# 2016 Gastroenterology Residents-in-Training (GRIT) Course SYLLABUS

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Download the GRIT App
Introduction

The first Gastroenterology Residents-In-Training (GRIT) Course was held in 1992 in Lake Louise, Alberta and was organized by Drs. Gary Levy and Alan B.R. Thomson. The intent was to provide Canadian trainees in gastroenterology with an opportunity to expand their knowledge of selected topics, while interacting closely with a small number of excellent and enthusiastic Canadian teachers. Indeed, although many postgraduate courses and national meetings of excellent academic quality existed, none were specifically tailored to the needs of Canadian gastroenterology trainees. The first course was so successful that this undertaking became a yearly occurrence under the auspices of the Canadian Association of Gastroenterology (CAG), the Canadian Association for the Study of the Liver (CASL) and the gastroenterology training program directors committee.

The GRIT Course has become a well-recognized, national educational event for both adult and pediatric trainees. The course served as the foundation for the development of CDDW™ in 1996 and since then has been a part of CDDW™. In 2003 Fairmont Hotels became the primary sponsor of the GRIT Course, which represents a significant investment in gastroenterology trainee education, costing approximately $2200.00 per attendee.

The impact of the GRIT Course has transcended borders: the organizers of the American gastroenterology fellows’ course have used GRIT as a model. Hundreds of young leaders in gastroenterology have attended the course during their training and have gone on to successful careers throughout Canada and abroad.

The aim of the course is to cover timely topics of interest, providing up-to-date information in a context that allows critical evaluation, and to foster an environment where clinical, research and educational initiatives may occur between individuals in different Canadian gastroenterology training programs. The course provides a forum to deliver content from all CanMEDS competencies. A variety of teaching vehicles are utilized including state of the art lectures, small group seminars, case discussions, an expert panel discussion, and oral and poster presentations of residents’ original research. The course is more than just educational – it is a venue for residents to better get to know each other and the faculty in a relaxed and fun environment. Resident feedback on each course is taken very seriously and is used as the framework for the development of the next course. Make sure to complete the evaluation, learn as much as you can, and to enjoy yourself.
Dr. Ivan Thomas Beck, a ‘founding father’ of CAG, passed away on November 6th, 2010. Dr. Beck was born in Budapest, Hungary in 1924. He received his MD degree from the University of Geneva in 1949 and subsequently emigrated to Canada where he completed both his postgraduate clinical training and PhD at McGill University. He then took up a faculty position in the Department of Pharmacology at McGill from 1958-66. He was recruited to Queen’s University in 1966 to head up a new Digestive Diseases Unit at Hotel Dieu Hospital. He remained an active faculty member at Queen’s until his death 45 years later.

Dr. Beck’s passion for the science and practice of Gastroenterology was unparalleled, and this translated into a career spanning over 50 years and marked by extraordinary accomplishments. While at McGill he established the first clinical gastrointestinal motility laboratory in Canada. Shortly after arriving at Queen’s he created a clinical unit that integrated nurses, dieticians and other allied health members into decision-making. This collaborative care model was decades ahead of its time. He was an outstanding researcher, holding continuous funding from the Medical Research Council (now the Canadian Institutes of Health Research) for over 30 years and publishing close to 250 peer-reviewed papers, reviews and book chapters during his career. In addition to seminal basic science work on pancreatitis, small bowel absorptive function, intestinal microcirculation and the pathophysiology of alcohol-induced small bowel injury, he made numerous clinical research contributions in areas as diverse as noncardiac chest pain and cholera. In later years, he became interested in the history of medicine and published several scholarly works in this area. Indeed, he served as the CAG archivist for over 20 years, during which time he meticulously documented the history of the CAG and Canadian Gastroenterology.

Dr. Beck was also an outstanding clinician and educator, winning numerous national and international awards. His track record as clinician-scientist and educator translated into visiting professorships in countries on every continent. Despite all these accolades, he was most proud of his mentorship of countless clinicians and scientists over the course of his career, many of whom went on to distinguished careers of their own.

Dr. Beck took on numerous administrative and leadership roles during his career. He worked tirelessly for the CAG since its inception in 1962, serving as the first secretary of the Association and then as President in 1967-68. In 1994 he also co-founded the Canadian Digestive Health Foundation (CDHF). Despite all these achievements in his professional life, he maintained numerous outside interests. He was a gifted painter, avid reader, sailor and swimmer, and a dedicated family man. His passing marked the end of an era in Canadian Gastroenterology. He is dearly missed by his family, friends and colleagues from around the world.
1996  Carl Goresky
Training of Future Academic Gastroenterologists: Is It Still Possible?
(Due to Dr. Goresky’s illness Dr. J. Joseph Connon delivered the Lecture)

1997  Claude Roy
Effect of Essential Fatty Acid Deficiency and Peroxidized Lipids on Peroxisomal Function

1998  J Joseph Connon
The Teaching of Teachers

1999  Eldon Shaffer
Technology in Gastroenterology: Friend or Foe?

2000  C Noel Williams
Crohn’s Disease through the Ages

2001  W Grant Thompson
TLC (Tender Loving Care)

2002  Jenny Heathcote
A Prescription for an Exciting Career in Academic Medicine

2003  Richard Hunt
Evidence Based Gastroenterology: Expectations and Realities

2004  Richard Hamilton
Beyond the Cocoon: Some Plain Talk about Careers

2005  Khursheed Jeejeebhoy
Teaching: Why and How

2006  Gary Levy
Reflections on a Career in Research in Gastroenterology: Moving from Me to We

2007  Alan BR Thomson
Standing on the Shoulders of Giants

2008  Desmond Leddin
Ethical Obligations and National Borders

2009  Peter Durie
Cystic Fibrosis – Current Understanding and Emerging Challenges

2010  Norman Marcon
Advancing the Endoscopic Limits: ESD or EMR for the Management of Esophageal Dysplasia and Early Cancer

2011  William Paterson
Etiopathogenesis of Gastroesophageal Reflux Disease: Information in Search of Knowledge

2012  Eve Roberts
How Do We Think about Science?

2013  Jonathan Meddings
Careers in Gastroenterology- and an introduction to the leaky gut

2014  Alan Barkun
Am I Really Managing Patients with Upper GI Bleeding in an Evidence Based Manner?

2015  Don Powell
Mentoring: Then and now
# Program at a Glance

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<th>Tuesday, February 23</th>
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<td>Breakfast &amp; Small Groups</td>
<td>CAG Overview CDHF Session</td>
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**TUESDAY, FEBRUARY 23**

Conference Level Foyer  
12h00  Registration

Saint-Maurice/Saint-Charles  
15h00  Opening Remarks  
- Mark Borgaonkar

15h15  Ice-Breaker Session  
- Robert Berger

16h00  Interactive Case Discussion  
- Leanna McKenzie and Robert Berger

16h45  Plenary Session I – Liver Disease  
- Mar Miserachs and Leanna McKenzie

Marquette  
18h15  Dinner

Saint-Maurice/Saint-Charles  
19h30  Expert Panel  
Moderator: Kevin Waschke

Hochelagas 4-6  
20h30  Poster Session I

**WEDNESDAY, FEBRUARY 24**

Conference Level Foyer  
08h00  Introduction to Break-out Sessions (08h00-08h05): Geoff Williams and Leanna McKenzie  
Breakfast and Small Groups [20 min x 5 sessions] (Rooms)  
- Group 1: (Harricana) Leanna McKenzie  
- Group 2: (Matapedia) Kevin Waschke  
- Group 3: (Chaudière) Geoff Williams  
- Group 4: (Saint-Maurice) Mark Borgaonkar  
- Group 5: (Saint-Charles) Robert Berger

Hochelagas 4-6  
10h00  Coffee and Poster Session I continued

Saint-Maurice/Saint-Charles  
10h30  Plenary Session II – Clinical Practice  
- Neel Malhotra and Robert Berger

Marquette  
12h15  Lunch / Free Time

Marquette  
17h00  Dinner

**WEDNESDAY, FEBRUARY 24 (continued)**

Saint-Maurice/Saint-Charles  
18h00  Plenary Session III – Inflammatory Bowel Disease  
- Franziska Righini-Grunder and Veronique Morinville

Duluth  
19h30  CAG Young Educator Award Lecture: Residents as Teachers (with Scholars’ Program and Research Topics)  
- Geoff Williams

Saint-Maurice/Saint-Charles  
20h15  Transition to Practice/Practice Management  
- Robert Berger

Hochelagas 4-6  
21h00  Poster Session II

**THURSDAY, FEBRUARY 25**

Conference Level Foyer  
07h00  Breakfast

Duluth  
08h00  CAG Overview  
- David Armstrong, CAG President Elect

08h10  Canadian Digestive Health Foundation Session (with Scholars’ Program and Research Topics)

10h00  Coffee Break and Poster Session II continued

Saint-Maurice/Saint-Charles  
10h30  Plenary Session IV – Endoscopy  
- Sarvenaz Moosavi and Kevin Waschke

Marquette  
12h00  Lunch

Saint-Maurice/Saint-Charles  
13h00  Ivan T. Beck Memorial Lectureship: ‘Using Epidemiology to Pursue Etiology in IBD’  
- Charles Bernstein

14h00  Gastroenterology Jeopardy  
- Mark Borgaonkar and Veronique Morinville

15h00  Awards / Evaluation / Closing Remarks  
- Kevin Waschke and Mark Borgaonkar

Duluth  
16h00  McKenna Lecturer: ‘An Academic Surgeon’s Views on GI Training’ (with Scholars’ Program and Research Topics)  
- Johan Söderholm, Linkoping University

Mackenzie  
17h00  Joint Reception

Saint-Francois  
17h30  Joint Dinner

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**Sponsored by Fairmont, The Queen Elizabeth Hotel, Montréal**
# Participants

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### Organizing Committee

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<tr>
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### Guest Faculty

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<td>DR JOHAN SÖDERHOLM</td>
<td>Linköping University</td>
<td><a href="mailto:johan.d.soderholm@liu.se">johan.d.soderholm@liu.se</a></td>
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## TUESDAY, FEBRUARY 23

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<th>Time</th>
<th>Activity</th>
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<tr>
<td>12h00</td>
<td>Registration</td>
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<td>15h00</td>
<td>Opening Remarks</td>
<td>Saint-Maurice/Saint-Charles</td>
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<td>- Mark Borgaonkar</td>
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<td>15h15</td>
<td>Ice-Breaker Session</td>
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<td>- Robert Berger</td>
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<td>16h00</td>
<td>Interactive Case Discussion</td>
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<td>- Leanna McKenzie and Robert Berger</td>
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<td>16h45</td>
<td>Plenary Session I – Liver Disease</td>
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<td>Co-Chairs: Mar Miserachs and Leanna McKenzie</td>
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<td>PROTEIN-CALORIE MALNUTRITION IS PREVALENT AMONG CIRRHOTIC PATIENTS AWAITING LIVER TRANSPLANT AS</td>
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<td>MEASURED BY DIRECT ESTIMATES OF PROTEIN AND CALORIE INTAKE AS WELL AS BOTH SUBJECTIVE AND</td>
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<td>OBJECTIVE TOOLS. K. Marr², A. Shaheen², L. Lam³, M. Stapleton², K. Burak¹, M. Raman², ¹²University</td>
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<td>of Calgary and ³Alberta Health Services, Calgary, Alberta</td>
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<td>17h00</td>
<td>TREATMENT OF MIXED CRYOglobulinemic VASCULITIS WITH DIRECT ACTING HCV THERAPY. J. Emery¹, M.</td>
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<td>Kuczynski², D. La³, S. Almarzooqi³, J. Feld². ¹University of Toronto, Toronto, Ontario; ²University</td>
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<td>17h15</td>
<td>THE USE OF ALBUMIN IN DECOMPENSATED CIRRHOSIS: ARE THE INDICATIONS APPROPRIATE AND THE DESIRED</td>
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<td>OUTCOMES ACHIEVED? X. Xiong, H. Tan, F. Wong. Division of Gastroenterology, Toronto General</td>
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<td>Hospital, University of Toronto, Toronto, Ontario</td>
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<td>17h30</td>
<td>AN EVALUATION OF THE ROLE OF TRANSIENT ELASTOGRAPHY IN ASSESSING PEDIATRIC CYSTIC FIBROSIS</td>
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<td>ASSOCIATED LIVER DISEASE IN CHILDREN WITH CYSTIC FIBROSIS. S. Lam³, H. Machida¹, R. Myers³, C.</td>
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<td>Ortiz-Neira³, S. Martin¹, J. Yap², J. deBruyn³. ¹Alberta Children's Hospital, Calgary, Alberta;</td>
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<td>²University of Alberta, Edmonton, Alberta; ³University of Calgary, Calgary, Alberta</td>
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<td>17h45</td>
<td>ROLE OF TRANSIENT ELASTOGRAPHY IN ASSESSMENT OF CYSTIC FIBROSIS-ASSOCIATED LIVER DISEASE. J.</td>
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<td>Woolfson, S. Raveendran, M. Chilvers, R. Schreiber, O. Guttman. BC Children's Hospital,</td>
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<td>18h15</td>
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Tuesday, February 23 continued

19h30  **Expert Panel**  
Moderator: Kevin Waschke

Saint-Maurice/Saint-Charles

20h30  **Poster Session I (Posters 1-24)**  
Hochelagas 4-6

**CAN SEROLOGICAL MARKERS BE USED TO BETTER DEFINE PRIMARY BILIARY CHOLANGITIS-AUTOIMMUNE HEPATITIS OVERLAP SYNDROME?**  

**IMPACT OF TYPES OF QUESTIONS ASKED ON GASTROENTEROLOGY ECONSULTATION OUTCOMES.**  

**MICROARRAY ANALYSIS OF CROHN'S DISEASE AND CORRELATION WITH TRADITIONAL CLINICAL AND HISTOLOGIC FEATURES.**  

**TOPICAL HEMOSTATIC SPRAY FOR THE MANAGEMENT OF MALIGNANCY-RELATED GASTROINTESTINAL BLEEDING: A SYSTEMATIC REVIEW AND META-ANALYSIS.**  
M. Sandhu, P. James, S. Piscopo. University of Ottawa, Ottawa, Ontario **(Poster 4)**

**RED BLOOD CELL TRANSFUSIONS AND IRON THERAPY FOR PATIENTS PRESENTING WITH ACUTE UPPER GASTROINTESTINAL BLEEDING: A SURVEY OF GASTROENTEROLOGISTS.**  
K. Fortinsky², M. Martel¹, R. Razik², G. Spiegle², S. Grover², K. Pavenski², A. Weizman², Z. Gallinger², L. Kwapisz³, A. Barkun⁴. ¹McGill University Health Center, Montréal, Québec; ²Mount Sinai Hospital, Toronto, Ontario; ³UWO, Whitby, Ontario; ⁴McGill University, The Montreal General Hospital, GI Division, Montréal, Québec **(Poster 5)**

**SAFETY OF ANTICOAGULATION IN NON-HOSPITALIZED IBD PATIENTS.**  
I. Plener², A. Rumman², M. Cino³, G. Nguyen¹. ¹Mount Sinai Hospital, University of Toronto, Toronto, Ontario; ²University of Toronto, Toronto, Ontario; ³University of Toronto-University Hospital Network, Toronto, Ontario **(Poster 6)**

**CAN GASTROENTEROLOGISTS RELY ON FECAL CALPROTECTIN IN LIEU OF MORE INVASIVE TESTING OR CRP IN MANAGEMENT OF IBD?**  

**IMPROVED SAMPLE QUALITY OBTAINED BY EUS-GUIDED SINK COMPARED TO FNA FOR FOREGUT SUBEPITHELIAL LESIONS.**  
M. Boulos, D. Wang, P. James, T. Moyana, A. Chatterjee. University of Ottawa, Ottawa, Ontario **(Poster 8)**
**Poster Session I continued**

**HEALTH RELATED QUALITY OF LIFE IN TEN YEAR SURVIVORS OF PAEDIATRIC LIVER TRANSPLANTATION MEASURED BY THE PELTQL: A NOVEL DISEASE-SPECIFIC QUESTIONNAIRE.** M. Miserachs², A. Otley¹, A. Dhawan⁵, J. Bucuvalas⁴, S. Gilmour³, M. Stormon⁶, L. Ee⁷, V. Ng². ¹Dalhousie University, Halifax, Nova Scotia; ²The Hospital for Sick Children, Toronto, Ontario; ³University of Alberta, Edmonton, Alberta; ⁴Cincinnati Children’s Hospital, Cincinnati, Ohio; ⁵King's College Hospital, London, United Kingdom; ⁶The Children’s Hospital at Westmead, Stdney, NSW, Australia; ⁷Royal Children’s Hospital, Brisbane, QLD, Australia. (Poster 9)

**SHOULD ANTICOAGULATION BE OFFERED IN PATIENTS WITH PVT IN THE SETTING OF HCC?** T. Mahmoudi, A. Kayal, R. Carvalho, A. Weiss. UBC, Vancouver, British Columbia (Poster 10)

