPA axis suppression. Standard dose oral prednisolone (1–2 mg/kg) was used in 10/24 (41.7%) of the courses and 5/10 (50%) induced SAS.

**Conclusion** SAS was detected in 60.9% of our IBD patients who were tested after GCs therapy. Our data support previous reports that additional factors to the duration of treatment with GCs, as the use of high dose of intravenous GCs, may influence the risk of SAS.

**P29** INDICATIONS OF PAEDIATRIC ENDOSCOPY AND CORRELATION BETWEEN RESULTS AND CLINICAL OUTCOMES

1Mara Popescu, 1Badra Farah, 2Mohamed Mutalib. 1King’s College London; 2Evelina Children’s Hospital, London

10.1136/flgastro-2021-bspghan.39

**Background** Paediatric endoscopies are expensive and invasive procedures requiring general anaesthetic and should be performed to answer specific clinical questions. There is an increase in number of endoscopies performed in children but no epidemiological evidence of increasing paediatric GI disease burdens. Biopsies are also routinely performed during endoscopies adding to overall procedure cost.

**Aims** This study aimed to assess the indications of paediatric endoscopy, the association between endoscopic and histological
results and the correlation between endoscopy and clinical outcome defined as discharge from hospital follow up.

**Patients and Methods** Retrospective review of clinical databases from June 2015 to July 2019. Only first diagnostic endoscopies were included, subsequent endoscopies and therapeutic endoscopies were excluded. Number of clinics prior and up to 6 months of endoscopies were reviewed and outcomes at 6 months were assessed. Correlation between endoscopy, histology results and outcome at 6 months were calculated using phi correlation

**Results** 196 children were included, 47.6% were females. Mean (± SD) age 10.9 (± 3.8). Indications were: abdominal pain 33%, diarrhoea 14%, rectal bleeding 9%, suspected coeliac 7.5%, constipation 9%, reflux 12.3% and vomiting 15.1%. 71.3% were upper endoscopies only and 28.7% were upper and lower endoscopies. 64% of all endoscopies were normal and 43.4% of the total were histologically normal. Number of clinics prior to endoscopies were 1.39 (±1.0) and children were seen 2.3 (±1.6) times in the six months after endoscopy. 18.5% of children were discharge from follow up within 6 months of having an endoscopy. There was weak (phi 0.18) but statistically significant (p<0.05) correlation between endoscopy and discharge at 6 months. There was also weak (phi 0.2, p 0.006) correlation between histology results and discharge at 6 months. There was a strong (phi 0.46 p<0.005) positive correlation between endoscopic appearance and histological results.

All children were day cases and there was no complication identified in the studied population.

**Conclusion** Paediatric endoscopy appears to be a safe procedure with low risk of complication and most children were discharged on the same day. The majority of endoscopies in children were normal and about half were histologically normal with strong positive correlation between endoscopic and histological results, hence biopsies should not be performed if endoscopy is normal. Endoscopy did not appear to influence discharge from hospital follow up and the majority of children were still under follow up 6 months after having an endoscopy.

**Introduction** The nutritional compositions of infant foods for special medical purposes (iFSMPs) are governed by the EU, and new regulations (2016/127; 2016/128) were implemented to ensure standardisation and implementation of latest nutritional recommendations, scheduled to take effect by February 2020. Amongst the changes required, nutrient minimum and maximum levels were redefined, as well as mandatory supplementation of docosahexaenoic acid (DHA). Anecdotal evidence from clinical practice suggests that changes to formulations, minor or otherwise, may affect tolerance and acceptance in infants taking iFSMPs, especially those with complex medical conditions and backgrounds. A case-study series was conducted to evaluate iFSMPs reformulated by Nutricia Ltd to understand any possible impact on patient care.

**Aim** A multi-centre case-study series was conducted in infants and children who took iFSMPs manufactured by Nutricia Ltd for a range of clinical conditions. Gastro-intestinal tolerance, acceptance and compliance were evaluated over 28 days in each case-study.

**Methods** From 17 paediatric centres across the UK, 44 infants and children were recruited [mean age 16.5 m; range 1.5–87], receiving one of the following iFSMPs prescribed for nutrition support relevant to their clinical condition: Infatrini (n=9), Infatrini Peptisorb (n=3), Neocate LCP (n=9), Neocate Synneo (n=1), Kindergen (n=4), Monogen (n=5), Energitiv (n=4), Locasol (n=4), Galactomin 19 (n=1), PKU Anamix Infant (n=4). Mean intake of baseline iFSMP was 683±275 ml (which met 97% of prescribed daily volume), of which n=16 administered iFSMPs via enteral feeding tubes (the remaining orally). The managing Dietitian determined the prescribed daily volume of the reformulated iFSMP. Medical history was recorded at baseline, and growth, gastrointestinal tolerance, compliance and acceptance was measured at baseline and end of case-study.

**Results** Forty patients completed the 28-day evaluation (n=4 did not due to medical and other reasons, days on case-study ranged between 1–17). Gastrointestinal tolerance remained stable in the majority of case studies (n=41 including n=1 drop out), and any deviations were not attributed to the reformulated iFSMP. For the patients that completed the 28-day evaluation, compliance remained stable (n=33), and any reduction was related to increased complementary feeding or medical reasons. Mean intake of reformulated iFSMP was 579±254 ml (which met 91% of prescribed daily volume), where the majority of patients directly transitioned onto the reformulation (n=41). No deterioration in medical conditions or growth were reported as a result of using the reformulated iFSMPs during any of the case studies. Furthermore, caregiver and HCP satisfaction was positively recorded in 89% of case studies.

**Conclusion** This multi-centre, case-study series demonstrates that the minor reformulation of iFSMPs manufactured by Nutricia Ltd in line with the Commission Delegated Regulations (2016/127; 2016/128) to amend nutrient levels and include DHA are well tolerated, accepted and complied with in infants and children with various medical backgrounds. Furthermore, the reformulated iFSMPs continued to support growth and achieved positive caregiver and HCP satisfaction which is paramount to patient care. The reformulated iFSMPs used in this case study series have since been implemented into clinical practice in the UK, with support from Nutricia Ltd, and are now widely accepted.
P32

NO GUT SYNDROME IN PAEDIATRIC PATIENTS

Elena Cernat, Lilianne Gomez Lopez, Veena Zamvar, Dinesh Rawat, Ian Sugarman. Leeds Teaching Hospitals NHS Trust

Introduction/Background No gut syndrome or near total enterectomy (NTE) is defined as the removal of the entire jejunum and ileum, a rarely performed procedure indicated in very specific situations and associated with parenteral nutrition (PN) dependency, multiple complications and poor quality of life in general. To date, only few cases have been reported in literature, all in the adult setting.

Aim The aim of this report is to raise awareness of this condition in paediatric patients and the difficulties encountered in their management.

Subjects and Methods Two male patients (2 and 5 year old) are presented. One secondary to an ischaemic event of unknown cause and the second post a failed small bowel transplant, both suffering complications specific to this condition.

Results Case 1: First-born to non-consanguineous parents at 37 weeks of gestation with 22 q11 deletion. Born with large VSD, had several respiratory infections initially. At 2.5 months while in PICU with a respiratory deterioration, developed intestinal infarction from duodenum to sigmoid colon and was left with D1-D2 (D2 showed patches of ischemia). A duodenal tube was left in the duodenal stump and was started on PN. A month later, a contrast study showed 2 fistulas between the duodenum and the rectum that resolved spontaneously. Currently he continues to be total PN dependent having only some water orally (thicker consistency can block the tube), has a balloon G/J tube pushed into the stomach due to a narrowed duodenal stump to try and minimise vomiting, and has issues with leakage around the tube. His liver function tests (LFTs) have been abnormal intermittently and his liver US shows hepatomegaly and gallstones.

Case 2: Third child to non-consanguineous parents born at 35 weeks of gestation with complex gastrochisis, jejunal atresia and hypoplastic colon - remaining anatomy 15 cm from GJ junction. Initial treatment involved placement/removal of a silo followed by bowel expansion, formation of a jejunostomy and a mucous fistula closed a year later when he had a jejunoocolonic anastomosis. He had several interventions but was unable to tolerate minimal enteral amounts with a high stoma output despite treatment with octreotide. He underwent an isolated bowel transplant at 4 years of age followed by severe rejection not responsive to ATG/Campath and complicated with PTLD. He had a graft enterectomy with remaining anatomy 5 cm of duodenum and leakage from the duodenal stump. Currently he has a mucus fistula, an abdominal drain and a gastrostomy. Type 1 Chiari malformation was incidentally found and he developed seizures. He has intestinal failure associated liver disease and renal stones. He continues to have frequent admissions due to his health needs and frequent complications.

Summary and Conclusion Advances in PN have made possible the long-term survival of patients with no gut syndrome in specialized centres but complications, patient and family quality of life, use of health resources, medical and surgical challenges and overall outcomes are important aspects to be considered and more paediatric data is necessary.

P33

OUTCOME OF CENTRAL VENOUS CATHETER REPAIR IN CHILDREN WITH INTESTINAL FAILURE

Zafar Zaidi, Rhona Shepherd, Hannah Littlechild, Susan Hill, Jutta Koegelmeier. Great Ormond Street Hospital

Introduction Children with intestinal failure (IF) requiring a central venous catheter (CVC) for long term parenteral nutrition (PN) are at risk of CVC breakage and infection. Modern IF management aims to preserve vascular access sites. CVC repair rather than removal is hence carried out for broken catheters when possible. Data suggesting an increased risk for central line-associated bloodstream infections (CLABSI)s associated with CVC repair are limited. The aim of this study was to describe outcomes of CVC repairs among a cohort of children with IF dependant on home PN and risk factors leading to catheter repair.

Material and Methods All paediatric patients (ages 0–17 years) with CVC dependency enrolled in the IF rehabilitation program of a large tertiary referral centre who underwent a CVC repair between January 2019 and November 2020 were included in the study. Data were collected retrospectively from the clinic notes. Risk factors associated with catheter breakage and incidence of CLABSI post repair were documented. Descriptive statistics including medians, percentages and frequencies were used.

Results Forty children, 15 males (37%) and 25 females (63%), received PN during the 2-year study period. 15/40 (37.5%), patients, 8 girls (53%) and age ranging from 1 to 17 years underwent a total of 29 CVC repairs (mean 0.36 repairs per patient per year). The highest number of repairs occurred in patients under 5 years of age (n=8/15; 53%; 33% females). Around half of the patients 53.3% (n=8/15) underwent >2 repairs including one patient with 3 and another with 5 repairs. Median time between two repairs was 6 months. The most common reason for repair was CVC fracture caused by biting (41%) followed by repair for total catheter occlusion with intraluminal PN deposition (13.2%), while 6.8% repairs were done for wear & tear, thromboembolic occlusion, mechanical trauma, increased pressure and weak catheter (one each). Repair was successful in 100% cases with none requiring CVC replacement. Blood cultures (BC) taken post CVC repair were negative in the majority of cases (27/29; 93%). One child had a positive CVC culture taken pre repair in the referring hospital but negative BC post repair making contamination leading to a false positive result likely. Only one patient had a confirmed CLABSI post repair. However, this child presented late 3 days after the initial catheter breakage and catheter salvage was successful with antibiotic therapy.

Conclusion In our cohort of home PN dependant IF patients infection rate after CVC repair was minimal. CVC repair rather than removal is recommended to preserve central venous access sites and reduce the need for general anaesthesia. Support from a central vascular access team skilled in catheter repair is essential.
OUTCOMES AFTER USING VEDOLIZUMAB IN
PAEDIATRIC INFLAMMATORY BOWEL DISEASE IN A
TERTIARY CENTRE, OVER A 3 YEAR PERIOD

Rajkumar Dhandayuthapani, Vaia Zouzou, Fiona Cameron, Manjula Nair, Marcus Auth, Sarang Tamhne, Stephen Allen, Elizabeth Renji, Jeng Cheng, Alder Hey Children’s Hospital

Background Vedolizumab has proven efficiency in adults but data in paediatric inflammatory bowel disease (pIBD) is limited. We present the outcome of treatment with vedolizumab in refractory pIBD cohort.

Study Design Retrospective and ongoing prospective review of all patients commenced on Vedolizumab following loss of response to anti-tumour necrosis factor [TNF] between Nov 2017 and Nov 2020.

Aims and Objectives The primary outcome was remission at Week 14 and last follow up (wPCDAI/PUCAI<10) from commencement vedolizumab. The secondary outcomes were to review trend of biochemical makers, surgical interventions, and adverse effects.

Results 11 children received vedolizumab (6[54%] males), mean age at time of diagnosis 12.45(8.34–15.48) with a median(IQR) time from diagnosis of 2.68(1.79–5.28)years; 6 [54%] Crohn’s disease [CD] and 5[46%] Ulcerative colitis/IBD Unclassified [UC/IBDU] (table 1).