**LIVER INJURY ASSOCIATED WITH ANTI-TNF THERAPY IN PAEDIATRIC IBD.** A. Ricciuto, B. Kamath, P. Church, T. Walters, S. Ling, A. Griffiths. The Hospital for Sick Children, Toronto, Ontario (Poster 11)

**HEPATITIS B REACTIVATION PROPHYLAXIS FOR PATIENTS UNDERGOING CHEMOTHERAPY FOR LYMPHOMA IN CANADA: CURRENT PRACTICE IN HEMATOLOGY/ONCOLOGY.** G. Ou¹, K. Savage¹, L. Shepherd², J. Connors¹, E. Yoshida¹. ¹University of British Columbia, Vancouver, British Columbia; ²Queen's University, Kingston, Ontario (Poster 12)

**THE PREVALENCE OF HELICOBACTER PYLORI IN QUEBEC IS LOW AND HIGHLY DEPENDANT ON THE COUNTRY OF ORIGIN.** G. Hassan¹, J. de Repentigny², S. Sidani¹, G. Soucy³, M. Bouin¹. ¹Centre Hospitalier de l'Université de Montréal, Montréal, Québec; ²Université de Montréal, Montréal, Québec (Poster 13)

**COLONOSCOPY QUALITY ASSURANCE AND MAINTANANCE OF COMETENCY AMONG PEDIATRIC GASTROENTEROLOGY FASS MEMBERS - A PILOT PROJECT.** C. Barker, M. Alaifan. University of British Columbia, Vancouver, British Columbia (Poster 14)

**FIRST CASE REPORT OF CML IN CD PATIENT USING ADAHILUMAMAB: RISK OF MALIGNANCY WITH BIOLOGICAL THERAPY AND CHALLENGES IN COMMUNICATING INFORMATION TO THE PATIENT.** A. Dhillon¹, A. Ilnyckyj¹, N. Narula². ¹University of Manitoba, Winnipeg, Manitoba; ²McMaster University, Hamilton, Ontario (Poster 15)

**WARM CARBON-DIOXIDE INSUFFLATORS FAIL TO DELIVER TARGET TEMPERATURES DURING COLONOSCOPIES - AN EX-VIVO STUDY.** E. Jouhari², K. Robertson¹, L. Hookey¹. ¹Hotel Dieu Hospital, Kingston, Ontario; ²Queen's University, Kingston, Ontario (Poster 16)
Tuesday, February 23 continued

**Poster Session I continued**

**SMALL-FIBER NEUROPATHY IN A PEDIATRIC PATIENT WITH ULCERATIVE COLITIS ON TUMOR NECROSIS FACTOR ALPHA-INHIBITOR TREATMENT.** J. Breton¹, C. Deslandres¹, E. Haddad¹, G. D’Anjou¹, ¹Hôpital Sainte-Justine, Montréal, Québec; ²Université de Montréal, Montréal, Québec (Poster 17)

**DIAGNOSTIC YIELD OF ENDOSCOPIC ULTRASOUND GUIDED FINE NEEDLE ASPIRATION VERSUS FINE NEEDLE BIOPSY FOR SOLID LESIONS.** A. Kayal¹, C. Chan², M. Alsahafi¹, A. Weiss¹, M. Byrne¹, D. Schaeffer³, F. Donnellan¹. ¹Division of Gastroenterology, Vancouver General Hospital, University of British Columbia, Vancouver, British Columbia; ²University of British Columbia, Vancouver, British Columbia; ³Department of Anatomical Pathology, Vancouver General Hospital, University of British Columbia, Vancouver, British Columbia (Poster 18)

**UNEXPLAINED ASCITES IN AN ADOLESCENT FEMALE: POSSIBLE ASSOCIATION WITH EXCESSIVE INGESTION OF METHYLEONE.** J. Stanisz¹, J. Terry², J. Zeidler², R. Issenman³, H. Brill³. ¹Section of Pediatric Gastroenterology, University of Calgary, Calgary, Alberta; ²Department of Pathology and Molecular Medicine, McMaster University, Hamilton, Ontario; ³Division of Gastroenterology and Nutrition, Department of Pediatrics, McMaster University, Hamilton, Ontario (Poster 19)

**SAPHO SYNDROME 10 MONTHS AFTER INITIATION OF REMICADE FOR CROHN’S DISEASE: CASE REPORT.** N. Clermont Dejean, S. Plamondon. Université de Sherbrooke, Sherbrooke, Québec (Poster 20)

**Q FEVER IN A PATIENT WITH CROHN’S DISEASE ON ADALIMUMAB AND METHOTREXATE.** M. Alkhattabi², R. Almotaseembillah¹, S. Hosseini-moghaddam², A. AlNasser², M. Beaton¹. ¹London Health Sciences Centre, London, Ontario; ²Western University, London, Ontario (Poster 21)

**A RARE NIDUS FOR BILIARY STONE FORMATION.** R. Battat¹, M. Drapeau², B. Faulques², J. Wyse¹. ¹McGill University, Montréal, Québec; ²Université de Montréal, Montréal, Québec (Poster 22)

**AN ATYPICAL INTRA-ABDOMINAL MASS IN A 28 YEAR OLD CROHNS PATIENT ON LONGTERM AZATIOPRINE AND INFLIXIMAB.** G. Eustace¹, J. Marshall². ¹McMaster University, Oakville, Ontario; ²McMaster University Medical Centre, Hamilton, Ontario (Poster 23)

**A DIAGNOSTIC DILEMMA: A CASE OF CHOLESTATIC JAUNDICE DUE TO AL-AMYLOIDOSIS.** R. Al-Dabbagh, S. Bharadwaj, S. Patterson, M. Puglia. McMaster University, Hamilton, Ontario (Poster 24)
WEDNESDAY, FEBRUARY 24

08h00  Introduction to Break-out Sessions (08h00-08h05)
       Geoff Williams and Leanna McKenzie  Conference Level Foyer

Breakfast and Small Groups – Break Out Rooms (20 min x 5 sessions)
Group 1: Leanna McKenzie  Harricana
Group 2: Kevin Waschke  Matapedia
Group 3: Geoff Williams  Chaudière
Group 4: Mark Borgaonkar  Saint-Maurice
Group 5: Robert Berger  Saint-Charles

10h00  Coffee and Poster Session 1 continued  Hochelagas 4-6

Plenary Session II – Clinical Practice  Saint-Maurice/Saint-Charles
Co-Chairs: Neel Malhotra and Robert Berger

10h30  EOSINOPHILIC OESOPHAGITIS: DEMOGRAPHICS & DISEASE CHARACTERISTICS IN NEW ZEALAND CHILDREN. A PROSPECTIVE STUDY. A. Sheikh¹, A. Day², J. Sinclair¹, N. Dickson³, H. Evans¹. ¹Starship Children's Health, Auckland, New Zealand; ²University of Otago, Christchurch, New Zealand; ³New Zealand Paediatric Surveillance Unit, Dunedin, New Zealand

10h45  MEDICATION USE IS ASSOCIATED WITH ESOPHAGEAL MANOMETRIC ABNORMALITIES. D. Jacob¹, S. Pradhan², L. Wilsack¹, M. Buresi¹, M. Curley¹, M. Gupta¹, A. Shaheen¹, C. Andrews¹. ¹Department of Gastroenterology and Hepatology, University of Calgary, Calgary, Alberta; ²University of Calgary, Calgary, Alberta,

11h00  ENDOSCOPY UTILIZATION AND OUTCOME FOR THE GI NURSE NAVIGATOR PATHWAY: A QUALITY IMPROVEMENT PROJECT FOR CHRONIC DYSPEPSIA, HEARTBURN & IRRITABLE BOWEL SYNDROME. K. Milne², B. Kathol³, M. Swain¹, C. Johnstone³, J. Kwan⁴, W. Schoombee⁴, C. Andrews². ¹Department of Gastroenterology and Hepatology, University of Calgary, Calgary, Alberta; ²University of Calgary, Calgary, Alberta.

11h15  NEW ORAL ANTICOAGULANTS AND GASTROINTESTINAL HEMORRHAGE: A SYSTEMATIC REVIEW AND META-ANALYSIS. A. Dorreen¹, C. Miller³, M. Martel², A. Barkun³. ¹Dalhousie University, Halifax, Nova Scotia; ²McGill University Health Center, Montréal, Québec; ³McGill University, The Montreal General Hospital, GI Division, Montréal, Québec

11h30  ADEQUACY OF DOCUMENTATION OF FOLLOW-UP PLANS FOR PATIENTS UNDERGOING INPATIENT COLONOSCOPY. C. Parker¹, M. Brahmania¹, M. Kowgier¹, S. Sharma¹, T. Alomani¹, G. Malhi¹, A. Gulamhusein¹, N. Bollegala¹, M. Cino², A. Weizman³, M. Bernstein⁴, E. Irvine⁵. ¹University of Toronto, ²Toronto Western Hospital, ³Mount Sinai Hospital, ⁴Sunnybrook Health Sciences Centre, and ⁵St. Michael's Hospital – Toronto, Ontario
Wednesday, February 24 continued

12h15  Lunch/Free Time  Marquette
17h00  Dinner  Marquette

**Plenary Session III – Inflammatory Bowel Disease**  Saint-Maurice/Saint-Charles  Co-Chairs: Franziska Righini-Grunder and Veronique Morinville

**18h00**  KNOWLEDGE, PERCEPTIONS, AND ATTITUDES TOWARDS MEDICATION ADHERENCE AND PREGNANCY IN INFLAMMATORY BOWEL DISEASE. Z. Gallinger\(^2\), A. Rumman\(^2\), G. Nguyen\(^1\). \(^1\)Mount Sinai Hospital, University of Toronto, Toronto, Ontario; \(^2\)University of Toronto, Toronto, Ontario

**18h15**  POST-TRANSPLANT CHOLESTASIS WITHIN 1-YEAR PREDICTS PSC RECURRENCE. S. Wasilenko, E. Lytvyak, A. Montano-Loza, A. Mason. University of Alberta, Edmonton, Alberta


**18h45**  INTERVENTIONS FOR TREATING LYMPHOCYTIC COLITIS. N. Al Yatama\(^1\), N. Chande\(^1\), T. Bhanji\(^1\), J. MacDonald\(^2\). \(^1\)The University of Western Ontario, London, Ontario; \(^2\)Robarts Research Institute, University of Western Ontario, London, Ontario

**19h00**  INTENSIFICATION OF INFlixIMAB INDUCTION REGIMEN IMPROVES RESPONSE RATE IN STEROID-REFRACTORY PAEDIATRIC ULCERATIVE COLITIS. S. Ho, A. Sharma, K. Frost, T. Walters, P. Church, A. Griffiths. Hospital for Sick Children, Toronto, Ontario

**19h30**  CAG Young Educator Award Lecture: Residents as Teachers – Duluth
(with Scholars’ Program and Research Topics)
– Geoff Williams

**20h15**  Transition to Practice/Practice Management  Saint-Maurice/Saint-Charles
– Robert Berger
Wednesday, February 24 continued

21h00  Poster Session II (Posters 25-48)  Hochelagas 4-6

SITAGLIPTIN FOR THE TREATMENT OF NON-ALCOHOLIC STEATOHEPATITIS IN PATIENTS WITH TYPE 2 DIABETES. N. Malhotra¹, T. Joy², C. McKenzie², M. Beaton¹. ¹London Health Sciences Centre and ²Western University, London, Ontario (Poster 25)

CAN FECAL CALPROTECTIN PREDICT THE FUTURE? L. Kwapisz³, M. Mosli², N. Chande², B. Yan¹, M. Beaton¹, J. Micsko¹, W. Barnett¹, K. Bax¹, T. Ponich¹, J. Howard¹, A. Tirolese¹, R. Lannigan¹, J. Gregor¹. ¹London Health Sciences Centre, London, Ontario; ²The University of Western Ontario, London, Ontario; ³The University of Western Ontario, Whitby, Ontario (Poster 26)


VALIDATION OF ADMINISTRATIVE DATA FOR CAPTURING CROHN’S DISEASE PATIENTS REQUIRING SURGICAL BOWEL RESECTION. C. Ma¹, R. Panaccione¹, G. Moran³, E. Benchimal², C. Seow¹, Y. Leung¹, K. Novak¹, M. Iacucci¹, S. Ghosh¹, G. Kaplan¹. ¹University of Calgary, Calgary, Alberta; ²University of Western Ontario, London, Ontario; ³University of Nottingham, Nottingham, United Kingdom (Poster 28)


INCIDENCE OF VENOUS THROMBOEMBOLISM IN GASTROINTESTINAL BLEEDING. C. Sheasgreen, M. Almakadi, G. Leontiadis. McMaster University, Hamilton, Ontario (Poster 33)

HIRSCHSPRUNG DISEASE AS A CHALLENGING DISEASE: DATA FROM A PEDIATRIC HIRSCHSPRUNG COHORT IN QUEBEC, CANADA. F. Righini-Grunder¹, N. Mamoun¹, A. Le-Nguyen¹, N. Pilon³, R. Soret³, A. Aspirot², C. Faure². ¹Ste Justine Hospital, Montréal, Québec; ²CHU Ste Justine, Montréal, Québec; ³UQAM, Montréal, Québec (Poster 34)
Wednesday, February 24 continued

Poster Session II continued

LIVER TRANSPLANT IN AN INFANT PRESENTING WITH HEPATIC FAILURE SECONDARY TO SEVERE PYRUVATE KINASE DEFICIENCY. S M. Chartier1, M. Paganelli2, N. Ahmed3, F. Alvarez2. 1-2CHU Ste-Justine, Montréal, Québec; 3McGill University Health Centre, Montréal, Québec (Poster 35)


ANALYSIS OF SAFETY AND EFFICACY OF SOFOSBUVIR-BASED THERAPY IN LIVER TRANSPLANT ASSESSED HEPATITIS C PATIENTS. B. Thomas5, B. Aljudaibi1, P. Marotta3, K. Qumosani3, P. Adams4, M. Levstik2. 1-2London Health Science Centre, London, Ontario; 3London Health Sciences Center, University of Western Ontario, London, Ontario; 4University Hospital, London, Ontario; 5Western University, London, Ontario (Poster 37)

SUCCESSFUL ERADICATION OF RECURRENT CLOSTRIDIUM DIFFICILE INFECTION (RCDI) OF SMALL BOWEL WITH FROZEN ENCAPSULATED FECAL MICROBIOTA TRANSPLANTATION (FMT) IN A PATIENT WITH CROHN’S DISEASE AND ILEOSTOMY. J. Zhu, B. Roach, D. Kao. University of Alberta, Edmonton, Alberta (Poster 38)


MARKEDLY ELEVATED SERUM ALPHA-FETOPROTEIN LEVELS NOT CAUSED BY HEPATIC MALIGNANCY IN TWO INFANTS WITH END STAGE LIVER DISEASE - A CASE SERIES. E. Crowley1, T. Gerstle4, F. Shaikh2, M. Greer3, V. Ng1. 1Division of Gastroenterology, Hepatology and Nutrition, 2Division of Hematology/Oncology, 3Department of Diagnostic Imaging, and 4Division of General Surgery – Hospital for Sick Children, Toronto, Ontario (Poster 40)


CYTOMEGALOVIRUS (CMV) COLITIS TRIGGERING INFLAMMATORY BOWEL DISEASE (IBD) IN AN IMMUNOCOMPETENT ADULT: A CASE REPORT AND REVIEW OF THE LITERATURE. A. Bitton, M. Shehab. McGill University, Montréal, Québec (Poster 42)

MAIN-DUCT INTRADUCTAL PAPILLARY MUCINOUS NEOPLASM OF THE PANCREAS ASSOCIATED WITH SPONTANEOUS PANCREATICODUODENAL AND PANCREATICOGASTRIC FISTULAS. R. Almeida, C. Dargavel, J. Mosko. University of Toronto, Toronto, Ontario (Poster 43)
**Wednesday, February 24 continued**

**Poster Session II continued**

**CHOLEDOCHOLITHIASIS IN INFANCY.** K. Prowse, J. Dowhaniuk, M. Hussein, M. Sherlock. McMaster University, Hamilton, Ontario *(Poster 44)*

**ENDOSCOPIC ULTRASOUND IN NOVA SCOTIA, A QUALITY ASSURANCE STUDY.** A. Alghamdi. Dalhousie University, Halifax, Nova Scotia *(Poster 45)*

**SPINDLE CELL SQUAMOUS CELL CARCINOMA IN A PATIENT WITH CROHN'S DISEASE ON LONG-TERM IMMUNOSUPPRESSION: A CASE REPORT AND LITERATURE REVIEW.** N. Griller, M. Cino. University of Toronto, Toronto, Ontario *(Poster 46)*

**HEPATIC DUCTOPENIA AND VANISHING BILE DUCT SYNDROME FOLLOWING ANABOLIC ANDROGENIC STEROID USE.** R. Alkhiari\(^1\), T. Xenodemetropoulos\(^2\).  
\(^1\)McMaster University, Ancaster, Ontario; \(^2\)McMaster University, Hamilton *(Poster 47)*

**UPPER GASTROINTESTINAL BLEEDING DUE TO GASTRIC STROMAL TUMOR- ONE OF THE FORGOTTEN DIFFERENTIALS.** S. Bharadwaj\(^1\), M. Alzahrani\(^1\), R. Alkhiari\(^1\), R. Al-Dabbagh\(^2\), T. Gohel\(^1\), R. Spaziani\(^2\). \(^1\)McMaster University, Hamilton, Ontario; \(^2\)McMaster University, Stoney Creek *(Poster 48)*
Prior to the CDHF Session please log in to the Demo Twitter account at Twitter.com  
Username: gutdemo  Password: gutdemo2016

07h00  Breakfast  
Conference Level Foyer

08h00  CAG Overview  
- David Armstrong, CAG President Elect  
Duluth

08h10  Canadian Digestive Health Foundation (CDHF) Session  
(with Scholars’ Program and Research Topics)

10h00  Coffee Break and Poster Session II continued

Plenary Session IV – Endoscopy  
Saint-Maurice/Saint-Charles  
Co-Chairs: Sarvenaz Moosavi and Kevin Waschke

10h30  THE USE OF HIGH VOLUME SIMETHICONE TO IMPROVE VISUALIZATION QUALITY DURING SMALL BOWEL VIDEO CAPSULE ENDOSCOPY: A PILOT STUDY.  
D. Segal1, B. Yan1, N. Chande2, T. Ponich1, J. Gregor2, M. Sey1.  
1London Health Sciences Centre,  
2Los Alamos National Laboratory,  
3The University of Western Ontario, and  
4Western University – London, Ontario

10h45  OPTIMIZING THE DIAGNOSTIC YIELD OF EUS-FNA FOR SOLID PANCREATIC LESIONS: A SINGLE-CENTRE QUALITY ASSURANCE STUDY.  
M. Abunassar1, A. Chatterjee1, B. Dube2, C. Marginean3, G. Martel4, S. Murthy1, A. Rostom1, C. Dube1, P. James1.  
1The Ottawa Hospital, Department of Medicine, Division of Gastroenterology,  
2University of Ottawa/OHRI,  
3The Ottawa Hospital - Department of Pathology, and  
4The Ottawa Hospital - HPB Surgery – Ottawa, Ontario

11h00  SINGLE CENTER EXPERIENCE IN THE USE OF DEVICE ASSISTED ENTEROSCOPY: A RETROSPECTIVE STUDY.  
A. Benmassaoud, M. Sasson, C. Soulellis, T. Bessissow.  
McGill University Health Center, Montréal, Québec

11h15  ENDOSCOPIC EVALUATION OF GRAFT-VERSUS-HOST DISEASE: RETROSPECTIVE REVIEW FROM A TERTIARY CENTRE.  
S. Ip, V. Marquez, D. Schaeffer, F. Donnellan.  
University of British Columbia, Vancouver, British Columbia

11h30  THE IMPACT OF WARMED CARBON DIOXIDE INSUFFLATION DURING COLONOSCOPY ON POLYP DETECTION: A RANDOMIZED DOUBLE-BLIND CONTROLLED TRIAL.  
J. Green1, A. Patel2, L. Hookey1.  
1Queen’s University, Kingston, Ontario;  
2Queen’s University, Mississauga, Ontario

12h00  Lunch  
Marquette
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| 13h00  | Ivan T. Beck Memorial Lectureship:  
‘Using Epidemiology to Pursue Etiology in IBD’  
– Charles Bernstein | Saint-Maurice/Saint-Charles |
| 14h00  | Gastroenterology Jeopardy  
– Mark Borgaonkar and Veronique Morinville |                      |
| 15h00  | Awards/Evaluation/Closing Remarks  
– Kevin Waschke and Mark Borgaonkar |                      |
| 16h00  | McKenna Lecturer:  ‘An Academic Surgeon’s Views on GI Training’  
(with Scholars’ Program and Research Topics)  
– Johan Söderholm, Linkoping University | Duluth (with Scholars’ Program and Research Topics) |
| 17h00  | Joint Reception                                                                 | Mackenzie |
| 17h30  | Joint Dinner                                                                 | Saint-Francois |
PLENARY I – Liver Disease

PROTEIN-CALORIE MALNUTRITION IS PREVALENT AMONG CIRRHOTIC PATIENTS AWAITING LIVER TRANSPLANT AS MEASURED BY DIRECT ESTIMATES OF PROTEIN AND CALORIE INTAKE AS WELL AS BOTH SUBJECTIVE AND OBJECTIVE TOOLS

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Background: Malnutrition is an important predictor of morbidity and mortality among cirrhotic patients.

Aims: Our objectives were to assess protein-calorie malnutrition (PCM) in cirrhotic pre-liver transplant patients and to study the correlation between subjective global assessment (SGA) and other objective measures of malnutrition.

Methods: We recruited pre-liver transplant adult patients at our center between October 2012 and September 2015. Nutrition status was assessed via the SGA. PCM was assessed by comparing recommended to actual protein and calorie intake. SGA was correlated with body mass index (BMI), dry BMI, handgrip strength (HGS) by calibrated dynometer, and mid-arm circumference (MAC). We used non parametric statistical methods in our analysis.

Results: Seventy patients were included in this study. The majority were males (n=46, 66%) with a median age of 58 years (IQR: 50-61). Moderate to severe malnutrition was prevalent in our cohort (SGA-A: n=15 (21.4%), SGA-B: n=30 (42.9%) and SGA-C: n=25 (35.7%). There was a significant difference in the recommended calories consumed between SGA groups (A 99% vs. C 72%, P<0.001). A similar trend was observed for the recommended protein consumed (A 85%, C 62%; P=0.08). SGA correlated with BMI (A=26.4, C=22.4; P=0.002), Dry BMI (A=25.9, C=20.4; P<0.001), and MAC (A=29.5 cm, C=22.0 cm; P<0.001). HGS was significant according to gender. There was a significant difference in male HGS between SGA (A=81 vs. C 51 PSI, P<0.001), while in females the HGS trended towards a difference (A=36 vs. C=29 PSI, P=0.07). HGS and MAC were strongly correlated (Spearman correlation 0.49, P<0.001).

Conclusions: Cirrhotic patients have significant protein-calorie malnutrition. Multiple malnutrition tools including dry BMI, HGS and MAC were precisely able to assess malnutrition.

Funding Agencies: Abbott and Baxter
PLENARY I – Liver Disease

TREATMENT OF MIXED CRYOglobulinemic VASCULITIS WITH DIRECT ACTING HCV THERAPY

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Background: Mixed cryoglobulinemia (MC) is a lymphoproliferative disorder with a strong association to HCV infection. Manifestations of MC range from asymptomatic to life threatening with HCV eradication leading to significant improvements in morbidity. Traditionally, clearance of HCV has required a combination of PEGinterferon and ribavirin which achieves sustained virological responses in 36-64% of patients. Importantly, remission of MCV symptoms is seen in over 80% of those achieving SVR. However, expectations of SVR rates and side effects profiles in the primary treatment of HCV have rapidly changed in the era of novel direct acting antivirals (DAA). Dramatic impacts on SVR rates have been reported (over 90%) and replicated but little has been published on their efficacy in the subpopulation with MCV

Aims: To investigate the efficacy and safety of DAA in the treatment of Mixed Cryoglobulinemia.

Methods: Patients with immunological evidence of HCV related mixed cryoglobulinemia and prior treatment with direct acting antivirals were identified at tertiary care medical centre. Treatment response was evaluated based on clinical, immunological and virological outcomes at treatment cessation and at 12 weeks post treatment. Treatment side-effects, use of rescue therapy and decompensating events were recorded to confirm safety.

Results: Seventeen symptomatic and fifty non-symptomatic patients were reviewed. To date, SVR12 was achieved in ten (92%) symptomatic and twenty nine (93.5%) asymptomatic patients. At SVR12 full immunological response was achieved in four (40%) symptomatic and nineteen (59%) asymptomatic patients with five (33%) patients achieving full clinical response. One patient (14%) on PEG-IFN based regimens and three (44%) patients on interferon-free regimens had full clinical response rates. Full immunological response rates were seen in four (40%) patients on PEG-IFN and nineteen (60%) on IFN free regimens. All fifty seven (100%) patients were able to complete therapy. Two (3%) patients had direct therapy related side effects (significant ribavirin related anemia) with four (6%) and five (7%) patients requiring hospitalization for decompensation or vasculitis

Conclusions: Direct acting antivirals are efficacious in achieving sustained virological responses in symptomatic and asymptomatic patients with cryoglobulinemia. Immunological and clinical response rates in patients achieving SVR12 are suboptimal compared to previous reports, which may reflect shorter treatment courses or lower use of interferon. Longer follow up of our cohort is required to make adequate conclusions about clinical efficacy. Overall, use of DAA’s in patients with cryoglobulinemia is well tolerated in symptomatic patients.

Funding Agencies: None
THE USE OF ALBUMIN IN DECOMPENSATED CIRRHOSIS: ARE THE INDICATIONS APPROPRIATE AND THE DESIRED OUTCOMES ACHIEVED?

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**Background:** Albumin is the most abundant protein in the circulation. The recent recognition that it has many physiological functions in addition to the maintenance of oncotic pressure led to increased use in patients with decompensated cirrhosis. The current approved indications include: i) prevention of circulatory dysfunction following large volume paracentesis (LVP); ii) diagnosis and adjunctive therapy of hepatorenal syndrome (HRS); and iii) prevention of HRS in patients with spontaneous bacterial peritonitis (SBP).

**Aims:** To determine the indications and appropriateness for albumin use in patients with decompensated cirrhosis at Toronto General Hospital (TGH).

**Methods:** This was a prospective study enrolling patients who received albumin infusions either as inpatients or outpatients at TGH. Data collected include demographics, etiology and complications of cirrhosis, baseline blood works, indications for albumin use, the dose received and patient outcome. All patients were followed till hospital discharge, and clinical outcome noted.

**Results:** 100 patients (M:67) at a mean age of 61.4±10.7 years were enrolled, with alcohol (33%), viral hepatitis (36%), or both (2%) as major etiologies of cirrhosis. 99 had ascites at enrolment, and 75 had refractory ascites. 21 had chronic kidney disease (serum creatinine or SCr>133µmol/L for >6months), while 27 had acute kidney injury (acute increase in SCr by either 0.3mg/dL in <48 hours or by 50% from baseline). Baseline laboratory tests were (mean ± standard deviation): Hgb 107.3±25.1gm/L, Na 133.6±6.1mmol/L, SCr 146.9±123.5µmol/L, INR 1.6±0.6, and albumin 30.5±6.0g/L. Baseline Child-Pugh score was 9.4±1.7 and MELD score was 17.3±8.1. Amount of ascites drained for LVP was 5.4±2.4L, with a median dose of 50g of albumin infused (IQR 25).

**Conclusions:** 80% of albumin use at TGH follows standard guidelines with the desired outcomes. The latest indication in the treatment of non-HRS cases of AKI is an area that deserves further investigations, as albumin is effective in reversing these cases of AKI. The use of albumin in hyponatremia though not an approved indication, appears effective.

<table>
<thead>
<tr>
<th>Indication</th>
<th>n</th>
<th>Albumin dose (gm)</th>
<th>Duration (d)</th>
<th>Desired outcome</th>
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</thead>
<tbody>
<tr>
<td>LVP</td>
<td>50</td>
<td>55.0±13.4</td>
<td>1</td>
<td>46/50 (92%)</td>
</tr>
<tr>
<td>SBP</td>
<td>6</td>
<td>162.5±89.1</td>
<td>2.8±1.5</td>
<td>6/6 (100%)</td>
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<tr>
<td>HRS</td>
<td>9</td>
<td>436.1±310.5</td>
<td>8.9±6.0</td>
<td>3/9 (33%)</td>
</tr>
<tr>
<td>Non-HRS AKI</td>
<td>15</td>
<td>215.0±184.6</td>
<td>3.9±2.1</td>
<td>11/15 (73%)</td>
</tr>
<tr>
<td>Ascites mobilization</td>
<td>5</td>
<td>205.0±144.0</td>
<td>4.0±3.0</td>
<td>0/5 (0%)</td>
</tr>
<tr>
<td>Hyponatremia</td>
<td>5</td>
<td>205.0±118.0</td>
<td>4.4±2.3</td>
<td>4/5 (80%)</td>
</tr>
<tr>
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<tr>
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<td>3</td>
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<td>1/3 (33%)</td>
</tr>
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<td>1/2 (50%)</td>
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<tr>
<td>Hypovolemia</td>
<td>3</td>
<td>25,50,200</td>
<td>1,1,4</td>
<td>1/3 (33%)</td>
</tr>
</tbody>
</table>

**Funding Agencies:** None
AN EVALUATION OF THE ROLE OF TRANSIENT ELASTOGRAPHY IN ASSESSING PEDIATRIC CYSTIC FIBROSIS ASSOCIATED LIVER DISEASE IN CHILDREN WITH CYSTIC FIBROSIS

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Background: Cystic fibrosis associated liver disease (CFLD) and its complications are increasingly recognized as the highest non-pulmonary cause of death in children with CF. The gold standard of liver biopsy for diagnosis of CFLD has limitations, including invasiveness, association with morbidity, and poor practicality for screening in children. Early ultrasonographic (US) changes may be subtle and subject to inter-observer variability.

Aims: The primary objective was to evaluate the diagnostic properties of Transient Elastography (TE) using FibroScan in children with CF for detection of CFLD, as defined by EuroCare Criteria. The secondary objective was to identify factors associated with the presence of CFLD.

Methods: Children from the Southern Alberta cystic fibrosis clinic at the Alberta Children’s Hospital underwent liver stiffness measurements (LSM) by TE. Sensitivity, specificity, and receiver operator characteristic (ROC) curve of TE were calculated and compared to EuroCare criteria for diagnosis of CFLD (≥2 of the following: persistent abnormal liver biochemistry over 12 months, hepatosplenomegaly, or US abnormalities). Age, anthropometrics, hepatosplenomegaly, genotype, lung and pancreatic function, history of small bowel bacteria overgrowth and meconium ileus, severity of liver disease on US with validated scoring systems, and past medications were examined to determine any correlation with the presence of CFLD.

Results: Forty-one of 130 patients in the CF clinic completed the study. The median age was 8.5 years, [interquartile range (IQR) 5 - 12 years] with 56% females. The prevalence of CFLD was 9.7% (n = 4). The TE failure rate was 7.3%. (n = 3); An 18 month and 20 month old child were uncooperative, a 6 year old with autism spectrum disorder did not complete testing due to anxiety). Children with CFLD had significantly higher median LSM 13.6 kPa [IQR 5.7 - 27.8kPa] compared to those without CFLD 4.6kPa [IQR 3.2 - 5.1kPa] (p = 0.0042). When a cut-off value of ≥5.3kPa was used, the sensitivity, specificity, positive and negative predictive values were 100% (95% CI 39 - 100%), 87% (95% CI 71 - 95%), 44% (95% CI 26 - 64%), 100%. A ROC curve for detecting CFLD with this cut off was 0.93 (95% CI 0.87 - 0.98). No examined factors showed association with CFLD.

Conclusions: TE is well tolerated and successful in the majority of children with CF. TE has a role as a useful non-invasive test to screen and diagnose CFLD in children with CF.

Funding Agencies: Alberta Children’s Hospital Research Institution Small Research Grant
ROLE OF TRANSIENT ELASTROGRAPHY IN ASSESSMENT OF CYSTIC FIBROSIS-ASSOCIATED LIVER DISEASE

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Background: Cystic Fibrosis-associated liver disease (CFLD) occurs in 30% of patients and is the 3rd most common cause of mortality in CF patients. Diagnosis is challenging as specific tests for detection of fibrosis in pediatric CFLD have not been developed and existing investigations do not correlate well with presence or severity of disease. Liver biopsy is rarely indicated because of the patchy nature of the disease. Transient Elastrography (TE) is a rapid non-invasive method for assessing liver fibrosis. Studies suggest it may be a valuable tool in pediatric patients, though its role in detecting CFLD has only begun to be explored. AST:platelet ratio index (APRI) has been validated as a surrogate marker of hepatic fibrosis in chronic liver diseases.

Aims: The purpose of this study was to assess the utility of TE and to determine the role of APRI and standard biochemistry in identifying liver fibrosis in CF patients.

Methods: Patients 2-18 years old were recruited from the British Columbia Children's Hospital CF clinic. Charts were reviewed for demographic and clinical data including bloodwork and abdominal imaging. Each patient underwent TE by a single trained operator. Patients were determined to have CFLD using standard criteria based on hepatic biochemistry, imaging and clinical examination. Where the original basis for CFLD diagnosis was unclear from chart review, patients maintained on ursodiol were included in the CFLD group.