For CD; 5/6 was treated previously with anti-TNF [40% primary failure, 60% secondary failure], all had colonic disease, 3/6 upper GI involvement and 3/6 perianal disease. One child with Bruton’s agammaglobulinemia was anti-TNF naïve when commenced on vedolizumab. All UC children were treated with anti-TNF [40% primary failure, 60% secondary failure], 80% had pan-colitis.

Median age at time of commencing vedolizumab (V0) was 14.99(13.0–17.6). Baseline characteristics at V0; faecal calprotectin (FC) 2831(92–6000), Hb 114(96–146), ESR 22(4–90), albumin 39(27–46) and CRP 16.7(4–39.5). 4/11(36%) required surgery, three of whom had colectomy. 8/11 remained on immunomodulators with vedolizumab. Transient raised transaminases and eczema was reported once and low mood with suboptimal response noted once. 6/11(54%) were in remission 14 weeks from commencing vedolizumab (V14) and 4/11(36%) were excluded. At last follow up from commencing vedolizumab (VF), median years 2.21(0.78–3.43), 3 remained in remission.

In CD cohort, one child had a defunctioning ileostomy and remained in steroid free remission (SFR) at V14 and VF (3.43 years) on vedolizumab monotherapy. One had colectomy (FC-3296 wPCDAI-60), steroid dependency compounded by methotrexate induced interstitial nephritis and vedolizumab was discontinued at VF (2.19 years). Two continue to have active disease at V14 after commencing vedolizumab. One had SFR at V14 and was transitioned at 2 years (FC-2585, wPCDAI-25) on vedolizumab. One with anti-TNF resistant disease, achieved clinical remission 9 months after starting vedolizumab (wPCDAI 2.5, FC 598) before being transitioned.

In UC cohort, two had vedolizumab primary non-response needing subtotal colectomy. One patient with PUCAI 5 at V14 needed regime intensification for low vedolizumab levels but had active disease (PUCAI-25, FC-366) when transitioned at VF (2.06 years). One patient, who achieved remission whilst on steroid at V14, remains in SFR at VF (0.58 years) on concomitant immunomodulation and optimal vedolizumab level at end of induction (>19). One who was lost to follow-up during COVID, was transitioned on 4 weekly vedolizumab regime.

Conclusion At V14, 54% of patients achieved clinical remission and we see significant improvement with PUCAI/PCDAI scores and faecal calprotectin in both UC and CD cohort. We are continuing this study over a longer period to achieve a larger cohort.

OUTCOMES IN CHILDREN WITH PRIMARY SCLEROSING CHOLANGITIS OR AUTOIMMUNE HEPATITIS-OVERLAP AND ASSOCIATED INFLAMMATORY BOWEL DISEASE

Kavitha Jayaprakash, Ellen Paling, Olivia Bradshaw, Marumbo Mtegha. Leeds General Infirmary

Background Primary Sclerosing Cholangitis (PSC) and Autoimmune liver disease (autoimmune hepatitis & overlap syndrome (AIHO)) are rare entities. PSC and AIHO have been reported to be associated with IBD.

Aim To study outcomes of children diagnosed with AIHO and PSC who also have a diagnosis of inflammatory bowel disease (IBD). Outcomes included portal hypertension, biochemical remission, survival of native liver and mortality.

Methods This is a retrospective study (2000–2020) of 193 patients diagnosed with AIH. Of these, 23 patients (14M:9F) had diagnosis of either AIHO+IBD or PSC+IBD. None had AIH without overlap. Case notes were examined at intervals of 1,3,5,7 and 10 years. Data included treatment modality, biochemical remission (ALT <50 iu/l), GGT (<40 iu/l), development of portal hypertension (platelet count <120, splenomegaly and varices) and survival of native liver.

Results 23 (12%) patients were identified, of which 14 (60%) had a diagnosis of PSC+ IBD (Crohn’s: 6, indeterminate: 7, UC:1). Of the PSC group, 35% had gastric, duodenal and colonic disease with 1 patient undergoing pan-proctocolectomy. All but one were diagnosed with IBD prior to PSC or concomitantly. The remaining 40% patients had AIHO+IBD.
AIHO was diagnosed prior to IBD in 4; 3 were diagnosed with IBD prior to AIH. In this group, 66% had severe pancolitis and 33% required surgical resection. (Results summarised in table below).

In the PSC+IBD group follow-up data included 1 year (n = 8), 3 year (n = 6), 5 year (n = 5), 7 year (n = 3). Median age at diagnosis was 9 years (5–16). Aside from one patient, patients were diagnosed with IBD prior to PSC or concomitantly. At diagnosis, 64% received ursodeoxycholic acid; 21% had steroids, 14% had azathioprine and 57% had aminosalicylates. Two patients received infliximab and adalimumab. The median Gamma GT (GGT) at diagnosis was 268 (16–877), at 1 year was 37 (7–104), at 7 years was 31 (11–52).

In the AIHO+IBD group, data included 1 year (n = 8), 3 year (n = 5), 5 year (n = 5), 7 year (n = 3). Median age at diagnosis was 12 years (6–16). AIH was diagnosed prior to IBD in 4 patients; 3 patients were diagnosed with IBD prior to AIH. At diagnosis, 55% received ursodeoxycholic acid, 100% received steroids, 44% received azathioprine and 22% of patients received aminosalicylates. One year after diagnosis, one patient received infliximab. Biochemical remission was achieved in 75% (5) by 1 year and 100% (3) by three years.

In both groups, normalisation of GGT or ALT did not correlate with resolution of endothelial thickening of the CBD on ultrasound. Portal hypertension was found in 13% of patients (PSC group 2; AIHO 1). No patients died or received a liver transplant.

**Summary and Conclusion** Patients with PSC were more likely to have a diagnosis of IBD-U whilst patients with AIH-overlap were more often diagnosed with UC. In terms of IBD outcomes 13% of patients required biologics and surgical resection. In keeping with the literature, only one patient had portal hypertension at diagnosis. In total, 13% of AIHO+IBD and PSC+IBD patients developed portal hypertension. None died or required liver transplantation.

**Abstract P36**

**OUTCOMES OF PEDIATRIC LIVER TRANSPLANTATION, COMPARISON BETWEEN ACUTE AND CHRONIC LIVER FAILURE SETTINGS**


**Background** Managing children suffering from acute liver failure (ALF) is a dynamic process. Listing them for liver transplantation (LT) is considered when the probability of spontaneous recovery is low. Children with ALF who meet criteria are eligible for super urgent transplantation, the window between presentation and LT can range between few hours up to few days. The dynamics are different in case of children with end stage chronic liver disease (ESCLD) who are transplanted electively as candidates are usually in less critical condition.

**Aim** To compare long-term recipient and graft survival as well as complication rates between children transplanted for either ALF or ESCLD.

**Methods** This is a retrospective review of primary LT recipients in Leeds Teaching Hospitals NHS trust. Patients were divided into either ALF or ESCLD group according to their listing indication and the following parameters were compared: Pre-transplant recipient parameters, donor parameters, operative parameters, and outcomes.

**Results** Children undergoing re-transplantation, transplants for liver tumours or metabolic diseases without underlying (UC:7, indeterminate: 2). AIHO was diagnosed prior to IBD in 4; 3 were diagnosed with IBD prior to AIH. In this group, 66% had severe pancolitis and 33% required surgical resection. (Results summarised in table below).

In the PSC+IBD group follow-up data included 1 year (n = 8), 3 year (n = 6), 5 year (n = 5), 7 year (n = 3). Median age at diagnosis was 9 years (5–16). Aside from one patient, patients were diagnosed with IBD prior to PSC or concomitantly. At diagnosis, 64% received ursodeoxycholic acid; 21% had steroids, 14% had azathioprine and 57% had aminosalicylates. Two patients received infliximab and adalimumab. The median Gamma GT (GGT) at diagnosis was 268 (16–877), at 1 year was 37 (7–104), at 7 years was 31 (11–52).

In the AIHO+IBD group, data included 1 year (n = 8), 3 year (n = 5), 5 year (n = 5), 7 year (n = 3). Median age at diagnosis was 12 years (6–16). AIH was diagnosed prior to IBD in 4 patients; 3 patients were diagnosed with IBD prior to AIH. At diagnosis, 55% received ursodeoxycholic acid, 100% received steroids, 44% received azathioprine and 22% of patients received aminosalicylates. One year after diagnosis, one patient received infliximab. Biochemical remission was achieved in 75% (5) by 1 year and 100% (3) by three years.

In both groups, normalisation of GGT or ALT did not correlate with resolution of endothelial thickening of the CBD on ultrasound. Portal hypertension was found in 13% of patients (PSC group 2; AIHO 1). No patients died or received a liver transplant.

**Summary and Conclusion** Patients with PSC were more likely to have a diagnosis of IBD-U whilst patients with AIH-overlap were more often diagnosed with UC. In terms of IBD outcomes 13% of patients required biologics and surgical resection. In keeping with the literature, only one patient had portal hypertension at diagnosis. In total, 13% of AIHO+IBD and PSC+IBD patients developed portal hypertension. None died or required liver transplantation.
Abstract P36 Table 1  Comparison between ALF and ESCLD groups

<table>
<thead>
<tr>
<th>Parameter</th>
<th>ALF group (n=37)</th>
<th>ESCLD group (n=195)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recipient gender:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Male</td>
<td>16 (43.2%)</td>
<td>102 (52.3%)</td>
<td>0.312</td>
</tr>
<tr>
<td>• Female</td>
<td>21 (56.8%)</td>
<td>93 (47.7%)</td>
<td></td>
</tr>
<tr>
<td>Recipient age at transplant (years)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median (Min. – Max.)</td>
<td>8.8 (0.1 – 16.7)</td>
<td>2.5 (0.3 – 17.2)</td>
<td>0.031</td>
</tr>
<tr>
<td>Recipient Weight (kg)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median (Min. – Max.)</td>
<td>25.5 (2.7 – 66.5)</td>
<td>12.5 (4.7 – 89)</td>
<td>0.011</td>
</tr>
<tr>
<td>Waiting time(days)</td>
<td></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Median (Min. – Max.)</td>
<td>3 (1–41)</td>
<td>60.5(1–56)</td>
<td></td>
</tr>
<tr>
<td>Graft type</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Graft variant</td>
<td>23 (62.2%)</td>
<td>155(79.4%)</td>
<td>0.016</td>
</tr>
<tr>
<td>• Whole graft</td>
<td>14 (37.8%)</td>
<td>38 (19.4%)</td>
<td></td>
</tr>
<tr>
<td>• Missing</td>
<td>0</td>
<td>2 (1.2%)</td>
<td></td>
</tr>
<tr>
<td>Donor gender:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Male</td>
<td>45.7%</td>
<td>46.9%</td>
<td>0.902</td>
</tr>
<tr>
<td>• Female</td>
<td>54.3%</td>
<td>53.1%</td>
<td></td>
</tr>
<tr>
<td>Donor weight (kg)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median(min-max)</td>
<td>67 (8 – 90)</td>
<td>68 (10 – 98)</td>
<td>0.912</td>
</tr>
<tr>
<td>Donor age (years)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median (Min. – Max.)</td>
<td>39 (0.9 – 65)</td>
<td>29.5 (1 – 66)</td>
<td>0.039</td>
</tr>
<tr>
<td>Vascular complications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• AV malformation post liver biopsy</td>
<td>0 (0%)</td>
<td>1 (0.5%)</td>
<td>FEp=1.00</td>
</tr>
<tr>
<td>• Massive retroperitoneal hematoma</td>
<td>0 (0%)</td>
<td>1 (0.5%)</td>
<td>FEp=1.00</td>
</tr>
<tr>
<td>from femoral vein bypass cannula</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• HA</td>
<td>2 (5.4%)</td>
<td>13 (6.7%)</td>
<td>FEp=1.00</td>
</tr>
<tr>
<td>• PV</td>
<td>0 (0%)</td>
<td>14 (7.2%)</td>
<td>FEp=0.134</td>
</tr>
<tr>
<td>• HAT</td>
<td>1 (2.7%)</td>
<td>10 (5.1%)</td>
<td>FEp=1.00</td>
</tr>
<tr>
<td>• BVT</td>
<td>1 (2.7%)</td>
<td>7 (3.6%)</td>
<td>FEp=1.00</td>
</tr>
<tr>
<td>• HVS</td>
<td>1 (2.7%)</td>
<td>0 (0%)</td>
<td>FEp=0.159</td>
</tr>
<tr>
<td>Biliary complications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• CHD sludge</td>
<td>0 (0%)</td>
<td>2 (1%)</td>
<td>FEp=1.00</td>
</tr>
<tr>
<td>• Biliary stricture</td>
<td>3 (8.1%)</td>
<td>21 (10.8%)</td>
<td>FEp=0.775</td>
</tr>
<tr>
<td>• Bile leak</td>
<td>0 (0%)</td>
<td>23 (11.8%)</td>
<td>FEp=0.031</td>
</tr>
<tr>
<td>Rejection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cause of graft loss</td>
<td>17 (45.9%)</td>
<td>62(31.8%)</td>
<td>0.096</td>
</tr>
<tr>
<td>(n = 5)</td>
<td>(n = 27)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• HAT</td>
<td>0 (0%)</td>
<td>9 (33.3%)</td>
<td>FEp=0.288</td>
</tr>
<tr>
<td>• PN</td>
<td>2 (40%)</td>
<td>5 (18.5%)</td>
<td>FEp=0.296</td>
</tr>
<tr>
<td>• Chronic rejection</td>
<td>3 (60%)</td>
<td>6 (22.2%)</td>
<td>FEp=0.121</td>
</tr>
<tr>
<td>• Biliary tract complications</td>
<td>0 (0%)</td>
<td>7 (25.9%)</td>
<td>FEp=0.560</td>
</tr>
<tr>
<td>Cause of death</td>
<td>0 (0%)</td>
<td>23 (11.8%)</td>
<td>FEp=0.031</td>
</tr>
<tr>
<td>(n = 9)</td>
<td>(n = 17)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td>0 (0%)</td>
<td>5 (29.4%)</td>
<td>FEp=0.129</td>
</tr>
<tr>
<td>Cardiopulmonary</td>
<td>3 (33.3%)</td>
<td>1 (5.9%)</td>
<td>FEp=0.104</td>
</tr>
<tr>
<td>Cerebral oedema</td>
<td>1 (11.1%)</td>
<td>0 (0%)</td>
<td>FEp=0.346</td>
</tr>
<tr>
<td>Fungal infection</td>
<td>1 (11.1%)</td>
<td>0 (0%)</td>
<td>FEp=0.346</td>
</tr>
<tr>
<td>Gastro-intestinal</td>
<td>0 (0%)</td>
<td>1 (5.9%)</td>
<td>FEp=1.000</td>
</tr>
<tr>
<td>Intra-cranial hemorrhage</td>
<td>1 (11.1%)</td>
<td>0 (0%)</td>
<td>FEp=0.346</td>
</tr>
<tr>
<td>Liver Failure</td>
<td>1 (11.1%)</td>
<td>4 (23.5%)</td>
<td>FEp=0.628</td>
</tr>
<tr>
<td>Recurrence of disease</td>
<td>0 (0%)</td>
<td>1 (5.9%)</td>
<td>FEp=1.000</td>
</tr>
<tr>
<td>Septis</td>
<td>2 (22.2%)</td>
<td>5 (29.4%)</td>
<td>FEp=1.000</td>
</tr>
</tbody>
</table>

Liver disease were excluded (90 LTs). Our database showed 232 primary LTs between 2000 and 2020 with the following distribution:195 elective LTs for ESCLD and 37 super-urgent LTs for ALF. Recipients’ age and weight were significantly higher in ALF group. Most common indication for LT in ESCLD group was biliary atresia while seronegative hepatitis was the most common indication in ALF group. Time on transplant waiting list was significantly shorter for ALF group. Regarding pre-transplant location, home location was higher in ESCLD group while hospital and PICU location were significantly higher in ALF group. In terms of the source of the graft, living donors were significantly higher in the ESCLD group (34 donors) than ALF group where no living donors were used. There was no statistically significant difference between both groups in terms of rejection and vascular complications while biliary complications showed significantly higher bile leak rates in the ESCLD group. Post-transplant survival was significantly higher in the ESCLD group as 1-,5- and 10 years survival rates for ESCLD group were 97.9%,93.9%,89.4%,85.0% respectively while survival rates in ALF recipients during the same period were fixed at 78.3%(P=0.007). Graft survival was longer in the ESCLD group but the difference was not statistically significant.

Summary We studied 195 elective LTs for patients with ESCLD and 37 super-urgent LTs for ALF patients. Recipients in ALF group were significantly older and heavier. Vascular complications and rejection rates did not show significant difference between two groups while bile leak was significantly higher in the ESCLD group. Patient survival was significantly higher in ESCLD group while graft survival did not show significant difference between two groups.

Conclusion Post LT survival in ALF patients is significantly inferior to ESCLD patients.
PEDIATRIC INFLAMMATORY BOWEL DISEASE AND HIDRADENITIS SUPPURATIVE: A CHALLENGING ASSOCIATION?

Mark Mahon, Daniela Levanon. Jacobi Medical Center/Albert Einstein

Introduction Within Inflammatory Bowel Disease (IBD), perianal lesions are a common extra-intestinal manifestation, yet may mask other entities. Including several etiologies across a number of subspecialties, most of which are better appreciated in adulthood. This report focuses on an unusual dermatological association with IBD, presenting at an atypical time in the disease course.

Case Report 11-year-old obese Hispanic female presented with the chief complaint of epistaxis and was noted to have painful lower extremity nodules consistent with erythema nodosum and gluteal cleft lesions. Revision of systems revealed fatigue, anorexia and diarrhea for two months prior accompanied by a 6.8 kg weight loss over that period. On admission, she was febrile (38.3°C), tachycardic and hypotensive with baseline laboratory values notable for leukocytosis (13.1/\(10^3\) /\(\mu\)L), hypochromic microcytic anemia (hemoglobin 10.3 g/dL and mean corpuscular volume 70.3 fL), thrombocytopenia (55/\(10^3\)/\(\mu\)L) and evidence of systemic inflammation with elevated CRP/ESR.

Stool studies were significant for fecal leukocytes and a CT revealed mural thickening with fat stranding; segmental colitis was confirmed on colonoscopy. At that time, a punch biopsy of the gluteal lesion revealed granulomatous dermatitis, presumed to be cutaneous Crohn’s Disease (CD). Treatment was initiated with Metronidazole and Methylprednisolone. Soon after the clinical course became complicated by the development of a rectovaginal fistula. Induction and maintenance treatment were achieved with Infliximab and the patient was discharged with the diagnosis of CD with perineal involvement.

Multidisciplinary team monitoring over the following three years ensued before the patient reported progression of intertriginous lesions, this time to the axillae and infra-mammary areas. Punch biopsy at the new lesion established the diagnosis of Hidradenitis Suppurativa (HS), with a pathological confirmation.

Discussion HS is a chronic inflammatory dermatological disease of the apocrine glands, characterized by recurrent and painful, deep-seated nodules, abscesses, sinus tracts and/or fistulas. It affects inverse areas of the skin following the distribution of apocrine glands. Prevalence is higher post-puberty, with smoking and obesity acting as risk factors. The association with IBD, particularly CD is stronger in the severe phenotype and in pancolitis. The formal diagnosis is made on average one decade after the onset of IBD. Up to 25% of IBD patients experience extra-intestinal manifestations, perineal pathology accounts for 50% of the cases. Yet, in the absence of extra-perineal intertriginous involvement, the possibility of HS may be less recognizable. Improved awareness to this association among Paediatricians and Paediatric Gastroenterologists is important as co-pathology may require treatment escalation to immunosuppressive agents or alterations to monoclonal antibody regimen. More intensive treatment is often required as disease remission is harder to achieve for HS than CD.

Conclusion HS, when associated with CD, typically occurs one decade after the initial IBD diagnosis. This case presents a much shorter interval between such diagnoses, and potentially a dual presentation. This has not been appreciated in the literature to date and possibly suggests rare but earlier association when present. Analysis of a larger pediatric IBD cohort with HS will help clarify the pattern of association.
10 patients have had their pouch excised. The excised pouch did not demonstrate CD. 4 were excised for poor function, 3 for pelvic sepsis, 2 for faecal incontinence and 1 for bleeding. 3 of the 10 subsequently underwent successful revision pouch surgery. 4 other patients are currently diverted with an ileostomy (2 because of complications in pregnancy).

We have not identified CD developing in previous UC in our cohort. No children with a diagnosis of indeterminate colitis underwent RPC and IPAA. Children with the diagnosis of indeterminate colitis on initial histology had a subsequent diagnosis of UC on imaging or histology before surgery. The median number of pre-colectomy endoscopies performed was 3.

Summary and conclusion At median follow up of 10 years, we have not seen a conversion of diagnosis from UC to CD. This contrasts with published experience.

## Abstract P40 Table 1 Variable of Interest in EoE stratified by race

<table>
<thead>
<tr>
<th>Variable</th>
<th>Black/African-American</th>
<th>Hispanic/Latino</th>
<th>Asian</th>
<th>Other</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjects n (%)</td>
<td>6 (18)</td>
<td>11 (22)</td>
<td>10 (20)</td>
<td>7 (20)</td>
<td>NA</td>
</tr>
<tr>
<td>Age first atopy [Median (IQR)]</td>
<td>8 (2,14)</td>
<td>2 (0,33,6)</td>
<td>2.5 (1.5,4)</td>
<td>2 (0.5)</td>
<td>0.481</td>
</tr>
<tr>
<td>Age EoE dx [Median (IQR)]</td>
<td>13 (5.18)</td>
<td>4 (1,5,9)</td>
<td>5 (3.7)</td>
<td>3 (1.5,8)</td>
<td>0.07</td>
</tr>
<tr>
<td>Absolute Eosinophil Count [n (%)]</td>
<td>3 (60)</td>
<td>4 (50)</td>
<td>7 (78)</td>
<td>5 (71)</td>
<td>0.785</td>
</tr>
<tr>
<td>Serum IgE [n (%;&gt;0.35kU/L)]</td>
<td>4 (80)</td>
<td>3 (27)</td>
<td>1 (10)</td>
<td>2 (29)</td>
<td>0.075</td>
</tr>
<tr>
<td>Midesophageal Eosinophilia [Mean (IQR)]</td>
<td>48 (20,80)</td>
<td>13 (3,20)</td>
<td>27 (1.5,41)</td>
<td>25 (3,41)</td>
<td>0.01</td>
</tr>
</tbody>
</table>

## Abstract P40 Table 2 Environmental Allergy Sensitization in multi-racial EoE cohort

<table>
<thead>
<tr>
<th>Environmental Allergen n (%)</th>
<th>Black/African-American</th>
<th>Hispanic/Latino</th>
<th>Asian</th>
<th>Other</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tree</td>
<td>3 (100)</td>
<td>2 (28.5)</td>
<td>4 (44.4)</td>
<td>3 (60)</td>
<td>0.255</td>
</tr>
<tr>
<td>Grass</td>
<td>1 (50)</td>
<td>2 (28.5)</td>
<td>0 (0)</td>
<td>3 (60)</td>
<td>0.069</td>
</tr>
<tr>
<td>Weeds</td>
<td>3 (100)</td>
<td>3 (43)</td>
<td>1 (11)</td>
<td>3 (60)</td>
<td>0.037</td>
</tr>
<tr>
<td>Dustmite</td>
<td>3 (100)</td>
<td>4 (57)</td>
<td>2 (25)</td>
<td>1 (20)</td>
<td>0.093</td>
</tr>
<tr>
<td>Cat</td>
<td>2 (66)</td>
<td>5 (71)</td>
<td>3 (75)</td>
<td>1 (20)</td>
<td>0.344</td>
</tr>
<tr>
<td>Dog</td>
<td>3 (100)</td>
<td>6 (86)</td>
<td>1 (14)</td>
<td>1 (20)</td>
<td>0.009</td>
</tr>
<tr>
<td>Cockroach</td>
<td>3 (100)</td>
<td>4 (57)</td>
<td>4 (44)</td>
<td>2 (40)</td>
<td>0.465</td>
</tr>
<tr>
<td>Mouse</td>
<td>1 (33)</td>
<td>6 (86)</td>
<td>2 (25)</td>
<td>3 (60)</td>
<td>0.132</td>
</tr>
<tr>
<td>Mold</td>
<td>2 (100)</td>
<td>2 (28.5)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0.006</td>
</tr>
</tbody>
</table>

Bias and race. ‘Other’ included Mixed and Caucasian [table 1]. The subjects at time of EoE diagnosis aged 0.58 to 20 years and male to female ratio of 3:1. The median [IQR] age for initial clinical atopy diagnosis (Allergic Rhinitis, Atopic Dermatitis, Asthma or Allergy) was 2 [1,5] years and for EoE diagnosis was 5 [3,8] for all races combined. No significant difference existed between the racial cohorts for age at first atopy and EoE diagnosis [table 1]. Although, the interval between age at first atopic presentation to the age at EoE diagnosis was clinically shortest for Black/African-Americans, racial difference was not statistically significant, as majority were diagnosed within 12 months of symptom onset. Allergen sensitization was tested via either Skin Prick Testing or Serum IgE quantification. There was no racial difference in sensitization (positive test rates) to the 8 common food allergens (p=0.139), which are known triggers of EoE. Environmental allergy testing demonstrated Black/African Americans more likely to be sensitized to weeds, dog and mold than any other racial group [table 2]. No interracial difference was appreciated in terms of Absolute Eosinophil Count and Serum IgE [table 1]. Mid esophageal eosinophilia was more prominent in Black/African-American [table 1], while lower esophageal eosinophilia was most prominent for Hispanic/Latino’s subjects, demonstrating a median [IQR] of 40 [20,40], compared to any other race (p=0.004).