Results: 55 patients were included in the study (50.9% male, mean age 11.6 (range 5.1-17.5) years). 49% were homozygous for ΔF508 gene, 36.3% were heterozygous, 7.3% had other mutations and 7.3% were genotype unknown. 22 patients had a diagnosis of CFLD (40%) and 20 of these were on ursodiol (90.9%). Two patients had ultrasound findings of cirrhosis and one had portal hypertension. Of the 22 CFLD patients, 45.5% were male (P = 0.586), 59% were homozygous for ΔF508 (P=0.685) and 90.9% were pancreatic insufficient (P<0.0001). All mean liver enzymes were higher in the CFLD group, significantly ALT (P=0.031) and ALP (P=0.015). Mean TE values were significantly higher in the CFLD group (5.92, range 3.9-16.5) vs no liver disease (4.54, range 2.1-7.2; P=0.0147). APRI was higher in the CFLD group (0.396 vs. 0.324, P=0.1191). Linear regression showed a positive association between TE value and APRI (Slope 0.058; CI 0.038-0.79; R2=0.386).

Conclusions: CFLD is one of the leading causes of morbidity in CF, but limitations of existing tests hamper diagnosis and monitoring. In this study, TE values were significantly higher in CFLD patients and correlate with APRI values, suggesting that TE may have clinical applications for identifying and following patients with this condition. Further research is needed at a larger scale to determine TE cutoff values for diagnosing CFLD.

Funding Agencies: None
CAN SEROLOGICAL MARKERS BE USED TO BETTER DEFINE PRIMARY BILIARY CHOLANGITIS-AUTOIMMUNE HEPATITIS OVERLAP SYNDROME?
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Background: Autoimmune liver diseases (AILD), including Autoimmune Hepatitis (AIH) and Primary Biliary Cholangitis (PBC), are characterized by a constellation of clinical, biochemical (including autoantibodies) and histological features that can facilitate diagnosis. However, there are patients that harbor features of more than one AILD; called “Overlap Syndromes” (OS). It is estimated that up to 18% of patients with PBC can be classified as having overlap features of PBC-AIH. The recognition of PBC-AIH OS is important for the prognostication and treatment of this condition. Specifically, PBC-AIH OS patients have an increased frequency of cirrhosis and can exhibit suboptimal response to Ursodeoxycholic acid therapy when compared to patients with PBC alone. Various serological markers, including anti-double stranded DNA (anti-dsDNA) and anti-P53, have been previously suggested to be robust markers for identifying PBC-AIH OS.

Aims: We intend to evaluate the utility of various serological markers (including anti-dsDNA and anti-P53) for their ability to identify PBC-AIH OS in our well defined PBC patient cohort.

Methods: Stored blood samples from 109 PBC patients were analyzed by Mitogen Diagnostic Laboratory (Calgary) for a number of serological markers, including anti-dsDNA, anti-P53, anti-Ro52/TRIM21, anti-YB1, anti-MPP1, GW182, GE-1, and Ago2. Patient serum serological profiles were then compared to clinical data obtained from retrospective patient chart reviews (including patient demographics, primary diagnosis, biochemical profile, documentation of PBC-AIH OS, and degree of liver fibrosis).

Results: A total of 109 PBC patient charts were analyzed and matched to serological data. The mean age was 65.3 years (range 36 to 90 years). 92.7% of the patients were female vs 7.3% males. 6.4% (7/109) of patients fulfilled biochemical and histological criteria for the diagnosis of PBC-AIH OS. Anti-dsDNA was found in 28.6% of AIH-PBC OS patients using the Crithidia luciliae immunofluorescent assay, but in 0% when a chemiluminescence immunoassay was used. Anti-P53 was found in none of the PBC-AIH OS, but was positive in 28.4 % of patients without OS. Anti-Ro52/TRIM21 was found in 71.4% of PBC-AIH OS patients vs. 26.5 % of those without OS. Further multivariate analysis is pending.

Conclusions: In contrast to previous reports, our findings do not support the utility of anti-dsDNA or anti-P53 as useful serological markers for PBC-AIH OS. The detection of anti-dsDNA in this OS cohort was highly assay dependent. However, anti-Ro52/TRIM21 may be useful in the identification of PBC-AIH OS and warrants further study. Further analysis is expected to highlight additional potential associations between serological and clinical variables in PBC-AIH OS.

Funding Agencies: CIHR
IMPACT OF TYPES OF QUESTIONS ASKED ON GASTROENTEROLOGY ECONSULTATION OUTCOMES
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Background: Wait times in Canada to see a gastroenterologist continue to exceed the recommended targets of 2 weeks to 2 months for most indications. eConsult services facilitate primary care providers (PCPs) ability to communicate directly with specialists for advice. It can also reduce the need for patients to wait for face-to-face consultations with specialists. Since 2010, the Champlain BASE (Building Access to Specialist Advise) eConsult service has permitted PCPs to submit patient specific clinical questions to specialists via a secure web service.

Aims: To describe the types of Gastroenterology questions asked through a unique eConsult service, and assess the impact on referrals for face-to-face consultations.

Methods: Gastroenterology cases submitted to the Champlain BASE eConsult service between April 2014 and January 2015 were categorized for Gastroenterology-content using a modification of the International Classification for Primary Care (ICPC-2) taxonomy. The type of question (e.g. diagnosis or management) was classified using a validated taxonomy. Other data included the time for specialist to complete the eConsult, the perceived value of the eConsult by the PCP and the need for a face-to-face referral following the eConsult.

Results: Of the 121 Gastroenterology eConsults, 33% were liver related, 23% were GI symptom related (abdominal pain, gastroesophageal reflux disease, diarrhea, and constipation), and 13% were related to specific luminal diseases (irritable bowel syndrome, coeliac disease and inflammatory bowel disease). Of the 40 eConsults related to hepatology, 47% were questions regarding abnormal liver function testing. This was also the most common area of questioning overall (16%). Overall 51% of eConsults were related to diagnosis, 30% to management, 9% to drug treatments and 7% to procedures. It took the specialist <15 minutes to complete the eConsult in 67% of cases. The service was perceived as highly beneficial to providers and patients in 97% of cases. In 47% of submitted cases, a traditional referral was originally contemplated by the PCP but was now avoided and 1% resulted in a new referral that was originally contemplated by the PCP. In the 24% in whom a referral was still needed, the PCP indicated that a more effective face-to-face consultation would occur.

Conclusions: The eConsult service provided timely, highly regarded advice from gastroenterologists directly to PCPs and often eliminated the need for a face-to-face consultation. With limited resources and access to gastroenterologists across Canada, eConsults provide a means to assist PCPs. Unnecessary referrals are avoided, thus reducing wait times for more urgent referrals. We plan to use the types of questions asked to inform planning of future CPD events for PCPs.

Funding Agencies: CIHR, Ministry of Health and Long-term Care, The Ottawa Hospital Academic Medical Organization Innovation Fund, eHealth Ontario, The Ottawa Hospital Department of Medicine and Bruyere Research Institute
MICROARRAY ANALYSIS OF CROHN’S DISEASE AND CORRELATION WITH TRADITIONAL CLINICAL AND HISTOLOGIC FEATURES

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Background: As a T cell-mediated disease of the gastrointestinal epithelium, Crohn’s disease (CD) is likely to share pathogenic elements with other T cell-mediated inflammatory diseases. Recently we showed that ulcerative colitis manifested large-scale molecular disturbances that correlated with endoscopic and histologic features (IBD 20:2353, 2014).

Aims: We hypothesized that ileal CD would manifest similar molecular disturbances correlating with endoscopic and histologic features.

Methods: We studied 27 patients in 31 biopsies with ileal CD, characterizing the clinical, endoscopic and histological features and defined the mRNA phenotype using microarray analysis of ileal biopsies. We measured the expression of pathogenesis-based transcript sets (PBTs) previously published for ulcerative colitis representing effector T cells, macrophages, IFNG effects, and parenchymal injury-repair response and dedifferentiation (table 1). The molecular features were then correlated with conventional assessments including clinical features (modified Harvey Bradshaw index (HBI), simple endoscopic score for CD (SES-CD), c-reactive protein, albumin) and histologic features (lamina propria neutrophilic and lymphoplasmacytic infiltrate, crypt abscess, ulcers present and crypt architectural distortion).

Results: CD ileal biopsies arranged by injury-repair score (IRRAT) manifested coordinate transcript changes with IFNG-induced transcripts (GRIT), macrophage transcripts (QCMAT), and injury-repair transcripts increasing while parenchymal transcripts (PT) decreased (figure 1). Lymphoplasmacytic infiltrate was significantly correlated with IRRAT (P=0.005) and negatively correlated with parenchymal transcript expression (P=0.01). Neutrophilic lamina propria infiltrate (p=0.03) and number of ulcers (p=0.03) also correlated with IRRAT. No significant correlation was seen between the molecular features and the HBI (P=0.5), SES-CD (P=0.8) or CRP (0.2).

Conclusions: The molecular phenotype of CD manifests a large-scale coordinate disturbance similar to that in ulcerative colitis and other T cell-mediated diseases, reflecting changes in inflammatory cells and parenchymal elements and correlating with histologic assessment, especially the lymphoplasmacytic and neutrophilic lamina propria infiltrate, but not with the clinical and endoscopic features. While this may be related to CD in different stages of healing, it raises further questions about our clinical and endoscopic assessments of CD. Novel molecular systems for quantitating and staging the disease elements in the tissues in CD may add a significant new dimension to patient management beyond our current standards.

Funding Agencies: None
TOPICAL HEMOSTATIC SPRAY FOR THE MANAGEMENT OF MALIGNANCY-RELATED GASTROINTESTINAL BLEEDING: A SYSTEMATIC REVIEW AND META-ANALYSIS
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**Background:** Hemostatic powder spray agents (HPSAs) have been shown to be effective for gastrointestinal haemorrhage (GH), however their role as first-line agents is limited. Conventional endoscopic methods often fail to achieve hemostasis in cases of malignancy-related GH due to lesion location, lesion distribution and altered tissue responses secondary to the malignant process, anticoagulation and/or chemoradiation treatment. The ability of HPSAs to treat large surface areas without touching tissue render them ideal for the management of malignancy-related GH, however their role in this setting remains unclear.

**Aims:** To review the literature on the efficacy of HPSAs in malignancy-related GH.

**Methods:** We performed a systematic search of EMBASE and MEDLINE through June 2015 for studies reporting the use of HPSAs for malignancy-related GH. Duplicate articles and case reports were excluded. The primary outcome was hemostasis at 72 hours post-treatment. A pooled estimate was calculated using random effects models. The methodological quality of the included studies was assessed using the Newcastle-Ottawa scale.

**Results:** Of the 1,704 citations identified, a full-text review was performed on 89 and 8 were included in the meta-analysis (44 patients). Four different HPSAs were identified: Hemospray®, cyanoacrylate spray, Costasis®, and Endoclot®. The most commonly used spray in these patients was Hemospray® (5 studies). Five studies included less than 5 patients. Nine studies scored 7 out of 9 and one study scored 6 out of 9 by using the Newcastle-Ottawa Quality Assessment Scale. Immediate hemostasis was achieved in all cases. Meta-analysis showed that treatment with HPSAs resulted in hemostasis for up to 72 hours in 90% of cases (95% confidence interval 0.67-0.99).

**Conclusions:** The limited evidence to date suggests that topical hemostatic sprays are effective in the setting of malignancy-related GH. Larger prospective studies are required.

**Funding Agencies:** None
RED BLOOD CELL TRANSFUSIONS AND IRON THERAPY FOR PATIENTS PRESENTING WITH ACUTE UPPER GASTROINTESTINAL BLEEDING: A SURVEY OF GASTROENTEROLOGISTS

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Background: There currently exists only 1 completed RCT to evaluate transfusions in patients with acute upper gastrointestinal bleeding (UGIB). Physician transfusion practices in UGIB are largely based on experience and can vary considerably.

Aims: To document gastroenterologists’ current transfusion practices and iron prescribing rates to patients with acute upper gastrointestinal bleeding.

Methods: A web-based survey was sent to 500 gastroenterologists across Canada. The survey included simulated cases (see Table 1) where physicians were required to choose specific transfusion thresholds as well as multiple-choice questions related to iron therapy and current guidelines. Descriptive and inferential statistics (Chi-square and t-tests) were carried out.

Results: The overall questionnaire response rate was 41%. Transfusion practices differed by up to 50g/L in terms of hemoglobin (HgB) thresholds for transfusion. Transfusions were more liberal in hemodynamically unstable patients compared to stable patients (mean HgB of 86.7 g/L vs. 71.0 g/L, p < 0.0001). 57% of respondents transfused 2 units of RBC's as initial management. Patients with coronary artery disease (mean HgB of 84.0 g/L vs. 71.0 g/L, p < 0.0001) or cirrhosis (mean HgB of 74.4 g/L vs. 71.0 g/L, p < 0.01) were transfused at higher thresholds than healthy patients, as were patients on warfarin (mean HgB of 75.3 g/L vs. 71.0 g/L, p < 0.01). Only 15% of respondents would transfuse more liberally if the patient was on dabigatran, rivaroxaban, or apixaban. 56% of respondents felt more likely to be held legally responsible for the complications related to “under-transfusing” than the complications associated with “over-transfusing”. Only 15% of gastroenterologists prescribe iron to patients with UGIB who are anemic upon discharge.

Conclusions: Healthy and hemodynamically stable patients are being transfused at a HgB below 70g/L while higher thresholds are used in patients who are unstable or who have underlying cardiac disease or cirrhosis. Many clinicians are not following current guidelines and are transfusing patients at a HgB threshold of 100g/L. Few clinicians are prescribing iron on discharge to anemic patients. The transfusion practices of gastroenterologists vary widely and more high-quality evidence is needed to assess the efficacy and safety of selected transfusion thresholds in patients with UGIB.

Examples of selected scenarios presented in our survey.

Scenario 1: Healthy, stable

"A 50-year-old healthy woman presents with MELENA and is hemodynamically STABLE (BP 120/80, HR 65). There is NO evidence of a volume deficit on clinical exam. BELOW what hemoglobin level (in g/L) would you transfuse red blood cells in this patient?"

Scenario 2: Cardiac disease, stable

"A 50-year-old man with triple-vessel coronary artery disease presents with MELENA and is hemodynamically STABLE (BP 120/80, HR 65). There is no evidence of a volume deficit on clinical exam. The patient denies having any chest pain or dyspnea, and his ECG and troponin are unremarkable. BELOW what hemoglobin level would you transfuse red blood cells in this patient?"

Scenario 3: Cirrhosis, stable

"A 65-year-old patient with decompensated cirrhosis presents with HEMATEMESIS and is hemodynamically STABLE (BP 100/60, HR 85). There is no evidence of a volume deficit on clinical exam. BELOW what hemoglobin level would you transfuse red blood cells in this patient?"

Scenario 4: Warfarin therapy, unstable

"A 65-year-old woman with hypertension and atrial fibrillation who is taking Warfarin (INR 2.5) presents with MELENA, and is hemodynamically UNSTABLE (BP 90/60, HR 115) There is evidence of a volume deficit on clinical exam and the patient is being resuscitated with intravenous crystalloid. BELOW what hemoglobin level would you transfuse red blood cells in this patient?"

Funding Agencies: None
SAFETY OF ANTICOAGULATION IN NON-HOSPITALIZED IBD PATIENTS

I. Plener², A. Rumman², M. Cino³, G. Nguyen¹

1. Mount Sinai Hospital, University of Toronto, Toronto, ON, Canada; 2. University of Toronto, Toronto, ON, Canada; 3. University of Toronto- University Hospital Network, Toronto, ON, Canada.

Background: Patients with IBD have a 3-4 fold increased risk of venous thromboembolic disease (VTE), up to 16-fold higher during periods of moderate-severe disease. Due to concomitant gastrointestinal bleeding there are concerns regarding anticoagulation safety. Currently, there are no consensus statements addressing VTE prophylaxis during outpatient IBD flares.

Aims: To characterize the rates of major and minor bleeding in non-hospitalized IBD patients on anticoagulation. Secondary aims to assess efficacy and safety of anticoagulation and VTE recurrence.

Methods: Retrospective study evaluating patients, over 18 years old, with UC and CD. All patients initiated on anticoagulation for VTE were included. Primary endpoint included major and minor bleeding episodes*. Secondary endpoints included mortality due to bleeding, transfusions and recurrent thrombosis. The frequency and distribution of study variables was determined using descriptive analyses. Categorical data were compared using the chi-square statistic. Cumulative person-time incidence rates of major and minor bleeding were calculated.

Results: Fifty-eight patients included. Median duration of anticoagulation therapy was 19.0 months (IQR 8.0-45.0). In patients on LMWH bridging, median treatment was 6.1 months (IQR 2.0-9.1). A total of 2475 person-months of anticoagulation therapy studied. 1 major and 8 minor bleeding episodes recorded. Of those, 2 were perioperative. The rate of major bleeding events was 3.88 events per 100 patient-years of anti-coagulation therapy (95% CI 1.8-7.37). The rate of major bleeding was 0.485 events per 100 patient-years of anti-coagulation therapy (95% CI 0.024-2.39). The major bleeding event occurred in the setting of severe UC requiring colectomy. No mortality was reported. A total of 6 recurrent thrombotic events were detected. Rate of recurrent VTE: 3.03 events per 100 person-years of anticoagulation therapy (95% CI 1.23-6.30).