Conclusion Our findings suggest no racial differences in phenotypic presentation of EoE, except for higher allergy sensitization rates to certain environmental allergens in Black/African-Americans. No racial differences existed regarding laboratory evidence of serum eosinophilia or IgE levels. Histopathological evidence demonstrated racial differences with Black/African-American exhibiting higher mid-esophageal eosinophilia on histopathology. Further study, on a larger scale is required to confirm the complex interplay between race and EoE.
Introduction

Children with severe neurodisability and tone disorders can present with debilitating symptoms and declining growth. Gastrointestinal dystonia (GID) describes the clinical manifestations of: pain behaviour; hypertonicity; retching; vomiting; vagal phenomena; abdominal distension and straining attributable to the GI tract in the context of severe neurodisability. Blended diet (BD) has an emerging role in the nutritional management of patients with neurodisability, however we are unaware of data pertaining to BD specifically in patients with GID.

Aim

A tertiary centre review of outcomes of patients with GID receiving BD.

Method

Patients who commenced BD between 07/2017 and 02/2020 were identified from prospectively gathered complex enteral nutrition (CEN) and specialist dietetic databases. BD was initiated with specialist paediatric dietetic support within the CEN clinic or in other clinics. Data gathered included: demographics; primary diagnosis; enteral feeding plan; fundoplication; weight standard deviation z score at 0, 6, 12 and 18 months prior to and from commencing BD; medications at 0 and 6, 12, 18 months; reasons if BD discontinued; parenteral nutrition (PN) requirement.

Results

29 children met criteria for GID and commenced BD. 118 were male. 14 had a fundoplication. Feeding method prior to BD: gastric bolus 17; gastric continuous 8; jejunal 4. Mean age BD commenced was 7 years. Follow up ranged 8 to 40 months. 25 patients continue BD to date. 4 discontinued BD within 1–2 months citing increased GI symptoms or device blockage.

Of the 25 who continue BD, median weight z scores declined from -1.77 at 12 months prior to BD, -1.86 at 6 months prior, -1.94 at 0 months, then rose to -1.54 at 12 months, and -1.40 at 18 months. Mean weight z scores were maintained at -1.97 (CI -0.85 to -3.09) at 0 months, -1.97 (CI -0.27 to -3.02) at 12 months and -1.79 (CI -0.34 to -3.25) at 18 months [figure 1]. This trend was more significant in a subset of 6 patients, z score -2.06 (CI -1.46 to -2.67) at 0 months, -1.13 (CI -0.59 to -1.67) at 12 months and -0.84 (CI -0.46 to -1.21) at 18 months (p = 0.003) [figure 2].

9 of the 25 were able to discontinue one GI medication, 4 discontinued two GI medications. Tone medications: 3 reduced; 20 unchanged; 2 increased. No patients received PN during the study.

Conclusion

GID represents the severest end point of gastrointestinal symptoms in neurodisability, with progressive decline often a feature. Our data show children with GID receiving BD continue to track their weight trajectory, whilst some experience significantly improved growth. No patients required trial on PN during the study. The authors advocate for BD’s role in minimizing the need for invasive treatments in GID whilst addressing symptoms and maintaining nutritional status2 and growth superiorly to formula feeds alone. Improvements in symptomatology and quality of life will be better described by prospective survey of patients commencing BD for GID. The authors are currently gathering this data.

REFERENCES

2. Hay J, et al. (presented BSPGHAN 2020)
Background As a result of improved outcomes, referral to pediatric liver transplant (PLT) services has gradually increased but unfortunately pool did not show similar expansion resulting in graft shortage. Identifying the pre-transplant predictors of patient and graft survival can help in more effective graft allocation and can be crucial in guiding medical care and re-listing decisions.

Aim Identifying pre-transplant factors that can by itself or in combination predict post-transplant patient and graft survival.

Methods This is a retrospective review of PLT episodes in Leeds Teaching Hospitals NHS trust from 2000 to 2020. Univariate and Multivariate analysis of pre-transplant factors were used to identify predictors of patient and graft survival. We classified aetiology of liver disease into 6 broad categories: End stage chronic liver disease (ESCLD), Acute liver failure (ALF), acute on top of ESCLD, metabolic liver disease, tumours and re-transplantation. Grafts used were divided into whole and technical variant grafts where technical variant grafts include all split and reduced grafts, technical variant grafts were further divided into grafts from cadaveric or living donors (LD).

Results 276 patients in our centre received 320 LTs. ESCLD was the main indication (60.6%) followed by re-transplantation (13.7%), ALF (10.3%), tumours (8.8%), metabolic (5.3%) and acute on top of ESCLD (1.3%). Source of liver grafts were DBD donors in 271 (84.7%) transplant episodes while 5 (1.6%) patients. Recipients who required pre-transplant mechanical ventilation were 24 (7.5%) recipients 0.44 (13.8%) patients required re-transplantation. Most common cause of graft loss was hepatic artery thrombosis (HAT) in 13 re-transplants (29.6%). At the end of study, 239 (86.6%) recipients survived while 37 (13.4%) died. Most common cause of death was sepsis. Univariate analysis for patient survival (table 1) showed that following variables had a significant (p<0.05) impact on overall patient survival: patient age, patient weight, patient height, gender/female, re-transplantation, location of re-transplantation, technical variant LD. 3.361 (1.492 – 7.569) - 0.415 (0.179 – 0.973) - 0.962 (0.455 – 1.092) - 3.005 (0.286 – 2.987) - 0.771 (0.446 – 1.333) - 0.261 (0.624 – 3.351) - 0.438 (0.590 – 3.880) - 0.805 (0.569 – 1.368) - 0.355 (0.179 – 0.617) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 2.075) - 0.972 (0.455 – 0.05).
Abstracts

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Value</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warm ischemia time (min)</td>
<td>0.427</td>
<td>1.014</td>
<td>0.980</td>
</tr>
<tr>
<td>Cold ischemia time</td>
<td>0.821</td>
<td>1.014</td>
<td>0.977</td>
</tr>
</tbody>
</table>

Year of surgery

- Before 2005 (reference) 1.000
- 2005 – 2010 0.295
- After 2010 0.004
- Invasive ventilation 0.012

Abstract P42 Table 2 Multivariate cox regression analysis of risk factors for death and graft loss after PLT

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Value</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age in years</td>
<td>p (HR (95%C.I)):</td>
<td>p (HR (95%C.I)):</td>
<td></td>
</tr>
<tr>
<td>0 – 5 months</td>
<td>0.943</td>
<td>0.239</td>
<td>5.143</td>
</tr>
<tr>
<td>6 – 11 months</td>
<td>0.949</td>
<td>0.622</td>
<td>1.683</td>
</tr>
<tr>
<td>1 – 4 year</td>
<td>0.204</td>
<td>0.484</td>
<td>0.591</td>
</tr>
<tr>
<td>5 – 12 year</td>
<td>0.088</td>
<td>0.439</td>
<td>0.733</td>
</tr>
<tr>
<td>13 year (reference)</td>
<td>1.000</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>Graft type</td>
<td>Whole (reference)</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>Technical variant</td>
<td>0.705</td>
<td>1.229</td>
<td>0.423</td>
</tr>
<tr>
<td>Technical variant LD</td>
<td>0.085</td>
<td>4.663</td>
<td>0.810</td>
</tr>
<tr>
<td>Category</td>
<td>CLD (reference)</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>ALF (reference)</td>
<td>0.639</td>
<td>0.709</td>
<td>0.168</td>
</tr>
<tr>
<td>ALF on top of CLD</td>
<td>0.984</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Tumor</td>
<td>0.160</td>
<td>2.477</td>
<td>0.700</td>
</tr>
<tr>
<td>Metabolic</td>
<td>0.948</td>
<td>0.000</td>
<td>0.27</td>
</tr>
<tr>
<td>Re-transplantation</td>
<td>0.853</td>
<td>1.128</td>
<td>0.315</td>
</tr>
</tbody>
</table>

Weight (kg)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Value</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5</td>
<td>0.951</td>
<td>0.901</td>
<td>0.778</td>
</tr>
<tr>
<td>5 – 10</td>
<td>0.922</td>
<td>0.900</td>
<td>0.567</td>
</tr>
<tr>
<td>10 – 20</td>
<td>0.965</td>
<td>1.037</td>
<td>0.425</td>
</tr>
<tr>
<td>&gt;20 (reference)</td>
<td>1.000</td>
<td>1.000</td>
<td></td>
</tr>
</tbody>
</table>

Height

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Value</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;Mean</td>
<td>0.001</td>
<td>0.223</td>
<td>0.959</td>
</tr>
<tr>
<td>&gt;Mean (reference)</td>
<td>1.000</td>
<td>1.000</td>
<td></td>
</tr>
</tbody>
</table>

Donor-recipient weight mismatch

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Value</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>After 2010</td>
<td>0.004</td>
<td>0.254</td>
<td>0.381</td>
</tr>
</tbody>
</table>

Invasive ventilation

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Value</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5</td>
<td>0.847</td>
<td>0.838</td>
<td>0.552</td>
</tr>
<tr>
<td>&gt;Mean (reference)</td>
<td>1.000</td>
<td>1.000</td>
<td></td>
</tr>
</tbody>
</table>

Year of surgery

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Value</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before 2005 (reference)</td>
<td>1.000</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>2005 – 2010</td>
<td>0.430</td>
<td>0.695</td>
<td>0.619</td>
</tr>
<tr>
<td>After 2010</td>
<td>0.003</td>
<td>0.112</td>
<td>0.015</td>
</tr>
</tbody>
</table>

Invasive ventilation

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Value</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5</td>
<td>0.951</td>
<td>0.001</td>
<td>0.778</td>
</tr>
<tr>
<td>5 – 10</td>
<td>0.932</td>
<td>0.901</td>
<td>0.567</td>
</tr>
<tr>
<td>10 – 20</td>
<td>0.965</td>
<td>1.037</td>
<td>0.425</td>
</tr>
<tr>
<td>&gt;20 (reference)</td>
<td>1.000</td>
<td>1.000</td>
<td></td>
</tr>
</tbody>
</table>

Height

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Value</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;Mean</td>
<td>0.001</td>
<td>0.223</td>
<td>0.959</td>
</tr>
<tr>
<td>&gt;Mean (reference)</td>
<td>1.000</td>
<td>1.000</td>
<td></td>
</tr>
</tbody>
</table>

Abstract P42 Table 2 Multivariate cox regression analysis of risk factors for death and graft loss after PLT

**Summary**

This study, spanning over about 20 years, represents one of the biggest UK based PLT single centre reports. Only significant factor for patient and graft survival was era of transplant with PLT after 2010 has significantly better recipient and graft survival.

**Conclusion**

Building experience has substantial effect on patient and graft survival. Traditional view of worse outcomes of smaller candidates should be changed especially in high volume centres with prolonged experience.

---

**P43**

PROVISION OF BIOLOGICS IN SECONDARY CARE SETTING 5 YEARS ON: HOW ARE WE DOING? A SERVICE EVALUATION OF CURRENT COHORT INCLUDING PATIENT FEEDBACK

1Angela Radford, 2Joyce Youssef, 1Shveta Chana. 1Milton Keynes University Hospital; 2Buckingham University

10.1136/flgastro-2021-bspghan.52

**Introduction/Background**

Treatment with anti-TNFα agents for paediatric patients with moderate to severe IBD has received increasing regulatory approvals since 2006. Treatment with Adalimumab and Infliximab was made available at Milton Keynes University Hospital, a secondary care setting in the Thames Valley region, following design of a shared care protocol in 2016. The service is resourced by local PeGHAN Consultant, Community Nursing team, Day Care unit and Pharmacy provisions supported by tertiary clinicians.
Aim We set out to establish both the efficacy of the service and levels of patient satisfaction by conducting a survey of our current cohort of 12 IBD patients living in Milton Keynes and receiving treatment with biologics at our unit.

Subjects and Methods Our survey included the evaluation of data from electronic patient records (EPR) and telephone interviews. All patients have experienced of the local service although three are presently on a regimen only available at the tertiary centre.

We looked at several aspects of their care including current choice and length of biologic treatment, evidence of remission, occurrence of adverse reactions, monitoring parameters and outpatient follow up arrangements.

Our telephonic patient questionnaire focused on whether families felt they were given sufficient information about treatment, the impact of receiving treatment locally and overall satisfaction with the service.

Results Of our 12 patients with IBD, 2 were diagnosed with Ulcerative Colitis and 10 with Crohn’s disease. All are children of school age with an age range from 7 to 17.5 years.

9 children are eligible for local treatment, 7 of them receive Adalimumab injections and 2 children are treated with Infliximab infusions. The 3 children treated with Vedolizumab or Ustekinumab have previously received at least one other biologic locally. Treatment duration ranges from 2- 49 months on their current biologic, with a mean duration of 16.5 months.

6 children started their treatment at MKUH, 3 at Oxford but continued at MKUH. The remaining 3 started at Oxford to continue locally but went back to Oxford due to treatment failure. Initial biologic therapy had to be switched in 6 children due to suboptimal response. All families reported their child as now clinically well. Only 5 children achieved Calprotectin levels below 200μg/g. The mean CRP was 1.4. Monitoring is done regularly with quarterly reviews at the joint IBD clinic.

All families feel they were given adequate information about treatment and accessible contact points for queries. Formal training was given to all families administering Adalimumab at home by local community nursing team. Easy access to all health care professionals involved in the service was especially praised and appreciated. Parents feel the service is patient centred and individualised. There were no serious adverse events. Families described that local access meant less lifestyle and education.

Summary and conclusion Treatment with biologics at secondary care hospital is safe, effective and contributes significantly to patient satisfaction.

Families feel well supported and appreciate the personalised care and accessibility of the service.

Background In our trust, historically paediatric patients presenting with abdominal pain raising suspicion of appendicitis were referred to surgeons and assessed in the Paediatric Assessment Unit. These patients faced long wait times for management plan by surgeons:

• covering theatres/adult wards and intensive care
• waiting for blood and imaging investigation results before finalizing a plan.

This led to delays and affected flow of patients through the PAU and the ward capacity. The Paediatric team decided to bring about a change in the abdominal pain referral pathway by proposing to see all patients referred with abdominal pain and refer to surgeons if deemed appropriate.

We collected data over 2 periods: 2018 and 2020, with the implementation of the new pathway in 2019

Aim To assess:

• Time to first review by a team (paediatric vs surgical)
• Percentage of patients
• With abdominal pain referred to each team
• Who had blood tests and imaging requested by each team
• Discharged, observed, referred and admitted by each team

Methods

• Sample period: 4 weeks in 2018 and 6 weeks in 2020
• Inclusion criteria: all paediatric patients referred with abdominal pain to PAU
• Exclusion criteria: anyone with previous appendectomy or re-attending.
• Data collection: retrospective.
• Case notes: reviewed for referral record, review times, and initial diagnosis
• Electronic patient management system: reviewed for blood test and imaging investigation requested and discharge summaries

Results Primary care referral rose from 36% in 2018 to 47% in 2020 with a concurrent shift in ED referral from 53% to 37% in 2020 showing the effect of the new pathway. 26% of referrals were made to Paediatric team in 2018 vs 87% in 2020.

Majority of patients were seen within 4 hours by the Paediatric team in both episodes 86% vs 85%. There was very slight improvement in Surgical team review time 78% vs 80%.

There was an increase in discharges to 58% by the surgical team in 2020 from 35% in 2018. However, we also saw the increase in referral by the Paediatricians to Surgeons from 7% to 33%.

There was an impressive drop in blood investigation requested by the Surgical team from 90% to 58%. Requests for imaging by surgical teams declined from 33% to 17%.

88% of the referred patients with abdominal pain had medical diagnosis at discharge and did not need any surgical intervention.

Summary Re-auditing after implementing new abdominal pathway shows:

• Overall patient flow through PAU has improved as more patients are being discharged.
• Appropriate reduction in laboratory investigation 2018 vs 2020 (both by surgical team from 90% to 58% and Paediatric team from 43% to 17%)

References

1. Hina Rizvi, 2Chui Lai, 1Vijay Iyer, 1Anjum Gandhi. 1Birmingham Heartlands Hospital; 2Birmingham Women’s Hospital

10.1136/flgastro-2021-bspghan.53
Abs​tracts

Optimization of imaging resources by surgical team from 33% to 17%.

88% of patients with abdominal pain had a medical diagnosis at discharge.

Conclusion

Abdominal pain is a common presentation in the paediatric population, mostly benign and self-limiting.

Abdominal pain should be assessed by general paediatricians first and then referred to surgical colleagues if deemed appropriate to avoid unnecessary investigations and imaging.

Re​view of Diagnosis and Management of Coeliac Disease in a District General Hospital in the North West

Ban Alkaaby, Zahra Khan, Suparna Dasgupta. Macclesfield General Hospital

Background The guidance for Coeliac Disease (CD) has evolved over the last few years. The highlight of the ESPGHAN guidelines from January 2020 is that high serological markers (tTG and EMA) are now the requirements for confirmation of CD regardless of symptoms.

Aims

1. To review management of patients and compare it with the latest ESPGHAN/BSPGHAN guidelines.
2. To review time to confirmed diagnosis from the start of symptoms.
3. To look at provision of Gluten free products at schools and Primary Care service.

Methods Retrospective data collected from Coeliac database from January 2018 till November 2020 in a District General Hospital with provision for a dedicated Coeliac Clinic supported by a Specialist Dietician. We reviewed the presentation of symptoms, methods of confirmation of CD, time duration from onset of symptoms till diagnosis, provision of gluten free meals at schools and availability of gluten free products on prescription.

Results 35 patients were diagnosed with CD, 31 were symptomatic and 4 were asymptomatic. 27/31 of the symptomatic patients had high level tTG (>10 times the upper limit), 20 had positive EMA and HLA DQ2/DQ8 for positive confirmation. The two negative EMA were referred for biopsy.

Three had HLA typing but had high tTG on 2 separate occasions which confirms diagnosis. 2 had only one high tTG and HLA but no EMA or second high tTG so they did not meet the diagnostic criteria.

4 symptomatic patients with low tTG<10x, had biopsy confirmation. 4 asymptomatic patients had high tTG and +ve EMA.

Of 28 patients referred through Primary Care, 7 were screened and referred with symptom duration of circa 4 to 12 months, another 7 were diagnosed through screening due to positive family history or type1 Diabetes Mellitus and 14 cases had no specific duration of symptoms recorded. Remaining seven were diagnosed by hospital paediatricians due to different presentations.

Most parents stated that they were providing packed lunch box even if the school provided some gluten free meals as the menu choice lacked variety. Patients with Type 1 diabetes found a packed lunch easier for carbohydrate counting. Parents felt tailor made menu recommendation from the dietician to the school would be beneficial for families and the school.

Conclusion and Recommendation We thus identified that 82% (n=29) of patient had met the criteria for diagnosis of CD as per 2015 guidelines, but if 2020 guidelines were applied then 94.2%(n=31) would have meet the criteria.

Recommendations

1. Identifying duration of time needed for the child to be screened will help to raise awareness within primary care practice. This will be audited in the future.
2. There is a large knowledge gap in schools about CD and the importance of convenient access to gluten free meals in enhancing compliance with gluten free food in children. Offering tailor made presentations to the local schools will address this issue. A further review to identify if similar knowledge gap exists in schools regionally is planned.
patients with ASC had UC and 2 IBDU. 40% of patients
had simultaneous diagnosis of AILD and IBD, all presented
with symptoms of bowel disease and abnormal GGT and/or
aminotransferase activity (6/10 had PR bleeding). 15 (60%)
patients were diagnosed with AILD and concomitant IBD
after 19 months (mean time). In 7/15 gut symptoms
improved since immunomodulators started but FC was raised,
3/15 had no gut symptoms but raised FC on screening and
5/15 developed bowel symptoms after liver diagnosis, in 3 of
them FC was raised since liver diagnosis. Endoscopic features
included pancolitis in 60% and ileitis in 20%. Histological
features were more consistent with those of mild to moder-
ate UC (78%). All patients diagnosed with AILD were started
on steroids, 9/25 were already on Azathioprine before the
endoscopic assessment for IBD.

Conclusions 20% of patients with primary diagnosis
of AILD had IBD. 40% had simultaneous diagnosis; all had
raised FC since AILD was identified. We recommend FC
routinely in children with AILD for the early diagnosis of
IBD. Colonoscopy should be considered in patients with
symptoms of IBD and the ones with clearly elevated FC.
The timing of the assessment is of paramount as immuno-
suppressve treatment can mask symptoms and change the
disease activity.

---

P47 SETTING UP A REGIONAL HOME CALPROTECTIN SERVICE DURING THE COVID-19 PANDEMIC OFFERING HOSPITAL-BASED TESTING TO LOCAL AND REGIONAL PAEDIATRIC IBD PATIENTS IN WESSEX

Claire Barnes, Chris Roberts, Jo Ward, Tracy Coelho, Alokay Batra, Robert Mark Beattie, Efrem Eren, Nadeem Afzal, University Hospital Southampton

10.1136/flgastro-2021-bspghan.56

Background The first wave of the COVID-19 pandemic in the UK severely restricted our regional paediatric GI outpatient services affecting our ability to assess patients in hospital, fur-
ther compounded by distance of travel of patients (An audit form 2019 showed 70% of patients endoscoped were from
outside the local, rather than Southampton area). The issue was further compounded by some DGH’s, who stopped offer-
ing the calprotectin test due to COVID-19 infection risk to
the staff. Although home based calprotectin kits are also avail-
able, families using them have reported their use cumbersome and difficult to process tests at home. In addition, calprotectin results from other laboratories may be difficult to access.
These limitations led to the development of a new regional service, in which samples taken at home are posted to the
hub hospital laboratory (where the IBD clinic is based) for
Calprotectin testing.

Aim To study the benefits of offering a service for posting faecal samples for calprotectin testing to a hub laboratory.

Methods Children (0–18 years) with IBD in the Wessex region, UK needing a calprotectin test were given postal faecal calprotectin packs (PFCP), either by hand in clinic or posted
to their home. Each PFCP contained a labelled specimen bot-
tle with immunology request form, bio-packaging box, sealable return bag (UN3373 compliant) with attached freepost label
and instruction sheet. A Calprotectin cut off level of <200
was used as normal.

Results 63 patients (M=34, 54% & F=29, 46%) were given
PFCP between 27th July & 5th of Nov 2020 with 52.4%
posted PFCP and 47.6% given PFCP by hand in the paediatri-
cal GI clinic. The patients resided at a mean distance of 41.6
miles (1 SD = 24.1 miles) as the crow flies from the hospi-
tal. A mean of 25 days (1SD = 10 days) were taken from
posting/handling of PFCP to the lab test result being
obtained.

The PFCP was returned by 50 patients (79.4% compliance)
with a diagnosis of Crohn’s disease 34.9%, UC 28.6%, IBDU
7.9%, oral ulcers 4.8% and 23.8% of patients referred for
endoscopy with IBD like symptoms. 30% of the patients with
IBD (15/50) posting the PFCP had an abnormal test result.
This led to a change in management in 40% of the patients.
In the patient group referred with suspected IBD only 1/15
patients had an abnormal calprotectin test. 70% of patients
with a normal test were able to be reassured without further investigation.

Conclusion This is the first reported series, offering to a large region a robust method for samples to be taken at home and
posted to a central hub laboratory for calprotectin testing dur-
ing the COVID-19 pandemic. Test results were readily avail-
able, being performed in the same hospital site as the IBD
clinic. Compliance with the new PFCP remains high with 80%
using the new PFCP service, with value in early identifi-
cation of patients who may not have much in terms of symp-
toms and avoidance of endoscopy in others with a normal
calprotectin.

---

P48 SHOCK COLON

1Milda Jancauskaite, 2Alison Campbell, 2Bruce Jaffray, 1Sean Marven. 1Department of Paediatric Surgery, Sheffield Children’s Hospital; 2Department of Paediatric Surgery, Great North Children’s Hospital, Newcastle

10.1136/flgastro-2021-bspghan.57

Introduction Non-occlusive mesenteric ischaemia (NOMI) is rare in children. There are individual case reports of ischae-
mic colitis, with various underlying causes for the acute
deterioration. The likely mechanism is hypoperfusion/reper-
fusion injury. The outcome tends to be poor. Potentially;
because the initial hit to the whole system is so significant,
or possibly because of the toxicity of the colonic insult.
Promptness of colonic resection does not seem to improve
survival.

In our institutions we recognised a series of critically ill
patients with a similar pattern of colonic injury. The patients
had a comparable clinical picture and outcome. Therefore, we
hypothesised; a similar underlying pathophysiology might be
responsible.

By collaborating, the expectation was that we would iden-
tify key learning points.

Aim We aimed to identify patterns in presentation and corre-
late these with, surgical and pathology findings. By studying
our cohort and reviewing the existing literature, we hoped to
identify a possible means of improving survival.