Conclusions: Our data suggests that ambulatory IBD patients are at similar risk of major or minor bleeding compared to the general population. Incidence of minor bleeding in non-atrial fibrillation is reported to be 2.84 to 3.71 in NOACs, and 4.10 per 100 patient years on warfarin. In IBD patients who did experience minor bleeding, small dose adjustments or careful monitoring were implemented. Up to 40% of patients had active disease at the time of thrombosis, highlighting the known increased risk of VTE in IBD patients. This study highlights the safety of anticoagulation in the outpatient setting and the importance of its use in moderate-severe IBD flares in ambulatory patients.

Funding Agencies: None

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n (%)</th>
<th>Notes otherwise specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, mean (SD) years</td>
<td>42.5 (16.5)</td>
<td></td>
</tr>
<tr>
<td>At study inclusion</td>
<td>25 (61.6)</td>
<td></td>
</tr>
<tr>
<td>At IBD diagnosis</td>
<td>25.7 (52.5)</td>
<td></td>
</tr>
<tr>
<td>At time of first VTE event</td>
<td>25.2 (52.9)</td>
<td></td>
</tr>
<tr>
<td>Male gender</td>
<td>21 (53.4)</td>
<td></td>
</tr>
<tr>
<td>Creutz’s Disease</td>
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<tr>
<td>Active disease</td>
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<tr>
<td>Disease Location</td>
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<tr>
<td>Colon</td>
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</tr>
<tr>
<td>Beo-colon</td>
<td>4 (12.1)</td>
<td></td>
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<td>4 (12.1)</td>
<td></td>
</tr>
<tr>
<td>Personal Disease</td>
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<td></td>
</tr>
<tr>
<td>Disease Behavior</td>
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<tr>
<td>Stenosing</td>
<td>7 (18.4)</td>
<td></td>
</tr>
<tr>
<td>Piercing</td>
<td>2 (5.5)</td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td>2 (5.5)</td>
<td></td>
</tr>
<tr>
<td>Ulcerative Colitis</td>
<td>22 (57.9)</td>
<td></td>
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<tr>
<td>Active Disease</td>
<td>13 (40.0)</td>
<td></td>
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<tr>
<td>Diverting Event</td>
<td>Proctitis</td>
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<tr>
<td>Severe ulcer</td>
<td>10 (33.3)</td>
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<tr>
<td>Extensive</td>
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<tr>
<td>Unknown</td>
<td>3 (9.1)</td>
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</tr>
<tr>
<td>History of thrombus</td>
<td>18 (31.0)</td>
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<tr>
<td>Prior thrombotic event</td>
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<td></td>
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<tr>
<td>Arterial thrombosis</td>
<td>2 (3.2)</td>
<td></td>
</tr>
<tr>
<td>Known thromboprophylaxis</td>
<td>8 (13.8)</td>
<td></td>
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</table>

Table 1. Baseline demographic and clinical characteristics.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n (%)</th>
<th>Notes otherwise specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index Thrombotic event</td>
<td>Pulmonary emboli</td>
<td>24 (41.4)</td>
</tr>
<tr>
<td>Isolated DVT</td>
<td>11 (22.0)</td>
<td></td>
</tr>
<tr>
<td>DVT with pulmonary emboli</td>
<td>10 (17.2)</td>
<td></td>
</tr>
<tr>
<td>Portal or mesenteric thrombus</td>
<td>3 (4.9)</td>
<td></td>
</tr>
<tr>
<td>Intracranial thrombus</td>
<td>3 (4.9)</td>
<td></td>
</tr>
<tr>
<td>DVT with portal or mesenteric thrombus</td>
<td>5 (8.0)</td>
<td></td>
</tr>
<tr>
<td>DVT with PE and mesenteric thrombus</td>
<td>1 (1.7)</td>
<td></td>
</tr>
<tr>
<td>DVT with PE and intracranial thrombus</td>
<td>1 (1.7)</td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Index Thrombotic Event and Anticoagulation therapy regimens and laboratory parameters at time of anticoagulation initiation.
CAN GASTROENTEROLOGISTS RELY ON FECAL CALPROTECTIN IN LIEU OF MORE INVASIVE TESTING OR CRP IN MANAGEMENT OF IBD?
C. Bernstein, H. Singh, W. El-Matary, E. Abej
University of Manitoba, Winnipeg, MB, Canada.

Background: Fecal calprotectin (FCAL) has emerged as a popular biomarker of intestinal inflammation in IBD

Aims: The aim of our study was to determine the correlation of FCAL to traditional confirmatory tests and other biochemical inflammatory markers, and the impact of FCAL results on decision-making in management of IBD patients

Methods: 179 patients with IBD (64 children (ages 4-17) and 115 adults) attending the clinics of 3 gastroenterologists were asked to bring in a stool sample for FCAL testing. The FCAL test results were correlated with serum albumin (alb), hemoglobin (Hg) and CRP done within 2 weeks of collecting stool samples for FCAL testing and with diagnostic imaging (computed tomography enterography (CTE) or magnetic resonance enterography (MRE)), or colonoscopy or flexible sigmoidoscopy, done within a month. The choice of blood testing and imaging was left to the physicians’ discretion. We also assessed how the FCAL results were used in clinical decision-making in terms of further investigations or change in therapy. FCAL was done using the Quantum Blue® Lateral Flow Reader and within 24 hr of stool collection. FCAL value of 250 mcg/g of stool used as cut off point of positive test. The impact of FCAL results on patient management was assessed by a questionnaire given to the participating gastroenterologists

Results: 139 stool samples (78%) were returned. 19 persons underwent CTE or MRE, 24 underwent colonoscopy or flexible sigmoidoscopy, 113 had alb, 108 had Hg, and 101 had CRP. There was no significant difference for FCAL results for those with active disease by CTE or MRE (p=0.24), colonoscopy or flexible sigmoidoscopy (p=0.4), anemia (p=0.29) or elevated CRP (p=0.25). However, persons with low alb (<34 g/L, n=16) were more likely to have elevated FCAL (87.5%) than persons with normal serum albumin (n=97, 55%, p=0.02, relative risk 1.6 (95% CI 1.2, 2.1). Based on a positive FCAL test clinicians made a change in therapy or investigations in 65 (88%). On the other hand, based on a negative FCAL clinicians made no change in therapy or further investigations in 51 (78%)

Conclusions: The minority of patients in this cohort had imaging, however FCAL results were not significantly associated with radiological or endoscopic evidence of disease activity. Among alb, Hg and CRP, only a low alb was associated with an elevated FCAL. Gastroenterologists made clinical decisions based on FCAL although when imaging/endoscopy was undertaken the association with FCAL was poor. While previous studies have shown a correlation between FCAL and disease activity, our study suggests that FCAL may not be able to replace direct investigations of disease activity in usual clinical practice. In addition, importantly our study also demonstrates FCAL and CRP cannot be used interchangeably in usual clinical practice

Funding Agencies: None
POSTER 8

IMPROVED SAMPLE QUALITY OBTAINED BY EUS-GUIDED SINK COMPARED TO FNA FOR FOREGUT SUBEPITHELIAL LESIONS
M. Boulos, D. Wang, P. James, T. Moyana, A. Chatterjee
University of Ottawa, Ottawa, ON, Canada.

Background: Gastric subepithelial lesions (SEls) can be divided into three major categories, namely smooth muscle tumors (leiomyomas and leiomyosarcomas), neurogenic tumors (schwannomas and neurofibromas) and gastrointestinal stromal tumors (GIST). GIST are the most common type of foregut SEL and carry an important malignant potential. Small SELs (<2 cm) have been notoriously difficult to sample endoscopically. Endoscopic ultrasound (EUS)-guided single incision needle knife (SINK) biopsy has become increasingly used for deep tissue sampling of foregut SELs, however there exists limited evidence to suggest that this results in superior specimen acquisition.

Aims: We sought to review our experience regarding the difference in sample quality of SELs obtained by EUS-guided SINK compared to EUS-guided fine needle aspiration (FNA).

Methods: We performed a retrospective chart review of EUS-guided SINK cases performed at The Ottawa Hospital for the evaluation of foregut SELs. These samples were compared to consecutive EUS-guided FNA samples obtained over a similar time period. Two pathologists reviewed the specimens blindly and independently. The quality of each sample was determined based on a 5-point scale, where poor = 1, adequate = 2, good = 3, very good = 4 and excellent = 5.

Results: 13 patients with foregut SELs were sampled by SINK and these were compared to 26 consecutive EUS-guided FNA samples. 12 out of the 13 (92%) SINK cases were reported to be of excellent quality (5/5) whereas one case was of adequate quality (2/5). The median FNA quality score was 3 with an interquartile range of 2-5, which was found to be significantly inferior to SINK (p<0.01). 8 SINK cases (62%) were reported to have a cellularity of ≥ 5 000. Only 4 EUS-guided FNA specimens (15%) were reported to have a cellularity of ≥ 5 000.

Conclusions: The sample quality of subepithelial lesions obtained by EUS-guided SINK may be superior to EUS-guided FNA.

Funding Agencies: None
HEALTH RELATED QUALITY OF LIFE IN TEN YEAR SURVIVORS OF PAEDIATRIC LIVER TRANSPLANTATION MEASURED BY THE PELTQL: A NOVEL DISEASE-SPECIFIC QUESTIONNAIRE

M. Miserachs², A. Otley¹, A. Dhawan⁵, J. Bucuvalas⁴, S. Gilmour³, M. Stormon⁶, L. Ee⁷, V. Ng²
T. Dalhousie University, Halifax, NS, Canada; 2. The Hospital for Sick Children, Toronto, ON, Canada; 3. University of Alberta, Edmonton, AB, Canada; 4. Cincinnati Children’s Hospital, Cincinnati, OH; 5. King’s College Hospital, London, United Kingdom; 6. The Children’s Hospital at Westmead, Sydney, NSW, Australia; 7. Royal Children’s Hospital, Brisbane, QLD, Australia.

Background: Less than 1/3 of patients alive 10 years after paediatric liver transplantation (LT) in the Studies of Paediatric Liver Transplant (SPLIT) database fulfilled a research composite definition of an “ideal ten-year survivor”. Missing within this composite profile were patient-reported subjective outcome variables such as Health Related Quality of Life (HRQOL) and Mental Health.

Aims: To compare outcomes of HRQOL and Mental Health between ideal 10 year survivors and non-ideal survivors.

Methods: This was an international multi-center cross-sectional analysis characterizing patients who have survived >10 years from LT enrolled in the Paediatric Liver Transplant Quality of Life (PeLTQL) Study Group database. Subjects were categorized as ideal survivors if a “yes” answer was obtained from all 13 historically, clinically, and biochemically obtainable variables. HRQOL was assessed with three well-validated tools: The PeLTQL, PedsQL TM and PedsQL. Data from completed Screen for Child Anxiety Related Disorders (SCARED) scales and the Children’s Depression Inventory Short Form (CDI-S) were also reviewed.

Results: A total of N= 57 (56% female, median patient age 14, range 11-18 years) subjects were reviewed, with 13 (22%) identified as an “ideal survivor”. Total PeLTQL scores were not significantly different between ideal (median 68.8, range 52.8-88.4) and non-ideal (median 69.6, range 27.9-96.1, p=0.8) survivors. The generic PedsQL scores were also not significantly different between ideal (median 79.4, range 28-90) and non-ideal (median 83.7, range 9-99, p=0.4) survivors. While there were no significant differences in SCARED (anxiety) or CDI-S (depression) scores between ideal and non-ideal survivors, SCARED (anxiety) scores above the established clinical cut-scores were found in 6/12 (50%) ideal survivors compared to 12/44 (27%) in non-ideal survivors. In addition, higher CDI-S (depression) scores above the clinical established cut score were found in 2/13 (15%) ideal survivors compared to 5/44(11%) non-ideal survivors.

Conclusions: Amongst subjects meeting the recently proposed “ideal survivor” profile, HRQOL assessment was not significantly better in ideal survivors compared to non-ideal survivors. Attention to the risk for anxiety remains an important finding for the long-term survivor of paediatric LT.

<table>
<thead>
<tr>
<th>“Ideal 10-year survivor of pediatric LT”</th>
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<tbody>
<tr>
<td>1  No Retransplantation</td>
</tr>
<tr>
<td>2  No Chronic Rejection</td>
</tr>
<tr>
<td>3  Normal ALT</td>
</tr>
<tr>
<td>4  Normal Total Bilirubin</td>
</tr>
<tr>
<td>5  Normal Albumin</td>
</tr>
<tr>
<td>6  Normal GGT</td>
</tr>
<tr>
<td>7  No PTLD</td>
</tr>
<tr>
<td>8  No renal dysfunction</td>
</tr>
<tr>
<td>9  Linear growth ≥2SD</td>
</tr>
<tr>
<td>10 No diabetes</td>
</tr>
<tr>
<td>11 No ongoing use of prednisone</td>
</tr>
<tr>
<td>12 No antihypertensive agent</td>
</tr>
<tr>
<td>13 No antiseizure medication</td>
</tr>
</tbody>
</table>

Funding Agencies: None
**POSTER 10**

**SHOULD ANTICOAGULATION BE OFFERED IN PATIENTS WITH PVT IN THE SETTING OF HCC?**

T. Mahmoudi, A. kayal, R. Carvalho, A. Weiss. UBC, Vancouver, BC, Canada.

**Background:** Portal vein thrombosis (PVT) is seen in about 20-44% of patients with hepatocellular carcinoma (HCC). To our knowledge, no other study has looked at the need for anticoagulation in patients with HCC and PVT.

**Aims:** The aim of this study is to investigate the natural history and progression of portal vein thrombosis in patients with hepatocellular carcinoma with or without anticoagulation therapy.

**Methods:** Using the British Columbia Cancer Agency database, a cohort of 54 patients who were diagnosed with both conditions were evaluated retrospectively. Nine patients were excluded secondary to lack of follow up. HCC and PVT diagnosis and follow up was made with contrast enhanced CT or MRI. Most patients received a single or a combination of the following treatments: transarterial chemoembolization, radiofrequency ablation or surgical resection. Thirty five (78%) patients received systemic therapy with Sorafenib.

**Results:** Thirty eight patients were males and mean age was 62.8. Liver disease etiology was HCV in 19 (42%), HBV in 18 (40%), ETOH in 5 (11%) and hemochromatosis in 1 (2%). Results: Average survival after HCC diagnosis was 28 months and 15 months after PVT diagnosis. Among the 45 patients evaluated, 8 patients received anticoagulation while 39 did not. PVT progression occurred in 19 (49%) of the non anticoagulated group, and 4 (67%) of the anticoagulated group. Right portal vein involvement was seen in 18 (40%) patients with progression in 67% of the time, Left PVT in 13 (28%) with a progression in 7 (54%), and main PVT 6 (13%) with a progression in 4 (67%). In 1 case, PVT progressed from the main PVT to Superior mesenteric vein (SMV) and from the LPV to SMV in 2 other cases. No symptoms directly related to PVT development were reported.

**Conclusions:** The possible anticoagulation related complications need to be considered before attempting therapy in patients with HCC and PVT. Despite the small number of patients included in this study, this review shows that PVT progression in patients with HCC and the absence of clinical complications is similar in both anticoagulated and non anticoagulated groups. Thus, the usefulness of anticoagulation in this patient population needs to be further studied.

**Table 1**

<table>
<thead>
<tr>
<th>Gender (%)</th>
<th>Male 38 (84%) Female 7 (16%)</th>
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<tbody>
<tr>
<td>Cause of Liver Disease</td>
<td></td>
</tr>
<tr>
<td>HBV</td>
<td>18</td>
</tr>
<tr>
<td>HCV</td>
<td>19</td>
</tr>
<tr>
<td>ETOH</td>
<td>5</td>
</tr>
<tr>
<td>Hemochromatosis</td>
<td>1</td>
</tr>
<tr>
<td>Age at Diagnosis</td>
<td>62.8 years</td>
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<tr>
<td>Average Survival after HCC Diagnosis</td>
<td>28 months</td>
</tr>
<tr>
<td>Average Survival after PVT Diagnosis</td>
<td>15 months</td>
</tr>
<tr>
<td>Total Patient</td>
<td>45</td>
</tr>
<tr>
<td>Anticoagulation</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Initial PVT Involvement</td>
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</tr>
<tr>
<td>Right PVT 18 (40%)</td>
<td>19 (49%)</td>
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<tr>
<td>Left PVT 13 (28%)</td>
<td>4 (67%)</td>
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<tr>
<td>Main PVT 6 (13%)</td>
<td>7 (54%)</td>
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<tr>
<td>Multi Involvement 8 (17%)</td>
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<td>HCC type</td>
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<tr>
<td>Single Lesion</td>
<td>30 (67%)</td>
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<tr>
<td>Multifocal</td>
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<td>HCC Treatment Modality</td>
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<td>TACE</td>
<td>19 (42%)</td>
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<td>RFA</td>
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<td>TACE + RFA</td>
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<tr>
<td>Systemic Treatment</td>
<td>35 (78%)</td>
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<tr>
<td>MELD Score (average)</td>
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<tr>
<td>Child</td>
<td>A (71%), B (29%)</td>
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**Funding Agencies:** None
LIVER INJURY ASSOCIATED WITH ANTI-TNF THERAPY IN PAEDIATRIC IBD
A. Ricciuto, B. Kamath, P. Church, T. Walters, S. Ling, A. Griffiths
The Hospital for Sick Children, Toronto, ON, Canada.