Subject and Methods We reviewed clinical notes, histology,
radiology and laboratory results of 4 consecutive cases of
idiopathic colonic gangrene associated with acute cardiovas-
cular collapse. Patients presented over a 2-year period to
our 2 institutions (both providing tertiary paediatric sur-
gery). We reviewed the literature on young adults and chil-
dren with ischaemic colitis and non-occlusive mesenteric
ischaemia.
Results Four critically ill children (aged 1–14 years), requiring resection of ischaemic colon following sudden cardiovascular collapse, presented to our institutions over a 2-year period.

Three had a preceding history of recent illness; the other had been well prior to out of hospital cardiac arrest. The 3 who were unwell experienced: headache (1), cough (1) and polyuria and polydipsia (1) for up to 2 weeks prior to hospital attendance. None had abdominal or gastrointestinal (GI) symptoms in their initial symptoms, although all but 1 developed GI upset during their rapid deterioration phase. Three had cardiac arrest before colectomy. All developed abdominal distension after resuscitation. All had significant derangements of blood sugar on monitoring. All 4 received inotropic support before surgery. All 4 had total colonic ischaemia diagnosed during surgical intervention and on histology report. There was no other underlying disease on histology (bowel was ganglionic). No infective organism was isolated (specifically all were negative for clostridium difficile). All 4 died due to multi organ failure.

Summary and Conclusion From this case series we could not identify any specific condition that predisposed these 4 children to develop non occlusive mesenteric ischaemia and colonic injury. Therefore we could not clearly identify means of prevention.

All 4 had a sudden deterioration over less than 24 hrs, and all received inotropes before developing abdominal distension. In addition, 3 out of 4 had cardiac arrest and return of circulation before colectomy. These would support the hypothesis of hypoperfusion/reperfusion injury.

Even though all 4 patients had colonic resection as part of the resuscitation the outcomes were very poor leading to multi organ failure or cerebral ischaemia and death.

P49 SHOULD CHILDREN WITH COELIAC DISEASE BE SCREENED FOR TYPE 1 DIABETES MELLITUS IN ANNUAL BLOODS? AN AUDIT OF FOUR YEARS SCREENING ACROSS FOUR PAEDIATRIC CENTRES IN ENGLAND

1Arati Rao, 2Siva Paul, 3Ozan Harci, 4Cynthia Diaba, 5Mai Abdalla, 2Winnette Akpobire, 3Darlington Memorial Hospital, 1The Royal Free Hospital, 2A42

Introduction The genetic association of Coeliac Disease (CD) and Type 1 Diabetes Mellitus (T1DM) is well known. Although NICE does not include annual screening for CD in the T1DM guidance, children with T1DM are routinely screened for CD in England. The incidence of children with CD on gluten free diet (GFD) developing T1DM appears to be small. The value of screening for T1DM in CD patients is thus not known.

Methods A 4-year retrospective review was conducted of a case series of children with known CD attending outpatient clinic across 4 centres. Patients were diagnosed as per ESPGHAN guidelines. In these centres HbA1c is tested as part of the CD annual review to detect impairment of glucose metabolism (> 41 mmol/mol). Abnormal HbA1c was documented in patients with CD.

Results 345 children with CD who had Hba1c screening were identified. Children with T1DM diagnosed prior to developing CD were excluded from analysis. Six of the 345 patients (1.7%) were identified with an abnormal Hba1c. Only 2/6 were confirmed as having T1DM (1 within 4 months of diagnosis); 2/6 had subsequent glucose tolerance tests that were normal, 1 patient had Turner’s syndrome and was taking growth hormone, which has an impact on glucose metabolism, and 1 patient is undergoing further investigations for Type 2 Diabetes Mellitus (high BMI).

Discussion The findings confirm the conclusion of previous studies that showed that a new diagnosis of T1DM in known CD children is uncommon. The annual screening for T1DM in children with CD who have developed impaired glucose tolerance is questionable. There is no standard screening test for T1DM, and Hba1c as a screening test for T1DM is also not routinely used. The exact mechanism for expressing coexisting autoantigens that generate both autoimmune conditions is poorly understood, and it is not clear whether the GFD in CD plays a role.

REFERENCE

P50 SINGLE CENTRE EXPERIENCE OF ENDOSCOPIC BALLOON DILATATION FOR LUMINAL STRICTURES IN PAEDIATRIC PATIENTS WITH CROHN’S DISEASE

Kim Sandhu, Vinod Kolimarala, Babu Vadmalayanan. King’s College Hospital

Introduction/Background Intestinal strictures are a complication of Crohn’s disease despite optimal medical management. Endoscopic balloon dilatation is frequently used for management of simple strictures in adults in comparison to the paediatric population. Therapeutic endoscopy is rarely performed in paediatric gastroenterology centres in the UK. Strictures in the duodenum, jejunum, ileal and colonic area are accessible by endoscopy and enteroscopy. Endoscopic balloon dilatation is a less invasive treatment option for management of short strictures and can defer surgical intervention.

Aim We aimed to evaluate the outcome of paediatric patients undergoing stricture dilatation over a 10-year period.

Subjects and Methods We retrospectively reviewed all paediatric patients with Crohn’s disease who underwent endoscopic balloon dilatation at a tertiary paediatric gastroenterology centre in the last 10 years (2010 to 2020). Strictures were identified using magnetic resonance enterography (MRE) and also during endoscopy. Patients were booked for endoscopic balloon dilatation if they were symptomatic and had prestenotic dilatation on MRE or inability to pass colonoscopy into stenosed lumen at previous endoscopy. Both paediatric colonoscopy and single balloon enteroscopy was used for endoscopic balloon dilatation which was done under fluoroscopy guidance. Clinical and endoscopic data were collected from electronic patient records.

Results During the 10-year period 20 patients with Crohn’s disease underwent endoscopic balloon dilatation. The mean age of diagnosis of Crohn’s disease was 12.45 years (5-16.4 yrs) and the mean age at the time of the occurrence of first stricture was 14.2 years (10.9-17.9 yrs). 65% patients were on biologics and 85% were on an
immunomodulator (azathioprine, methotrexate or mycophenolate mofetil). Multiple strictures were noted in 25% of patients. Location of strictures included ileal, ileocaecal, sigmoid and caecal.

A total of 32 dilatations were performed in the 20 patients and 8 patients underwent multiple endoscopic balloon dilatations (7 patients underwent 2 dilatations and 1 patient had 6 dilatations). 85% of patients were symptomatic (abdominal pain, vomiting) from the stricture and after endoscopic balloon dilatation in 70.5% the symptoms had improved.

There were 2 procedure related complications 0.06% (1 perforation requiring surgery and 1 perforation was managed conservatively). Mean follow-up since the first stricture dilatation was 2.67 years (0.1-6.11 yrs). During the follow-up of these 20 patients; 4 underwent stricture related surgery and 80% have not undergone any surgical intervention.

Summary and Conclusion Our experience has shown that endoscopic balloon dilatation is a relatively safe procedure for the treatment of luminal strictures. Endoscopic balloon dilatation results in symptomatic relief and delays surgical intervention in Crohn’s patients with luminal strictures.

P51 SODIUM-DEPENDENT MULTIVITAMIN TRANSPORTER DEFECTS – A RARE CAUSE OF CYCLICAL VOMITING AND FALTERING GROWTH

Kushila Rupasinghe, Nkem Onyeador. St. George’s Hospital NHS Trust

Case A previously fit and well 13-month-old boy of South Asian descent born to consanguineous parents presented acutely with persistent diarrhoea, vomiting and a perioral rash. He was febrile, developed bloody diarrhoea and clinically deteriorated with significant weight loss (50th centile to 9th centile). He continued to have episodes characterised by cyclical vomiting and feed intolerance, often with associated febrile illness with no microorganisms found from multiple septic screens.

Investigations Investigations showed persistently raised inflammatory markers, anaemia and thrombocytopenia, with hypogammaglobulinaemia. Ultrasound abdomen showed evidence of generalised enteritis initially, but he failed to improve on a course of triple antibiotics. Stool cultures and viral PCR were negative. Faecal calprotectin was raised (>2000 mg/kg). Repeat ultrasound abdomen showed fluid filled, actively peristalsing small and large bowel, with very mild wall thickening and inflammatory mesenteric change. Subsequent upper and lower GI endoscopy was macroscopically normal, and histology revealed chronic active oesophagitis/gastritis with a normal colon. Ophthalmology assessment due to vision concerns revealed bilateral optic atrophy. MRI brain showed lack of supratentorial, infratentorial and parenchymal bulk with thinning of the corpus callosum and optic nerves.

Progress The rash spread to include the peri-oral, peri-auricular, sacral and genital areas. He was initially treated for acrodermatitis enteropathica due to clinical presentation and borderline low zinc levels, however zinc supplementation did not resolve symptoms. Feed intolerance persisted despite switch to amino acid formula. Parenteral nutrition was commenced after failed enteral (gastric and jejunal) feeding trials. Whole exome sequencing revealed two missense mutations in the SLC5A6 gene.

Management and Discussion The SLC5A6 gene produces sodium-dependent multivitamin transporters (SMVT) which are expressed in various tissues including the intestine, brain, liver, lung, kidney, cornea, retina and heart. It plays a major role in the uptake of biotin, pantothenate and lipoate in the digestive system and transporting B-group vitamins across the blood brain barrier.

This case was only the fourth to ever be described in literature. The first case described a 15-month-old with failure to thrive, microcephaly, developmental delay, severe immune deficiency and severe gastroesophageal reflux. A subsequent series described two siblings with profound neurodevelopmental, progressive truncal ataxia and refractory cyclical vomiting.

Our patient was managed on vitamin replacement therapy: Biotin (10 mg, intramuscular), Dexamethasone (250 mg, intramuscular) and α-lipoic acid (300 mg, intravenous) given weekly. With treatment he has shown significant improvement. Cyclical vomiting has settled, his rashes are quiescent, and bloods have normalised. He is now 2 years old, fully enterally fed with his weight on the 70th centile.

This case highlights how defects in multi-vitamin transporters can lead to multi-systemic disease. It also demonstrates the diagnostic role of whole exome sequencing, and with growing genetic databases it will only increase its future potential.

REFERENCES
manifestations of infection such as fever, rigors, and/or hypotension and a positive blood cultures obtained via CVC in the absence of other potential sources of infection. CVC were removed if severe, potentially life-threatening symptoms occurred. The incidence of CRBSI was measured as number of catheter-related episodes per 1000/catheter days.

**Results** A total of 58 children (26 male, aged 7.2±4.6 years) were reviewed. The indications for PN were motility disorder in 44.8%, short bowel syndrome in 36.2% and enteropathy in 19%. The catheters used were single-lumen tunneled Hickmann (82/108), double-lumen (26/108), peripheral inserted central catheter (2/108) and Broviac (1/108).

Thirty-one of 58 (53.4%; 15 M, aged 5.8±4.3 years) children developed 108 CRBSIs over the study period. The median (range) number of CRBSI episodes per patient was 1 (0–14). The overall catheter days was 58,414 and the CRBSI rate was 1.85/1000 catheter days.

Only 23 (21.3%) catheters were removed because of life-threatening symptoms and 85 (78.7%) of catheters were salvaged and retained despite CRBSI.

By organism, 38% were gram positive, 34.2% gram negative, 21.2% polymicrobial and 6.5% fungal CRBSI. The most frequent gram positive and negative organism was Staphylococcus aureus (31.7%) and Klebsiella species (43.2%) respectively. Catheter infected with gram positive bacteria showed the highest rate of CVC salvage (gram positive 92.7%, 78.2% polymicrobial, 67.6% gram negative, 57.1% fungal infection; P<0.05).

The CRBSI rate for double-lumen catheters was significantly greater than single-lumen catheters (24.1% vs 4.8%; P<0.0001). Patients with a double-lumen CVC were found to be at increased risk for CRBSI development (HR 2.51; [95% CI 1.70–3.86]; P <0.01).

**Conclusion** CVC is possible in more than three-quarters of CRBSIs in children on long-term home PN for IF. Successful salvage may depend on the species isolated. CRBSIs caused by gram positive bacteria, the most bacteria causing CRBSI, had a CVC salvage rate approaching 93%. Effective antibiotic treatment without removal of the CVC should be considered as first line treatment. A single-lumen CVC should be the catheter of first choice. Further studies to identify predictive factors of catheter removal after CRBSI are required.

---

**P53**

**THE EFFECTIVENESS OF COLONIC TRANSIT STUDIES IN THE OPTIMISATION OF THE MANAGEMENT OF CHRONIC CONSTIPATION**

Matthew Gould, Elizabeth Renji, Raj Parmar. Alder Hey Children’s Hospital

10.1136/flgastro-2021-bspgghan.62

**Introduction/Background** Chronic constipation has been shown to lead to poor school performance and consequently deficiencies in education, as well as poor health-related quality of life. In children who suffer from chronic constipation, colonic transit studies (CTS) are ordered by specialist services to provide information that aids clinical management decisions.

**Aim** The aim of this audit was to evaluate the impact of CTS outcomes on clinical management decisions involving patients with chronic constipation. It also looked at the radiology reports of included transit studies, specifically at whether they included the number and location of radio opaque markers. The NICE guideline ‘Constipation in children and young people: diagnosis and management’ and The Royal College of Radiologists audit template ‘Complete reporting of colonic transit marker studies’ were used to determine best practice.

**Subjects and Method** A retrospective audit looking at the list of patients with chronic constipation who underwent CTS at Alder Hey Children’s Hospital. Working backwards from November 2019, the first 100 patients who met inclusion criteria were selected. Included patients had to best knowledge conducted CTS in full and also had a clinic letter following completion of the study. Management outcomes were grouped into 4 categories: decrease, no change to management, an increase of oral laxatives or an increase using management stronger than oral laxatives e.g. rectal medications or surgical interventions.

**Results** The majority of included transit studies were requested by either paediatric surgery (n=71) or gastroenterology (n=20). Only 60% of CTS reports included both the number and location of markers and 13% included neither. There was a mean of 8 days from transit study to radiology report completion. The mean transit time was 72 hours, with a range of 0–144 hours. Management outcomes were varied for both normal and slow transit. Twice as many patients with slow transit were managed with therapies stronger than oral laxatives. Patients with normal transit time were over twice as likely to have no change to their management. A transit time of >100 hours resulted in almost 80% of patients being managed with treatment stronger than oral laxatives.

**Summary and Conclusion** There appears to be a trend towards escalating management with intensive combination treatment regimes in patients whose CTS suggested slow transit and especially in patients with transit times greater than 100 hours. The range of the management choices used in patients with normal transit do however illustrate that clinicians within Alder Hey are making clinical decisions based upon the wider clinical picture of the patient, which fits with NICE guidance. This audit does illustrate that CTS radiology reports can be adapted to ensure each report contains the number and location of markers.

**Recommendations** All CTS radiology reports should include the number and location of radio opaque markers. The location of markers should be reported into 3 regions (right colon, left colon and rectosigmoid colon) as suggested. A pro-forma has been distributed within the Alder Hey radiology department detailing results and recommendations. A re-audit to assess the application of these recommendations is currently underway.

---

**P54**

**THE GASTROINTESTINAL PRESENTATION OF PIMS-TS/ MIS-C IN A COHORT AT A TERTIARY CENTRE**

Elena Kurteva*, Tania Ahmad*, Karlie Grant, Justin Penner, Fervonia Kiparissi, Edward Peter Gaynor. Great Ormond Street Hospital; *Joint first author

10.1136/flgastro-2021-bspgghan.63

**Introduction/Background** Paediatric inflammatory multisystem syndrome temporally associated with COVID-19 (PIMS-TS) is a novel condition with poorly understood pathophysiology. Acute presentation varies, with some children acutely...
unwell in systemic shock, whereas others may have features of Kawasaki disease. This study reports on the presence of gastrointestinal (GI) symptoms and subsequent investigations in children with PIMS-TS at presentation and follow-up, in a large cohort from a tertiary/quaternary paediatric centre.

Aim The aim of this prospective observational cohort study is to characterise the gastrointestinal impact of children with PIMS-TS at presentation and at first follow-up.

Subjects and Methods Patients from one paediatric centre within the multidisciplinary PIMS-TS service were identified, meeting the following inclusion criteria: under 18 years old, satisfying RCPCH criteria for PIMS-TS, admitted during their acute presentation between 25/4/20 – 01/12/20. Clinical presentation, symptom profile and initial management were recorded. Investigations including biochemical and inflammatory profiles, stool calprotectin and abdominal imaging (US-Small bowel and CT-Abdomen) were documented. On discharge, GI symptoms and investigations were monitored on subsequent assessments using a standardised template.

Results 54 children were identified (35 male), with a median age of 10.3 years (x = 10.0, range 0.75–17.2y). 48/54 (94%) of children had GI symptoms on presentation to admitting hospital (abdominal pain 76%, vomiting 59%, diarrhoea 57%, nausea 35% and ascites 22%). See figure 1.

Faecal calprotectin was not a recommended investigation in the UK National PIMS-TS consensus (Delphi process), as such was only performed on 3/54 children at presentation. Elevated ALT, AST and/or GGT were seen in 63% of children. Abdominal imaging was performed in 36/54 (67%) of total cohort. On CT abdomen 22/36 (61%) had abnormal abdominal findings (ileocolitis [5/8, 63%], hepatobiliary abnormalities [2/8, 26%]). On abdominal ultrasound (ascites [13/32, 40%], hepatobiliary abnormalities [10/32, 31%], ileocolitis [10/32, 31%], mesenteric adenitis [4/32, 13%], appendicitis [2/32, 6%]) were seen.

All patients were reviewed following discharge. On first review (mean: 54 days from discharge), there was resolution of GI symptoms in 96% of the total cohort, however 19% continued to have abnormal abdominal imaging (predominately hepatobiliary abnormalities) and 15% had persistently raised transaminases. 23/54 (43%) children had a faecal calprotectin analysed during the follow-up period - 48% (11/23) had an elevated calprotectin >50 μg/g (range 55–399).

Summary and Conclusion PIMS-TS has predominately been characterised as a rare condition that effects the cardiovascular system and/or is signified by symptoms of fever and circulatory shock. This study demonstrates the high incidence of GI symptoms at presentation. Abnormalities in transaminases and abdominal imaging and are seen in significant numbers, notably inflammation in the distal ileum and proximal colon and hepatobiliary abnormalities which persist in 19% at their first review. Increased faecal calprotectin levels seen at follow-up, suggest utility at testing at admission.

The prevalence of abdominal symptoms may aid the differentiation between Kawasaki disease and PIMS-TS. The persistence of abdominal symptoms, abnormal abdominal imaging and biochemical markers indicate follow-up is required to better understand the long-term GI implications and prognosis of this condition.
of chronic or recurrent abdominal pain were analysed to assess if there were any clinically significant findings, and the cases followed up to ascertain if there was any benefit toward management.

**Results** 20% of abdominal ultrasounds were requested for chronic abdominal pain. A total of 132 children had an ultrasound for CAP of which 43% were male and 56% were female, with the average age being 8 years. 83% of scans were requested by GPs. 16% were requested from paediatric outpatient clinic with half of these patients having sickle cell disease. 1.5% were requested from the paediatric emergency department.

Only 28% of all scans requested had alarm symptoms identified. Of those that had alarm symptoms, a third had a significant finding. Of those without alarm symptoms, only 2 had significant findings: splenomegaly and haemorrhagic ovarian cyst. 65% (86) of all scans were normal. 35% (46) had positive findings, the most common being mesenteric lymphadenopathy (29, 63%). 11 out of 132 (8.3%) scans performed identified a diagnostic cause of abdominal pain of which 9 had red flags. Findings included gallstones, splenomegaly, changes in the appendix, hepatosplenomegaly, haemorrhagic ovarian cyst, sclerosing cholangitis and constipation. Incidental findings included renal tract abnormalities and free fluid.

36% (47/132) of patients were seen by secondary care. 25% of patients with normal findings and 35% with mesenteric lymphadenopathy were referred to secondary care services. One patient with a normal ultrasound was subsequently diagnosed with ulcerative colitis and another with sclerosing cholangitis was diagnosed with Crohn’s disease. All follow up scans (10) for mesenteric lymphadenopathy showed improvement with no further intervention. 9 patients (7%) with CAP were diagnosed with functional abdominal pain syndrome.

**Conclusions** The majority of ultrasound scans in our DGH were requested by primary care. Alarm symptoms in the history correlated strongly with a clinically significant abnormal finding. The data agrees with current knowledge that the majority of chronic abdominal pain has no discernible pathology and that abdominal ultrasound scans in the absence of alarm symptoms does not yield useful findings. In our population, mesenteric lymphadenopathy was found commonly and did not significantly affect the outcome for our patients but resulted in a significant number of repeat scans and referral to secondary care. Ultrasonography is a useful investigation in paediatric abdominal pain but not in the absence of alarm features. There is scope to improve the utilisation of this resource particularly within primary care.

**Abstract P56 Table 1** Results. *Data expressed as median (range)*

<table>
<thead>
<tr>
<th></th>
<th>Vedolizumab</th>
<th>Ustekinumab</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>17</td>
<td>10</td>
</tr>
<tr>
<td>Median age at diagnosis (years)</td>
<td>9.1 (4.7 – 14.4)</td>
<td>7.0 (4.0 – 12.4)</td>
</tr>
<tr>
<td>Diagnosis n (M:F)</td>
<td>UC 12 (6:6)</td>
<td>CD 10 (5:5)</td>
</tr>
<tr>
<td>IBDU 3 (2:1)</td>
<td>CD (2 - research) (1:1)</td>
<td></td>
</tr>
<tr>
<td>Disease location</td>
<td>E4 14</td>
<td>L3 8</td>
</tr>
<tr>
<td>(Paris classification) n</td>
<td>E2 1</td>
<td>L2 2</td>
</tr>
<tr>
<td>L2L4apG0 2</td>
<td>Upper involvement 50%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Peri anal disease 70%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Growth failure 70%</td>
<td></td>
</tr>
<tr>
<td>Length of disease prior to anti-TNF treatment (months)</td>
<td>4.8 (0 – 44.7)</td>
<td>24.3 (6.8 – 50.3)</td>
</tr>
<tr>
<td>Treatment length (months)</td>
<td>13.5 (2.8 – 41.2)</td>
<td>22.0 (7.1 – 28.1)</td>
</tr>
<tr>
<td>Follow up length (years)</td>
<td>4.1 (2.0 – 12.4)</td>
<td>8.0 (2.8 – 11.9)</td>
</tr>
<tr>
<td>Clinical Remission (%)</td>
<td>Week 12 76%</td>
<td>Week 8 50%</td>
</tr>
<tr>
<td>Note not all patients have received treatment for 52 or 104 weeks</td>
<td>Week 52 n=9</td>
<td>Week 52 n=4</td>
</tr>
<tr>
<td>treatment for 52 or 104 weeks</td>
<td>Week 104 n=2</td>
<td>Week 104 n=3</td>
</tr>
</tbody>
</table>

**Conclusion** In children with refractory IBD failing anti-TNF treatment, Vedolizumab and Ustekinumab are effective and safe alternatives for inducing and maintaining remission, avoiding major invasive surgery.
UNRECOGNISED SCURVY WITH HOME PARENTERAL NUTRITION

Rulla Al-Araji, Sue Protheroe. Birmingham Children’s Hospital

Introduction The classical dermatological signs of vitamin C deficiency are now rare. The diagnosis of Scurvy was initially unrecognised in a 16-year-old boy.

Aim To describe a challenging case of vitamin C deficiency.

Subject and Method A 16-year-old boy with intestinal failure due to short bowel syndrome. He had been on home parenteral nutrition (PN) for 14 years. He had restricted dietary intake due to intestinal rapid transit.

He presented with 4 weeks history of non-pruritic rash on his legs and 2 weeks of bruising with ankle and knee pain.

On examination, he was systemically well. There were numerous peri-follicular petechiae distributed symmetrically over his lower legs with a few scattered lesions on the arms and trunk. (see figures 1, 2).

Initial investigations did not reveal blood dyscrasia, infection, or autoimmune disorder. Vitamin A, D, E, B1, B12, folate, Zinc, Copper, Selenium, and Manganese were within normal limits.

Rheumatology and dermatology opinions were sought; diagnosis of Scurvy was suspected. Skin Biopsy showed perifolliculitis with erythrocyte extravasation suggestive of Scurvy.

Four days after starting vitamin C supplement, symptoms completely resolved. Subsequently, plasma vitamin C level came back low at 1.6 μmol/L (<11 μmol/L indicates deficiency).

Immediate contact was made with the compounding company and an enquiry revealed inadvertent use of a uni-layer bag for his home PN, allowing accelerated degradation despite addition of the appropriate amount at manufacture.

Summary and discussion PN is a lifesaving treatment for patients who cannot be adequately nourished by other feeding routes. Despite this, nutritional deficiencies still occur, warranting close nutritional monitoring.

Analysis of ascorbic acid in the uni-layer bag showed degradation by 50% every 24 hours due to oxidation and by 14 days virtually none was detected. Our patient used bags stored for up to 14 days. In a multi-layer bag, 50% degradation occurs over 14 days, but the amount remaining in the bag was above the recommended daily allowance of 100 mg/day. Rate of vitamin C decay depends on the constituents of PN, storage environment and the bag containing it (1, 2).

Conclusion This case is a reminder of the Scurvy’s clinical presentation. Diagnosis was initially challenging; however, starting treatment on clinical suspicion while awaiting lab results relieved the symptoms and substantiated the diagnosis.

Scurvy is preventable and may occur with well monitored PN support as well as in fully enterally fed children (3). We advise to ensure home PN bags are multi-layered and practice stock rotation not only when nearing the expiry date.