Background: Drug-induced liver injury (DILI) is a rare complication of anti-tumour necrosis factor (TNF) therapy. It has not previously been described in a paediatric inflammatory bowel disease (IBD) population, despite the widespread use of these biologics in children.

Aims: To report the frequency and outcomes of anti-TNF-associated liver injury in children with IBD at a tertiary paediatric centre, so as to test the hypotheses that it is an infrequent but serious occurrence and that anti-TNF discontinuation leads to recovery.

Methods: This is a single-centre retrospective review performed at the Hospital for Sick Children. Records of all IBD patients receiving anti-TNF therapy were reviewed in order to ascertain the frequency of DILI with follow-up until October 2015. Causality was assessed using the Roussel-Uclaf Causality Assessment Method (RUCAM).

Results: Of over 500 children and teenagers treated with anti-TNF antibodies for Crohn’s disease and ulcerative colitis, 6 patients, all with Crohn’s disease, were considered to have liver disease “possibly” related to anti-TNF therapy based on the RUCAM score. 5 were treated with infliximab (IFX) and 1 with adalimumab (ADA). Time from drug initiation to recognition of liver enzyme elevation ranged from 2.3 to 58.3 weeks. In all cases, the pattern of injury was hepatocellular without synthetic dysfunction, and all but 1 patient were asymptomatic. 2 patients underwent liver biopsy while on IFX. The first patient, with peak ALT 401, met criteria for “definite” autoimmune hepatitis (AIH) as per the Simplified Diagnostic Criteria for AIH. Cessation of IFX therapy was associated with prompt and marked improvement in liver biochemistry with near-normalization of ALT within 12 weeks. The patient has remained well off anti-TNF therapy. The second patient, with peak ALT 205 and GGT 102, displayed features potentially suggestive of early primary sclerosing cholangitis, including mild biliary duct dilatation and focal periductal fibrosis. However, liver enzymes normalized completely after IFX discontinuation and rose again to twice the upper limit of normal with its resumption. Furthermore, ANA titre increased while on IFX and decreased after drug cessation. Of the 4 patients in whom anti-TNF therapy was continued, 3 achieved liver enzyme normalization after widely variable intervals, up to 1.4 years. Also notable are the findings of at least one positive autoantibody in 5/6 patients and widely variable trough levels, suggesting no correlation between drug level and likelihood of liver injury.

Conclusions: The development of DILI in children receiving anti-TNF therapy is very rare. Nevertheless, triggering of autoimmune hepatitis can occur; early recognition and cessation of therapy are important.

Funding Agencies: CAG
HEPATITIS B REACTIVATION PROPHYLAXIS FOR PATIENTS UNDERGOING CHEMOTHERAPY FOR LYMPHOMA IN CANADA: CURRENT PRACTICE IN HEMATOLOGY/ONCOLOGY

G. Ou¹, K. Savage¹, L. Shepherd², J. Connors¹, E. Yoshida¹
1. University of BC, Vancouver, BC, Canada; 2. Queen’s University, Kingston, ON, Canada.

Background: Patients receiving cytotoxic chemotherapy have an increased risk of hepatitis B virus (HBV) reactivation and related hepatitis, which are associated with significant morbidity and mortality. Previous studies in the United States have demonstrated low rates of HBV screening and reactivation prophylaxis among patients undergoing chemotherapy.

Aims: To determine the current practice pattern of Canadian hematologists/oncologists in regards to screening for HBV infection and consideration of HBV reactivation prophylaxis for patients undergoing chemotherapy for lymphoma.

Methods: We conducted a survey in May 2015. Members of Canadian Hematology Society (n=410) and NCIC Clinical Trials Group (n=124) were invited by email to participate in an online, 9-multiple choice survey. Those with concomitant membership in both organizations received duplicate invitations.

Results: In total, there were 69 participants. 64/67 (96%) participants reported routine screening for HBV infection prior to chemotherapy. For the remaining participants, two physicians only screen patients with established risk factors for HBV; and another physician confined screening to patients with risk factors for HBV undergoing rituximab therapy. 64/67 (96%) participants routinely prescribe antiviral prophylaxis and/or consult another specialist for patients with positive HBV surface antigen (HBsAg) but no evidence of hepatic inflammation. However, only 51/66 (77%) participants routinely prescribe antiviral prophylaxis and/or consult another specialist for patients with negative HBsAg but positive anti-HBV core antibody (anti-HBc); two would prescribe prophylaxis if HBV DNA is also positive; and one would prescribe prophylaxis if rituximab is used in this setting.

Conclusions: Canadian hematologists/oncologists are screening and offering HBV prophylaxis to most of the patients at risk of HBV reactivation during chemotherapy. Future efforts should be directed at ensuring that all at-risk patients, including those with positive anti-HBc/negative HBsAg, receive appropriate prophylaxis.

<table>
<thead>
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<th>Area of expertise</th>
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</thead>
<tbody>
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<td>Medical oncology</td>
<td></td>
</tr>
<tr>
<td>Hematology</td>
<td>55 (79.7%)</td>
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<tr>
<td>Other</td>
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</table>

<table>
<thead>
<tr>
<th>Province</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BC</td>
<td>13 (18.8%)</td>
</tr>
<tr>
<td>AB</td>
<td>6 (8.7%)</td>
</tr>
<tr>
<td>MB</td>
<td>1 (1.5%)</td>
</tr>
<tr>
<td>ON</td>
<td>36 (52.2%)</td>
</tr>
<tr>
<td>QC</td>
<td>6 (8.7%)</td>
</tr>
<tr>
<td>NB</td>
<td>4 (5.8%)</td>
</tr>
<tr>
<td>PE</td>
<td>1 (1.5%)</td>
</tr>
<tr>
<td>NL</td>
<td>2 (2.9%)</td>
</tr>
</tbody>
</table>

Funding Agencies: None
THE PREVALENCE OF HELICOBACTER PYLORI IN QUEBEC IS LOW AND HIGHLY DEPENDANT ON THE COUNTRY OF ORIGIN.

G. Hassan¹, J. de Repentigny², S. Sidani³, G. Soucy³, M. Bouin³
¹. Centre Hospitalier de l’Université de Montréal, Montréal, QC, Canada; ². Université de Montréal, Montreal, QC, Canada; ³. Centre Hospitalier de l’Université de Montréal, Montreal, QC, Canada.

Background: The prevalence of Helicobacter pylori (Hp) infection in Canada is estimated between 20 to 30 % of the population [1-3]. Several studies have shown, however a significant decrease in the prevalence of Hp infection in Western countries because of its effective eradication treatment. Among the available tests, identification of Hp on endoscopic biopsies has excellent sensitivity and specificity if biopsies are made as recommended. There is currently no data on the prevalence of Hp in Quebec.

Aims: The aim of this study was to evaluate the prevalence of Hp infection in Quebec. The secondary objectives were to investigate demographic factors associated with this infection and to estimate the quality of endoscopic biopsies.

Methods: Retrospective, Cross-sectional study of 500 patients who had esophago-gastro-duodenoscopy (EGD) with gastric biopsies to look for Hp, from July 1st to December 31, 2011. Of these, 150 cases were randomly selected to study the quality of biopsies (localization) and concomitant use of anti-secretory medications (PPIs or H2 blockers) and/or antibiotics. The main criterion for exclusion was an incomplete medical record or EGD report. Demographic variables studied were age, sex, country of birth, indication for EGD, endoscopic findings and presence or absence of Hp on histology. The statistical analysis used consisted of a logistic regression of variables associated with Hp.

Results: During the 6 months study, 1351 EGDs were requested to rule out Hp. Analysis of 538 cases was carried out to include 500 cases for the study (38 excluded because of incomplete files). In this population (mean age 56 ± 8 years, 57.1 % women) the prevalence of Hp was 13.1 %. Age and sex were not significantly different between the groups with and without Hp. The prevalence of Hp was significantly different with place of birth: North America and Western Europe (8%), South America (35%), Africa (25%), Asia (31%). Biopsies were performed in the gastric antrum alone in 55.6% and in the antrum and body in 22.8 %. 54% of patients were on anti-secretory therapy and/or under antibiotics for Hp.

Conclusions: The prevalence of Hp is 13% in our study population. It is however highly variable depending on the place of birth of the patients. However, the biopsies are rarely performed in both the antrum and gastric body, which could lead to an underestimation of the prevalence of Hp.

Funding Agencies: None
Background: Colonoscopy quality indicators in addition to maintenance of competency skills are relatively well established in the adult literature, however it is much less so in pediatric gastroenterology. One of the suggested quality assurance measures which is relevant for both adult and pediatric patients would be cecal intubation rate, which it has been suggested should be ≥ 90% as per ASGE guidelines.

Aims: The purpose of this study was to evaluate the cecal and terminal ileal (TI) intubation rates at our tertiary care pediatric centre. The aim is evaluate the centre quality of colonoscopies compared to the adult standards.

Methods: A retrospective chart review study was performed on all pediatric patients (age 16 months - 18 year old) who underwent colonoscopies at our single centre performed between January 2013 to July 2014 (18 months period). Patients scheduled for sigmoidoscopy were excluded. The endoscopy reports were reviewed to ascertain whether the cecum and TI were reached as well as quality of bowel prep and any other stated reasons for reasons of failure. Clinical charts were reviewed to obtain indication for colonoscopy

Results: A total of 288 colonoscopies were performed by 5 gastroenterologists during the 18 month period. The number of colonoscopies per staff ranged from 36 - 70 procedures. The numbers of year in practice ranged from (3 - 25 years). The overall cecal intubation rate was 98.3% (range 97.1%- 100%). TI intubation rate was lower at 84.4% (range 66.7% - 90%). The main stated reason for inability to enter cecum / TI was technical difficulty and poor bowel prep. No complications were encountered in those procedures

Conclusions: Despite relatively low volumes, cecal intubation rates are very good exceeding some suggested standards. TI intubation rates were lower and it was noted there was a higher degree of variability. Multi centre evaluation over a longer time period and collaboration should take place to establish relevant parameters for quality assurance in pediatric endoscopy

Funding Agencies: None
FIRST CASE REPORT OF CML IN CD PATIENT USING ADALIMUMAB: RISK OF MALIGNANCY WITH BIOLOGICAL THERAPY AND CHALLENGES IN COMMUNICATING INFORMATION TO THE PATIENT

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**Background:** A 14 year old was diagnosed with Crohn's disease. She was treated with prednisone, 5-ASA, and 6-MP. At age of 20 6-MP was started, initially 75 mg daily for 18 months and 100 mg daily for 4 months. At age 22, adalimumab was started, induction followed by 40 mg sc biweekly. Over several months therapy was escalated to 80 mg sc weekly and clinical remission was attained. After 18 months of adalimumab, the family physician noted increased WBC 17.8 (baseline 11-14). Hematology advised a bone marrow and the diagnosis of CML was made. Imatinib was started with prompt normalization of the WBC.

At the time of diagnosis of CML, adalimumab was stopped for 6 months. The patient's CD recurred and adalimumab was restarted. There was no increase in her WBC with restarting adalimumab. Currently, both CD and CML are in remission/control with adalimumab and imatinib respectively for 4 months.

The patient's understanding of her CML remains that exposure to adalimumab caused the malignancy. This is based on her understanding of the discussion of cancer risk with her treating physician when she started adalimumab and of her reading of the product's monogram.

**Aims:** Review of the literature to determine the incidence of CML in the setting of biologic therapy and to highlight the need to explicitly discuss specific cancer risks when starting biological therapy

**Methods:** The literature was searched for the terms Crohn’s disease, Chronic Myeloid Leukemia, adalimumab, imatinib and no other reports of CML while on adalimumab have been reported. The literature and product monogram documents an increased risk of NHL and non melanoma skin cancers.

**Results:** Our patient had several years of antimetabolite exposure, followed by relatively short exposure to adalimumab. Since CML is an acquired neoplasm, one can speculate that combined drug exposure, possibly the young age of drug exposure contributed to the development CML. Alternatively, the mechanism of her neoplasm may be independent of any of her Crohn's therapy. The neoplasm is rare and there are no reports of it in patients using biological therapy. Standard consenting to the product does not include risk of CML. There are some cancers that are well described to be associated with biological therapy.

**Conclusions:** This case illustrates the diagnosis of a rare malignancy in a young person with CD receiving biological therapy. When patients receiving biological agents develop neoplasm, the biological agent’s role is questioned. Clear information in the consenting process may assist the patient in adapting to this unfortunate and challenging circumstance. Clinicians should have a good working knowledge of the types of described cancer complications with biological therapy when consenting patients.

**Funding Agencies:** None
POSTER 16

WARM CARBON-DIOXIDE INSUFFLATORS FAIL TO DELIVER TARGET TEMPERATURES DURING COLONOSCOPIES - AN EX-VIVO STUDY
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Background: With the recent shift from air to carbon dioxide (CO₂) for insufflation during adult colonoscopies, one manufacturer is now marketing a warm CO₂ insufflator as a potential means of reducing pain & increasing tolerability during colonoscopies. While previous studies have shown some benefit with using warm water irrigation during colonoscopies, no studies exist assessing outcomes with warm CO₂ insufflation. For this to even have potential for similar effects, the warm CO₂ insufflator would first need to deliver the desired temperature of gas to the distal end of the colonoscope.

Aims: To assess whether warm CO₂ insufflators deliver target temperatures to the distal end of the colonoscope, in a simulated environment replicating close to core body temperatures.

Methods: Three CO₂ insufflators manufactured by Olympus® (Olympus UCR), Medivators® stratus™ (EGA-501, with the heating option) & Bracco (EZEM-CO₂efficient®) were chosen for this study. Using two adult colonoscopes (Olympus®(CF-H180DL) & Pentax (EC-3890Li)) with their lights on, the air button was constantly depressed & temperatures were recorded at each insufflator end & distal colonoscope end for 10 min in increments of 1 min (assuming an average cecal intubation time of ~10 min). Experiments were performed both at room temperature, and with the scope immersed in a warm water bath maintained at 34°C, as well with heat on & off for Medivators® stratus™. Mean temperatures were then compared at 0, 5 & 10 minutes using a one-way ANOVA, with the level of significance established at P<0.05.

Results: The insufflator end temperatures between the heater on & off groups were similar at time 0 min (P=0.474); but a difference was detected at 5 min (P<0.001) & 10 min (P<0.001). In spite of this, no difference was seen in the scope tip temperatures between the heater on & off groups at 0 min (P=0.812), 5 min (P=0.723) or 10 min (P=0.621). With the heater on, temperatures at the scope tip & the insufflator end were similar at 0 min (P=0.714), but did show statistically significant difference at 5 min (P=0.001) & 10 min (P<0.001). The addition of a warm water bath maintained at 34°C made no difference to scope tip temperatures at 0 min (P=0.178), 5 min (P=0.148) & 10 min (P=0.159).

Conclusions: Our data suggests that although they warm the gas at the insufflator end, a new model of heated CO₂ insufflators make no difference to delivered temperatures at the distal colonoscope tip. For reasons unclear, they fail to deliver target temperatures to the distal colonoscope end both at room temperature & in a heated body simulating a real colonoscopy. One possibility is the dissipation of heat as heated CO₂ passes through the length of the colonoscope umbilicus; however, further studies are needed to demonstrate this conclusively.

Funding Agencies: None
SMALL-FIBER NEUROPATHY IN A PEDIATRIC PATIENT WITH ULCERATIVE COLITIS ON TUMOR NECROSIS FACTOR ALPHA-INHIBITOR TREATMENT

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Background: Neurological complications associated with inflammatory bowel disease (IBD) although uncommon have been associated with significant morbidity and may represent relevant diagnostic issue. Furthermore, increasing use of biological therapies for IBD, which has been associated with different neurological adverse effects, has likely influenced the incidence and clinical presentation of this complication. Peripheral neuropathies are one of the most frequent complications and diverse phenotypes have been described.

Aims: To describe a pediatric patient with ulcerative colitis and autoimmune hepatitis who developed small-fiber neuropathy while being treated on tumor necrosis factor (TNF) alpha inhibitor with successful response to intravenous immunoglobulin.

Methods: We retrospectively reviewed the medical chart of our patient. We performed a review of the literature using the PUBMED database. The following search terms were used: "neuropathy", "small-fiber neuropathy" and/or "neurological disease" in combination with "inflammatory bowel disease", "anti-TNF", "anti-ganglioside".

Results: We described a 17 years old girl with autoimmune hepatitis and ulcerative colitis who developed severe burning neuropathic pain affecting the proximal lower extremities while being treated on TNF alpha-inhibitor. Skin biopsy confirmed a non-length-dependent small fiber neuropathy. Investigations for potential causes revealed abnormal anti-GM2 titer. Immune-mediated pathogenesis was suggested by rapid response to intravenous immunoglobulin. Whether this neurological complication was related to TNF alpha-inhibitor therapy or to our patient's underlying immune dysregulation or even to the presence of unrelated anti-ganglioside antibodies remains to be elucidated.

Conclusions: Non-length-dependent small fiber neuropathy is not as well characterized as length-dependent small-fiber neuropathy in the IBD population. Our case report is unique as it describes a distinct clinico-pathological pattern of small-fiber neuropathy associated with IBD and TNF alpha inhibitor therapy with findings suggestive of predominant dorsal root ganglia degeneration on skin biopsy. To our knowledge, this is the youngest patient developing small-fiber neuropathy during the course of an inflammatory bowel disease. Peripheral neuropathies associated with IBD in the pediatric population have rarely been described which emphasizes the need for future pediatric studies on this complication.

Funding Agencies: None
DIAGNOSTIC YIELD OF ENDOSCOPIC ULTRASOUND GUIDED FINE NEEDLE ASPIRATION VERSUS FINE NEEDLE BIOPSY FOR SOLID LESIONS
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Background: Endoscopic ultrasound guided fine needle aspiration (EUS-FNA) is the standard technique for obtaining tissue samples. The Sharkcore Needle (Covidien) is a new fine biopsy needle (FNB) for obtaining core tissue at time of EUS.

Aims: To compare the diagnostic yield of a conventional EUS FNA needle with a new EUS FNB needle for solid lesions in close proximity to the upper GI tract.

Methods: A retrospective study of patients who underwent EUS for tissue acquisition of solid lesions using both a conventional FNA needle (Boston Scientific) and a novel FNB needle (Sharkcore/Covidien) in the same session between February and June 2015. Two passes were made with the FNA needle using a standard EUS technique (no stylet, with suction). Two passes were also made with the FNB needle using a slow pull technique on the first pass and suction on the second pass. All were examined by a GI pathologist for neoplasia, diagnostic or non-diagnostic. Diagnostic yield was calculated based on a confirmed diagnosis by EUS sampling or surgically resected specimen or a presumed diagnosis by radiological imaging and overall clinical picture.

Results: 21 patients were included in the study. Mean age was 58.2 and 8 were male (38%). 11 (52.4%) had a pancreatic mass while the rest included both gastric and duodenal subepithelial tumors, and mediastinal and intra-abdominal lesions. Using the FNA method, in 18 out of 21 (85%) a diagnosis was made compared to 15 out of 21 (71.4%) using FNB technique. This was not statistically significant with a p value of 0.45 based on Fischer's exact test. Combining both methods 19 out of 21 (90.5%) had a diagnostic sample.

Conclusions: EUS-FNB does not appear to increase the diagnostic yield compared to EUS-FNA. However, combining both techniques may increase this yield.

Funding Agencies: None
UNEXPLAINED ASCITES IN AN ADOLESCENT FEMALE: POSSIBLE ASSOCIATION WITH EXCESSIVE INGESTION OF METHYLONE

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Background: New substances have emerged as popular forms of achieving a psychoactive “high”. Synthetic cathinones, commonly marketed as “bath salts”, contain a number of amphetamine-like substances, which produce sympathomimetic effects and are powerful central nervous system stimulants. High doses of such agents, particularly MDMA (3,4-methylenedioxy-methamphetamine), can result in liver injury, presenting as abrupt onset of jaundice and fatigue with transaminase elevation. In rare cases, these agents can cause acute liver failure. Ascites with such agents has not been described.

Aims: We describe a case of possible association between methylone ingestion and ascites.

Methods: A case of unexplained ascites in an adolescent female was reviewed. The literature on amphetamine use and potential liver toxicities was explored and summarized.

Results: A 16 year old girl presented to hospital with progressive ascites and hepatosplenomegaly of unknown etiology. Liver enzymes, bilirubin and liver function tests were normal aside from albumin, which was transiently low. Ultrasound showed moderate ascites and hepatosplenomegaly. Infectious and autoimmune etiologies were ruled out. Ascites analysis was compatible with a transudative rather than an exudative process. A transjugular liver biopsy showed dilatation of the sinusoids and non-specific inflammation. A repeat core needle liver biopsy showed an unusual featureless non-refractile grey substance within the sinusoidal Kupffer cells and in macrophages present in the portal tracts. A sparse portal lymphohistiocytic infiltrate was present along with histologic features of portal hypertension. A drug history revealed that the patient had ingested a substance called “Pink Rock” in large quantities prior to the onset of her symptoms. This substance was provided for analysis and was identified as methylone (beta-keto-MDMA), a drug similar to the amphetamine derivative MDMA (3,4-methylenedioxy-methamphetamine). Her ascites resolved over the next few months with diuretic therapy and avoidance of the ingested substance.

Conclusions: In this case, we postulate that methylone or co-ingested substances led to blockage of the hepatic sinusoids with macrophages containing unidentified material assumed to have been used to “cut” the active drug, resulting in portal hypertension and ascites. This is the first case report identifying this effect with MDMA- or amphetamine-like agents.

Funding Agencies: None
SAPHO SYNDROME 10 MONTHS AFTER INITIATION OF REMICADE FOR CROHN’S DISEASE: CASE REPORT
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Background: SAPHO (Synovitis Acne Pustulosis Hyperosteosis and Osteitis) syndrome has an estimated incidence of 1/10 000 person-year. The main clinical features are recurrent aseptic axial osteomyelitis associated with specific dermatologic conditions, most commonly palmoplantar pustulosis (PPP). An association between SAPHO syndrome and Crohn’s disease (CD) has been described in literature. This particular variant of SAPHO syndrome is considered a rare extraintestinal manifestation (EIM) of CD.

Aims: We report a case of SAPHO syndrome after treatment of CD with infliximab and review the associations made between SAPHO syndrome and CD.

Methods: The case notes were reviewed after informed consent from the patient and his parents. A review of the literature was performed using Medline Ovid with the keywords: SAPHO syndrome, sterile osteomyelitis, psoriasis, infliximab, anti-TNF.

Results: A 15-year-old male with ileal CD presented in 2011 with a two-week history of arthralgia in the right wrist and sterno-clavicular area as well as a rash. His CD had been treated with infliximab for the past ten months with good clinical and radiological response. On presentation, he was afebrile, had pain on palpation of the clavicles and right wrist without overt arthritis, and multiple squamo-erythematous plaques on his scalp, face, right arm, torso and armpits as well as micro-papules on both palms. Serum inflammatory markers were markedly elevated. A bone gallium scintigraphy demonstrated osteomyelitis of the sterno-clavicular regions, distal right radius and trochanter. Blood and skin cultures were negative. The rash was diagnosed as pustular psoriasis and in view of the multiple sterile osteomyelitic lesions the final diagnosis of SAPHO was made. Since the complication occurred while on anti-TNFs in a patient who had no previous EIMs, the medication was replaced with oral methotrexate. Osteomyelitic lesions rapidly improved, but an MR-enterography 4 months later confirmed the recurrence of ileitis with a 10-cm terminal ileal stenosis for which the patient underwent an ileocecal resection. He continued methotrexate and as of September 2015 has had no recurrence of Crohn’s disease or SAPHO.

To our knowledge, this is the second case of SAPHO syndrome diagnosed following therapy with infliximab for CD. The first case, reported by Van Den Eynde et al. in 2007, describes a patient who developed migratory hip, thigh and back pain with a papulopustular rash diagnosed as PPP after 2 doses of infliximab. This patient was treated with pamidronate, clarithromicine, sulfasalazine, methyl-prednisone and methotrexate with a good response and no further recurrence.

Conclusions: SAPHO syndrome has been regarded as a rare extraintestinal manifestation of CD. Our case suggests it may also occur as a complication of anti-TNF therapy.
Q FEVER IN A PATIENT WITH CROHN’S DISEASE ON ADALIMUMAB AND METHOTREXATE
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Background: Q fever has been rarely reported in patients with inflammatory bowel disease (IBD) on immunosuppressive therapy

Aims: To present a confirmed case of Q fever in a gentleman with Crohn’s disease (CD) and review the literature. The patient presented with fever of unknown origin who despite a lack of direct contact with zoonotic vectors, after an extensive evaluation he was eventually diagnosed and treated successfully for Q fever

Methods: Case report and literature review

Results: A 53-year-old automotive mechanic with a 30 year history of CD in remission with combination Adalimumab and Methotrexate since 2006. He was well until 2 weeks prior to his presentation when he developed a persistent fever and drenching night sweats. Over this period, he experienced a 5lb weight loss but denied any symptoms suggestive of a flare of his underlying CD. His systemic review and physical examination were otherwise unremarkable. Initial investigations demonstrated a normal white blood cell count but significantly elevated CRP (121mg/L). He was admitted to hospital and following acquisition of blood, stool and urine cultures, started on broad spectrum antibiotics. All cultures were negative and further evaluation demonstrated positive antinuclear antibody and rheumatoid factor, but negative viral, histoplasmosis and blastomycosis serologies. Imaging studies were unremarkable. WBC scan were negative. Gastroscopy and colonoscopy were normal. The infectious disease service was involved and requested Q fever serology which confirmed recent infection. He was started on a 10 day course of oral Doxycycline (200mg every 24hours) with resolution of his fever by day 3. Ongoing follow up with ID as an outpatient was arranged with serial monitoring of Q fever. Without discontinuation of treatment for CD, he continued treatment for Q fever. The process of improvement was not complicated by any significant event. After obtaining further history, the patient was likely exposed through servicing vehicles used to transport sheep’s. Only one previous case of acute hepatitis due to Q fever in an IBD patient on chronic treatment with steroids has been reported

Conclusions: To the best of our knowledge, this is the first reported case of acute Q fever in a known case of CD receiving Adalimumab and methotrexate. In spite of simultaneous immunosuppressive therapy, the patient did not develop any organ involvement which was reported in previous case report. This case report shows management of acute Q fever is successful despite continuing immunosuppression with biologic therapy

Funding Agencies: None
A RARE NIDUS FOR BILIARY STONE FORMATION
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Background: Early complications of Laparoscopic Cholecystectomy (LC) include haemorrhage, perforation of the gallbladder, common bile duct (CBD) injury and iatrogenic bowel and vascular injuries¹. Late complications involve intra-abdominal bile leakage, sub-hepatic abscesses, retained bile duct stones, post-cholecystectomy syndrome and bile duct strictures². Surgical clips placed on the cystic duct and arteries avoid cystic duct leakage and arterial bleeding, but allows the rare late LC complication of post-cholecystectomy clip migration (PCCM) with gallstone formation. While rare, consequences of this complication, such as ascending cholangitis, can be life threatening.

Aims: We describe a 54-year-old Caucasian female patient with Crohn’s disease presenting with abdominal pain attributable to post cholecystectomy clip migration with choledocholithiasis.

Methods: NA

Results: A 54-year-old woman presented with one episode of vomiting, a one month history of anorexia, and postprandial right sided and epigastric abdominal pain. Her past medical history includes Crohn’s disease diagnosed in 1976, requiring total colectomy and end ileostomy in 1977 and a small bowel resection for structuring in 1980. A cholecystectomy for biliary pancreatitis was performed in 2004. Physical exam revealed a comfortable patient with normal vital signs and tenderness to deep palpation in the right upper quadrant. Laboratory investigations revealed a total bilirubin of 25.6 µmol/L; aspartate aminotransferase 73 IU/L; alanine aminotransferase 174 IU/L; gamma-glutamyl transferase 310 IU/L; alkaline phosphatase: 243 IU/L; amylase: 91 IU/L; lipase : 87 IU/L; CRP: 87.5 mg/dL, and a white blood cell count of 8.3 x 10⁹/L. Computed tomography scan demonstrated a metallic object within the CBD with dense material organised around it. The CBD was dilated to 2.3 cm with intra-hepatic biliary duct dilation. The patient was diagnosed with subacute CBD obstruction from choledocholithiasis with gall stone formation around a surgical clip nidus. Endoscopic retrograde cholangiopancreatography (ERCP) with sphincterotomy was performed and the CBD stone was extracted and all symptoms and laboratory abnormalities resolved (Figure 1).

Conclusions: Up to 80 cases of post-cholecystectomy and post LC clip migration with biliary stone formation have been reported in the literature. Most cases occur in female patients with a median age of 60 years old. The primary indications for cholecystectomy in these patients were acute or chronic cholecystitis or biliary pancreatitis. The median time between the cholecystectomy and the development of symptoms and clip migration with gallstone formation was 26 months post-cholecystectomy. Most were successfully treated by ERCP. No explanation or risk factors have been validated to clarify how the clips migrated in the common bile duct.

Funding Agencies: None
AN ATYPICAL INTRA-ABDOMINAL MASS IN A 28 YEAR OLD CROHNS PATIENT ON LONGTERM AZATIOPRINE AND INFlixIMAB

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Aims: This report presents the case of a young man with longstanding Crohn's disease, presenting to the hospital with a new atypical intra-abdominal mass of unknown etiology. With his azathioprine use in mind, lymphoma or other malignancy was considered along side an inflammatory mass related to his poorly controlled IBD. The atypical features of his mass and the diagnostic work up, as well as a framework for investigating similar clinical problems in the future will be discussed.

Methods: The patient was diagnosed with terminal ileal Crohns disease in 2011 and managed on azathioprine monotherapy. Infliximab was added in early 2015 after worsening symptoms and evidence of penetrating disease on an MR enterography. He then presented to the Juravinski Hospital, a large tertiary care center in Hamilton, ON on August 12th 2015 with concerns of multiple intra-abdominal abscesses visualized on an outpatient ultrasound. CRP was grossly elevated at 197 mg/L but bowel symptoms were unremarkable. The patient also complained of ongoing lower back pain.

Results: Intravenous antibiotics were initiated. A CT scan reported an infiltrative soft tissue mass, extending off of the small bowel into the mesenteric leaves and encasing the SMA, transverse duodenum, and pancreatic head. Associated necrotic adenopathy yielded differential diagnoses of malignancy, sclerosing retractile mesenteritis and IBD-associated fibrosis. After discussions with interventional radiology, percutaneous biopsy was deemed not to be possible. An endoscopic ultrasound guided biopsy was performed, and FNA identified only benign glandular cells with evidence of chronic inflammation. Serial monitoring of the patient's mass is ongoing.

Conclusions: This case illustrates an atypical mass in a young man around which there was some diagnostic uncertainty. Although only 36 cases of thiopurine-associated hepatosplenic T cell lymphoma have been described in IBD patients¹, our patient's young age and gender raised this concern. More commonly, treatment of IBD with azathioprine carries a four-fold increase risk of lymphoma based on a 2005 review by Kandiel et al.² Finally, the diagnosis of sclerosing mesenteritis was raised, a condition that may affect up to 0.6% of the population based on a recent review³. The key in this case was communication with our radiologists along with quick access to EUS guided FNA. While our patient's mass was thankfully benign, his case can provide a framework for workup of similar patients in the future.

Funding Agencies: None
A DIAGNOSTIC DILEMMA: A CASE OF CHOLESTATIC JAUNDICE DUE TO AL-AMYLOIDOSIS

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Background: Amyloidosis is a rare, infiltrative condition associated with extracellular deposition of fibrils that can lead to end organ dysfunction. Most often, patients with primary amyloidosis present with cardiac or renal involvement. If the liver is involved, it usually as asymptomatic hepatomegaly. Furthermore, serious liver dysfunction, with initial presentation of cholestatic jaundice is very rare, accounting for less than 5% of amyloidosis.

Aims: We present a case of cholestatic jaundice due to amyloidosis with unclear concurrent multiple myeloma.

Methods: A full chart review of the case was undertaken, including assessment of radiographic, biochemical and biopsy results. A subsequent literature review of the topic was also conducted.