Note: Consent was obtained to publish the photos.

REFERENCES
Serum levels of IgA antibodies against type-2 (tissue) transglutaminase (TGA-IgA) ≥ 10 times the upper limit of normal (≥10x ULN)
Positive endomysial antibodies (EMA-IgA) in a second serum sample
Positive coeliac HLA risk alleles DQ2 and/or DQ8
Symptoms suggestive of CD (particularly malabsorption)

These guidelines were modified in 2020 recommending:
- HLA testing and presence of symptoms are not obligatory criteria for a serology based diagnosis without biopsies.

**Aim** To review the practice in a Regional Paediatric Gastroenterology Centre on the uptake of No-Biopsy Approach to the diagnosis of CD comparing the 2012 and 2020 guidelines.

### Abstract P58 Figure 1

**Total Patients with TGA-IgA ≥10 times ULN + Duodenal Biopsy (n=68)**

- TGA- IgA≥10 x ULN+EMA-IgA+ Symptoms+ HLA risk allele + duodenal biopsy= 19%
- TGA- IgA≥10 x ULN+EMA-IgA + symptoms +duodenal biopsy =91%
- TGA- IgA≥10 x ULN+EMA-IgA +duodenal biopsy =95%
- TGA- IgA≥10 x ULN+duodenal biopsy = 100%

Abstract P58 Figure 2
Design/Methods A 6-year retrospective study of all children who attended coeliac clinic at The Great North Children Hospital, Newcastle.

Data obtained using electronic patient records included TGA-IgA, EMA-IgA, symptoms at initial presentation and histopathological reports.

HLA typing results were obtained from the Regional NHS blood and transplant laboratory.

346 children with CD were reviewed in the coeliac clinic from July 2013 to July 2019. Age range 0.9 – 16.5 years (median 9.5 years) and 54% female.

Exclusion criteria include diagnosed outside study period or the UK, TGA-IgA at initial presentation unavailable for review.

Results 66% of cases had TGA-IgA ≥10xULN at initial presentation. 48% were diagnosed by serology based No-Biopsy Approach (figure1).

Duodenal biopsies were performed in 82 cases. Biopsies were performed for type I diabetes -8.5% and asymptomatic patients with first-degree relative with CD -8.5% (figure 1).

EMA-IgA positivity was reported in 65/68 cases with symptoms attributed to CD in 62 cases in the cohort. A total of 13/62 cases had HLA risk alleles DQ2 and/or DQ8 performed (figure 2).

Conclusion(s)

- HLA screening uptake was 63%. The low uptake of HLA typing may have contributed to the increased number of cases undergoing duodenal biopsies.
- Based on 2012 guidelines 19% of cases had duodenal biopsies for diagnosis of CD despite meeting the criteria for no biopsy approach.
- Based on 2020 guidelines 96% of cases had duodenal biopsies for diagnosis of CD despite meeting the criteria for no biopsy approach.
- The changes in the CD guidelines from 2012 to 2020 have resulted in an increase from 16% to 96% of cases that may have benefitted from no biopsy approach to the diagnosis of CD.
- A unifying approach to the diagnosis of the CD will reduce the variability in investigations.
- The current restrictions to Aerosol Generating Procedures due to SARS-CoV-2 pandemic will have a positive impact on establishing a No-Biopsy approach to the diagnosis of CD.

REFERENCES

P59 USE OF NILE RED TO ASSESS QUALITY OF STEATOTIC DONOR HUMAN HEPATOCYTES

Jasmine Singh, Maesha Deheragoda, Anil Dhawan, Ragai Mitry. Institute of Liver Studies, King’s College London

10.1136/gastro-2021-bspghan.68

Introduction With the rise in obesity and insulin resistance, there is an increased incidence of liver diseases such as Non-Alcoholic Fatty Liver Disease (NAFLD) and Non-Alcoholic Steatotic Hepatitis (NASH), which can lead to the development of liver cancer. Liver biopsy is the gold standard for classification of liver steatosis (mild, moderate, or severe) to determine stage of NAFLD and NASH and the suitability of donor livers for transplantation. However, these observations are made visually and thus are prone to inter-observer variations.

Aim The aim of the project is to develop a simple quantitative test to assess fat content in isolated human hepatocytes.

Methods Nile Red was used to stain lipids in human hepatocyte batches (14 steatotic and 8 non-steatotic). 10,000 cells were placed per well in a black 96-well plate and diluted Nile Red solution was added. Plates were incubated (37°C, 10 min), then read using a fluorescence plate reader. Data were recorded and analysed. Cytospins of 10,000 cells per slide were allowed and the slides were then air-dried for 24h. They were stained with Nile Red (humidity chamber at 37°C, 10 min), cell nuclei were counterstained with DAPI, and slides were visualised under a fluorescence microscope. Images were taken. In both techniques unstained cells were used as negative controls.

Results The t-test showed statistically significant difference in fluorescence values in steatotic vs non-steatotic hepatocytes
Pearson correlation coefficient showed positive linear correlation between fluorescence values and histological steatosis grading ($r=0.4337$; $p<0.05$). Greater fluorescence in steatotic hepatocytes was observed under fluorescence microscope due to high lipid content compared to non-steatotic cells (figure 2).

**Summary and Conclusion** Our study shows that Nile Red staining was an easy, quick, and reliable technique for grading steatotic hepatocytes isolated from a liver biopsy of a patient with NAFLD or NASH, or from a donor liver to be used in transplantation. These results can be combined with a FibroScan to give a useful quantitative measure of steatosis and fibrosis in a sample of hepatocytes.

**P60 USTEKINUMAB IS AN EFFECTIVE DRUG FOR STEROID-FREE REMISSION IN CHILDREN WITH REFRACTORY IBD AND ANTI TNF-ALPHA INDUCED PSORIASIS**

Farah M Barakat, Claire Barnes, Jonathan Baker, Akshay Batra, Nadeem A Afzal, R Mark Beattie, Tracy A Coelho. Southampton General Hospital

10.1136/flgastro-2021-bspghan.69

**Background** Management of paediatric Crohn’s disease (CD) presents significant challenges. Escalation of therapy to biologics or a ‘top-down’ approach, with early introduction of biologics, is common. Anti-TNF agents are widely used, but the use of ustekinumab is still limited. Ustekinumab is a human monoclonal antibody targeting the p40 subunit of both IL-12/-23. Ustekinumab has recently emerged as an alternative treatment option in children with failure of response to anti-TNF alpha treatment and those developing intolerable side effects on anti-TNF treatment including psoriasis.

**Aims** Data on ustekinumab efficacy in paediatric IBD are limited. We report our experience on the use of this monoclonal antibody in paediatric IBD at a tertiary GI service in Wessex.

**Methods** Retrospective review of all paediatric patients ($\leq 18$ years) receiving ustekinumab for the management of their IBD. Data was collected by reviewing patients’ electronic medical records and available results. Only those who had the treatment for at least 26 weeks were included. Steroid free remission were the primary outcomes of this study and resolution of psoriasis (where applicable) as a secondary outcome measure.

**Results** Between November 2017- November 2020, 12 patients (M:F=6:6) were identified who were commenced on ustekinumab for the treatment of their IBD; 9 patients with CD and 3 with IBDU- Crohn’s like. One patient was excluded as the duration of treatment was $< 26$ weeks at the time of the review. The median age at diagnosis was 11 years and median age for initiating treatment with ustekinumab was 13 years (11–17 years).

The median duration between diagnosis and initiation of treatment with ustekinumab was 104 weeks and median duration of treatment with ustekinumab at the time of the review was 60 weeks (26–160 weeks).

All patients received standard anti-TNF alpha treatment prior to ustekinumab. (All 11 patients received infliximab, 7 patients received both infliximab and adalimumab, and 4 patients were escalated directly from infliximab to ustekinumab). The key indications for considering ustekinumab were primary non-response (N=5, 45%), secondary loss of response (N=3, 27%) and anti-TNF-alpha induced psoriasis. Six patients (54%) developed psoriasis while on treatment with anti-TNF alpha. Three patients (27%) were switched to ustekinumab primarily in view of anti-TNF-alpha induced psoriasis.

Steroid-free remission rates were (81%) at 26 weeks (N=9), (90%) at 52 weeks and 100% thereafter in 5 individuals who remained on ustekinumab over 1 year at the last review. No significant side-effects were reported in any patient.

85% of patients (N=5:6) who were identified with psoriasis have shown good response to switching treatment from anti-TNF to ustekinumab.

**Conclusions** This data suggests that ustekinumab is a useful and a safe treatment option in children with IBD refractory to standard monoclonal therapy and in those developing intolerable anti-TNF alpha induced side-effects, psoriasis in particular. Larger studies from multiple centres would be required to develop standardised pathways for the use of this promising monoclonal agent for the management of paediatric IBD.
Author index

McConnell Neil, A4
McGlone Sean, A29
McGuinness Christina, A36
McLain Bruce, A9
McVeigh Lauren, A29
Methga Marumbo, A32, A37
Mirza Darius, A1, A3
Misiou Maria, A40
Mitry Ragai, A49
Mohan Rajiv, A18, A26
Morris Timothy James, A16
Mortimer Helen, A21
Motion Jamie, A22
Mourik Indra Van, A1
Mtegha Marumbo, A31
Muhamad Amin Muhamad Azim, A22
Muhammed Rafeeq, A1
Mukhopadhyay Anirban, A9
Murray Margaret, A26
Mutalib Mohamed, A28
Muthusamy Predheeba, A47
Naguib Mary A, A23
Naik Sandhia, A11, A13, A46
Nair Mانjula, A17, A31
Nair Manjula Velayudhan, A20, A27, A28
Nayar Manu, A9
Newbury Rebecca, A29
Nikaki Kornilia, A4
Norriss Heather, A29
Norton Haidee, A4
Ong E, A1
Onyeador Nkem, A43
Palaniswamy Karthikeyan, A32, A37
Paling Ellen, A31
Pande Suchandra, A17, A26
Parmar Raj, A44
Parmar Raj S, A9
Patwardhan Nitin, A17
Paul Sila, A5, A42
Pena Jo, A29
Penner Justin, A44
Pereira Tamara, A1
Poole Rebecca, A36
Popescu Mara, A28
Prasad Raj, A32, A37
Probert Chris, A1
Protheroe Sue, A4, A6, A47
Puoti Maria Giovanna, A19, A43
Rabindranathnambi Aswatha, A5
Radford Angela, A38
Raja Danyal, A5
Rajwal Sanjay, A3, A32, A37
Rao Arati, A42
Rasul Taha, A18
Ravenscroft Jane, A5
Rawat Dinesh, A30
Rayner Jo, A29
Renji Elizabeth, A17, A27, A28, A31, A44
Ritchie Mary Ann, A26
Rizvi Hina, A39
Roberts Chris, A41
Robotham Abigail, A29
Rodrigues Astor, A11
Ross Kathleen, A29
Rupasinghe Kushila, A43
Russell Richard, A20
Rybak Anna, A3
Salvestrini Camilla, A33
Samyn Marianne, A40
Sanderson Ian, A13
Sandhu Kirn, A42
Saunders Pamela, A26
Sealy Laura, A29
Segal Terry, A3
Sharif Khalid, A1
Sharma Shishu, A14
Shepherd Rhona, A30
Singh Jasmine, A49
Slater Rachael, A1
Smart Brenda, A22
Smith Gillian, A36
Spray Christine, A1
Staunton Aimee, A20
Steel Victoria, A29
Stratton Rebecca, A29
Studart Dominic, A13, A46
Sugarman Iain, A30
Sutherland Malcolm, A22
Tamhane Sarang, A17, A28, A31
Tamhane Sarang Arun, A27
Taylor Rachel, A26
Taylor Rhiannon, A3
Thomas Julian, A9
Thomas Victoria, A47
Thomson Mike, A14
Thorburn Douglas, A3
Thor Nataasha, A22
Tibrewal Shiv, A42
Tong Cathryn, A29
Trace Sarah, A29
Uhlig Holm H, A20
Upasani Vivek, A32, A37
Upton Lucy, A29
Urs Arun, A14
Vadmalayan Babu, A12, A40, A42
Valleri Martina, A22
Vanker Helen, A16
Wahid Amar, A25
Walker Gregor, A36
Wang Duolao, A1
Ward Jo, A41
Watson Sarah, A3
Whitney Julie, A3
Whyte Lisa, A4
Wildgoose Jo, A29
Williams Emma, A33
Williams Rachel, A11
Wilson David, A20
Wong Emily, A29
Wong Theo, A6
Wong Theodoric, A4
Youssef Joyce, A38
Zaidi Zafar, A19, A30, A43
Zamvar Veena, A30
Zarate-Lopez Natalia, A3
Zaw Win, A10
Zouzo Vaia, A17, A31