Results: A 69 year old male initially presented with a 3-4 month history of right upper quadrant abdominal pain. He also reported reduced oral intake and an associated weight loss of 25 pounds. However, he denied fevers, night sweats, rashes, and review of systems was otherwise unremarkable. Physical examination was prominent for scleral icterus, right upper quadrant tenderness, nonpulsatile hepatomegaly, and peripheral edema. Laboratory investigations revealed hemoglobin of 121g/L (MCV 96.0 fl), creatinine of 103 umol/L, total bilirubin of 82umol/L (conjugated 59.6umol/L), albumin of 21g/L, gamma-glutamyl transpeptidase of 1773U/L, alkaline phosphatase of 692U/L, alanine transaminase 45U/L, aspartate transaminase of 97U/L, and INR of 1.1. Additionally, abdominal ultrasonography revealed a liver span of 20cm, with diffuse fatty infiltration, spleen of 12cm in size, and normal caliber and patency of the portal vein and common bile duct. A subsequent CAT scan of the chest, abdomen and pelvis, and MRCP were also unremarkable. His hospital course was complicated by worsening laboratory abnormalities, including worsening hyperbilirubinemia (conjugated 247umol/L), INR (1.8), acute kidney injury (creatinine 314umol/L), and nephrotic range proteinuria. Due to suspicion of amyloidosis in the setting of multi-organ failure, serum electrophoresis was done which revealed free kappa of 645.46mg/L and free lambda of 38.21mg/L. Finally, liver biopsy was performed, showing severe amyloidosis occupying the sinusoids, spaces of Disse, portal connective tissue and walls of vessels, with compression of hepatocytes. Congo red staining showed green birefringence. He was started on dexamethasone, but further chemotherapy had been withheld until further characterization can be made of possible concurrent multiple myeloma.

Conclusions: Cholestatic jaundice is common, but is rarely the initial presentation of amyloidosis. If initial investigations rule out any obvious etiology, suspicion for infiltrative diseases, such as amyloidosis, should be raised.

Funding Agencies: None
EOSINOPHILIC OESOPHAGITIS: DEMOGRAPHICS & DISEASE CHARACTERISTICS IN NEW ZEALAND CHILDREN. A PROSPECTIVE STUDY.
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Background: Eosinophilic oesophagitis (EoE) is a rare, chronic, & relapsing immune/antigen-mediated disease characterised by symptoms of oesophageal dysfunction with an eosinophil predominant inflammation of the oesophageal mucosa. There is a paucity of data among the New Zealand (NZ) paediatric population.

Aims: This 3-year prospective study aimed to characterise this disease better in NZ children, and to verify initial treatment strategies adopted by physicians throughout the country. Here we present preliminary data from the first 19 months of the study.

Methods: Information on new diagnoses of paediatric EoE was obtained via the NZPSU through monthly questionnaires sent out to all paediatricians & other specialists working with children throughout NZ.

Results: 31 new cases (28 male) were reported to the NZPSU from Feb 2014 to Aug 2015. 74% were of European descent with a median age of 8 years (0.6-15). Dysphagia was the most common symptom (35%), followed by vomiting (29%), food refusal (26%), epigastric pain (19%) & weight loss (19%). Other symptoms reported were food impaction, nausea, failure to thrive, non-specific abdominal pain, and diarrhoea. 2 patients were asymptomatic. 71% had a co-morbid history of & 55% had at least one first degree relative with atopy or food allergy. 61% had abnormal endoscopic findings, of which linear furrows and white plaques were the most common. 39% had normal oesophageal mucosa on endoscopy. Only 35% received a proton pump inhibitor (omeprazole) prior to endoscopy; 4 patients continued this post-endoscopy. 9 patients (29%) were initially managed with dietary manipulation alone (7 with an elimination diet, 2 with an elemental formula); 1 patient required a nasogastric tube for their feeds. 19 (61%) and 3 (10%) patients were treated with swallowed fluticasone propionate and oral prednisone respectively. Leukotriene receptor antagonists and immunosuppressive therapy were not used in any of the patients. 25 patients (81%) have a repeat endoscopy planned to monitor response to treatment.

Conclusions: The demographics and disease characteristics of our patients with paediatric onset EoE in NZ are similar to that reported in the current medical literature. Long term prospective observational data obtained from this cohort of patients, should significantly improve our knowledge of this rare condition.

Funding Agencies: None
MEDICATION USE IS ASSOCIATED WITH ESOPHAGEAL MANOMETRIC ABNORMALITIES

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Background: Surprisingly little is known about the effects of medication on esophageal motor physiology. Many manometries show nonspecific abnormalities, and it is difficult to know if the abnormalities represent a primary dysmotility versus medication side effects.

Aims: We hypothesized that medications known to affect intestinal or colonic motility could also have measurable effects on esophageal pressure and/or function.

Methods: All patients with dysphagia or chest pain who underwent high-resolution esophageal manometry (HRM) with impedance, over a 22-month period were analyzed. Any patients with achalasia, connective tissue disorder, eosinophilic esophagitis or structural lesions on endoscopy were excluded. Detailed medication history on the day of the HRM was taken. Medication types were grouped into classes and tested along with age, gender, and height in multiple linear regression analyses to assess for association with HRM endpoints.

Results: Of a total 204 patients that were included in this analysis, 63.2% were females and 36.8% were males. 70.6% reported dysphagia, while 29.4% reported chest pain as the primary complaint. 67.2% of these patients were assessed as having ineffective esophageal motility using HRM. Regular narcotic use and female gender were found to be significant predictors of higher LES mean basal pressure, whereas PPI use was associated with lower LES mean basal pressure (table). Anticholinergic use was associated with more failed swallows (assessed by Chicago Classification). No associations were seen between medication classes and LES residual pressure, distal contractile integral, distal latency, or intrabolus pressure. The proportion of narcotic use in patients with normal manometry vs abnormal manometry was not significantly different.

Conclusions: In patients presenting with dysphagia and/or chest pain as the primary complaint:
1. Regular narcotic use and female gender are predictors of increased LES mean basal pressure
2. PPI use is associated with lower LES mean basal pressure, however it is difficult to ascertain whether this might be secondary to underlying reflux versus the medication itself.
3. Anticholinergic use is associated with more failed swallows (assessed per the Chicago classification)

Coefficients (a)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Unstandardized Coefficients</th>
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</thead>
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<td></td>
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(a. Dependent Variable: LES_Basal_Mean_Pressure

Funding Agencies: None
PLENARY II – Clinical Practice

ENDOSCOPY UTILIZATION AND OUTCOME FOR THE GI NURSE NAVIGATOR PATHWAY: A QUALITY IMPROVEMENT PROJECT FOR CHRONIC DYSEPSIA, HEARTBURN & IRRITABLE BOWEL SYNDROME


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Background: The Gastrointestinal Nurse Navigator (NN) pathway is a collaborative strategy developed by the Division of Gastroenterology (GI) and the Calgary Foothills Primary Care Network (PCN), aimed to provide comprehensive care to patients through nurse-lead medical education as well as nutrition and behaviour health support for patients with non-urgent GI concerns. Since 2012, referrals for dyspepsia, gastroesophageal reflux disease (GERD) and irritable bowel syndrome (IBS) were selected, with nurse-lead telephone assessment, direct referral to endoscopy for red flags, and group multidisciplinary medical education session with GI consultation.

Aims: To evaluate endoscopy usage and diagnostic outcome in the NN pathway.

Methods: This is an ethics approved, single center, prospective observational study, including 443 patients from July 2012 to December 2014. Demographics, endoscopic indication and diagnostic outcome were evaluated.

Results: Of the 443 patients, 198 had dyspepsia, 211 GERD, and 34 had IBS. 251 (56%) underwent endoscopy, with 7 patients (1.6%) having simultaneous referrals to other gastroenterologists and endoscopy performed privately outside of the pathway. Gastroscopy was the most commonly performed procedure (193/251, 77%), followed by colonoscopy (48/251, 19%) the remainder were sigmoidoscopy (10/251 4%). More females than males (48% versus 45%) underwent endoscopy, and the average age of patients who underwent endoscopy was higher at 48 versus 46 yrs (p>0.05). Of those patients who underwent endoscopy, 15 studies (5.6%) revealed diagnoses changing medical management (H. Pylori, adenomas, inflammatory bowel disease (IBD) and Barrett’s esophagus). Those most likely to have these diagnoses had an average age of 52. There were no cancers diagnosed and IBD was mild.

Conclusions: The NN pathway is safe, with low morbidity given minimal significant pathology identified with no malignancies. The identification of patients for entry into this pathway is appropriate and furthermore, many may not have required endoscopy at all. Future strategies should aim at conservative therapy, focused on lifestyle and medical management within primary care.

Funding Agencies: None
NEW ORAL ANTICOAGULANTS AND GASTROINTESTINAL HEMORRHAGE: A SYSTEMATIC REVIEW AND META-ANALYSIS
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1. Dalhousie University, Halifax, NS, Canada; 2. McGill University Health Center, Montreal, QC, Canada; 3. McGill University, The Montreal General Hospital, GI Division, Montreal, QC, Canada.

Background: *C. Miller & A. Dorreen are co-first authors
Several new oral anticoagulants (NOACs) have been approved for clinical use or are in advanced-phase clinical trials, yet evidence regarding associated risk of gastrointestinal hemorrhage (GIB) is limited.

Aims: To determine the risk of GIB associated with NOACs as compared to conventional anticoagulation therapy.

Methods: An initial search for randomized controlled trials comparing NOACs to conventional anticoagulation therapy was performed using the EMBASE, Medline, Cochrane and ISI Web of knowledge databases from inception through March 2015. NOACs already approved or in active development were included. Trials assessing NOACs for the treatment of acute coronary syndrome and other unapproved indications were excluded. Two independent reviewers analyzed abstracts and reviewed manuscript content. Data from relevant papers, including baseline characteristics, indication for and duration of NOAC and number, severity and location of GIB events were compiled. A meta-analysis was conducted with results reported as odds ratios (OR) with 95% confidence intervals (CI). The primary outcome was major GIB. Secondary outcomes included clinically-relevant non-major (CRNM), upper and lower GIB. A subgroup analysis of individual NOACs was performed. Heterogeneity and publication bias were assessed.

Results: An initial search yielded 1654 papers, following review 36 trials were included that assessed dabigatran, rivaroxaban, apixaban, edoxaban and betrixaban. A total of 145,639 patients were randomized. There was no difference in major GIB between NOACs and conventional anticoagulation (OR 0.98, 95%CI: 0.80-1.22). No difference was observed for CRNM GIB (OR 0.92, 95%CI: 0.63-1.34), upper GIB (OR 0.76, 95%CI: 0.37-1.56) or lower GIB (OR 0.86, 95%CI: 0.66-1.13). Subgroup analysis revealed an increased odds of major GIB with dabigatran (OR 1.27, 95%CI: 1.04-1.55) and rivaroxaban (OR 1.40, 95%CI: 1.15-1.70) when compared to conventional anticoagulation.

Conclusions: No difference was found between NOACs and conventional anticoagulation regarding odds of major GIB. Subgroup analysis, however, indicates that dabigatran and rivaroxaban are significantly associated with a 27% and 40% relative increase in odds of major GIB, respectively.

Funding Agencies: None
ADEQUACY OF DOCUMENTATION OF FOLLOW-UP PLANS FOR PATIENTS UNDERGOING INPATIENT COLONOSCOPY

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Background: The transition of care from the inpatient to outpatient setting can be fragmented and may contribute to poor patient outcomes. Lack of appropriate follow-up for patients undergoing inpatient colonoscopy who are found to have colonic polyps may put the patient at risk for developing interval colon cancer. This may be related to inadequate documentation upon hospital discharge.

Aims: To assess the adequacy of documentation for appropriate follow-up among those with colonic polyps found during inpatient colonoscopy.

Methods: A retrospective chart review was performed on patients who had colonic polyps found during inpatient colonoscopy during a one year period at St. Michael’s Hospital, Toronto, Canada. Discharge summaries were reviewed for adequate documentation of follow-up plans including the need for follow-up, time interval for follow-up, if required, and the contact information of the follow-up provider. Descriptive statistics were used to calculate the proportion of patients who had adequate documentation of follow-up plans upon discharge.

Results: 45 patients were included in the final analysis. All patients had a completed discharge summary. The need for follow-up was found in 46.7%, and the interval for follow-up in 24.4% of the discharge summaries. Contact information for the follow-up consultant was present in 17.8% summaries. 31 patients had one or more tubular adenoma (with or without high grade dysplasia) or tubulovillous adenoma. Of these 31 patients, 48.4% had the need for follow-up in their discharge summary, 22.6% had the interval of follow-up and 38.7% had the contact information of the follow-up provider. 27% patients had polyps that were not removed or retrieved at colonoscopy. Of these 12 patients, 50% had the need for follow-up in their discharge summary, 25% had the interval of follow-up recommended and 25% had the name of the consultant they were to follow-up with.

Conclusions: Adequate documentation of the need for follow-up was lacking in most discharge summaries of inpatients found to have colonic polyps during colonoscopy. The problem was magnified further in patients with adenomas or with polyps that were either not removed or not retrieved. This report highlights the importance of developing new initiatives to improve communication among healthcare providers at the time of discharge to ensure appropriate follow-up after inpatient colonoscopy.

Funding Agencies: None
**PLenary III – Inflammatory Bowel Disease**

**KNOWLEDGE, PERCEPTIONS, AND ATTITUDES TOWARDS MEDICATION ADHERENCE AND PREGNANCY IN INFLAMMATORY BOWEL DISEASE**

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**Background:** When considering pregnancy, women of childbearing age with inflammatory bowel disease (IBD) often have to balance the risks and benefit of their IBD medications against the potential for active disease. Fortunately, women with quiescent disease can expect to have a pregnancy with similar outcomes to the general population. With the exception of methotrexate, thalidomide, and cyclosporine, the majority of commonly used medications appear to be safe to use during pregnancy. Still, survey studies of IBD cohorts have shown higher rates of "voluntary childlessness" in patients with IBD compared to the regular population. Limited data exists on medication adherence in pregnant women with IBD.

**Aims:** This study assessed which factors contribute to medication adherence during pregnancy in women with IBD. We also attempted to evaluate the thoughts processes of female IBD patients when faced with the decision of taking potentially teratogenic medications, compared with stopping or switching to medications with less potential for adverse effects.

**Methods:** Female patients completed a self-administered, structured survey. We collected demographic data, medication history, and self-reported adherence to IBD medications during pregnancy. We assessed knowledge and perceptions of IBD medication safety in pregnancy. A time trade-off (TTO) analysis was done to assess health utilities for continuing or discontinuing IBD medications during pregnancy.

**Results:** A total of 204 women completed the survey (mean age was 32.8 years). Current or previous pregnancy was reported by 101 patients (median parity 2, median gravity 1). While pregnant, 42 (41.6%) participants reported stopping a prescribed IBD medications. Of those, seventeen participants (40.5%) reported stopping medications without the advice of a physician. Participants with current or previous pregnancy were less likely to routinely rely on the internet (35.6% vs. 51.5%, p < 0.01) and on family and friends (4.0% vs. 45.6%, p < 0.001) for medication safety information. They were also less likely to be non-compliant with IBD medications during pregnancy to avoid possible harm to the fetus (26.7% vs. 43.7%, p < 0.001). TTO analysis was completed by 31 patients. When presented with the option of continuing a potentially teratogenic medication, switching to less effective medication that is non-teratogenic or stopping medication all together, participants consistently preferred to switch (Figure 1).

**Conclusions:** Women with IBD report significant non-adherence to medications during pregnancy. This is driven by concerns about safety and uncertainty about teratogenic effects. Programs should focus on increasing education surrounding medication safety in pregnancy.

**Funding Agencies:** None
PLENARY III – Inflammatory Bowel Disease

POST-TRANSPLANT CHOLESTASIS WITHIN 1-YEAR PREDICTS PSC RECURRENCE
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**Background:** Primary sclerosing cholangitis (PSC) is a chronic cholestatic liver disease affecting both the intrahepatic and extrahepatic biliary tree of which liver transplant is the only effective cure. PSC recurrence (rPSC) after liver transplant significantly affects long-term graft survival and occurs in 6-59% of transplanted patients. Numerous risk factors for recurrence have been proposed however findings are not reproducible by independent groups. We addressed the hypothesis that rPSC has similar dynamic changes in LFTs within the first year following liver transplant, as seen in patients with viral hepatitis, and that LFT changes may identify patients more likely to develop disease recurrence.

**Aims:** To determine if the development of cholestasis in the first 12 months after transplant subsequently predicts remote rPSC.

**Methods:** PSC patients who underwent liver transplant at the University of Alberta Hospital from 1991 to 2012 were included. All data was obtained from electronic medical records. Diagnosis of recurrence was defined on the basis of cholangiography and/or histological findings consistent with rPSC. Cholestasis was evaluated at 3, 6, 9, and 12 months after liver transplant. Severe cholestasis was defined as bilirubin ≥100umol/L and/or alkaline phosphatase (ALP)≥3XULN. Mild cholestasis was defined as those without severe cholestasis and i) ALP≥2XULN or ii) abnormal ALP≥1-2XULN and a bilirubin value from 20 to 100umol/L. Recurrence free survival was compared between patients diagnosed with rPSC and those without rPSC.

**Results:** Seventy two patients were included. Fifty-eight (81%) were male. Mean age at transplant was 42 years (8 to 66 years). rPSC occurred in 18/71 (25%) patients. Mean time to recurrence was 77 months (9 to 172 months). rPSC rates were 9% and 28% at 5 and 10 years respectively. rPSC developed significantly earlier in patients with severe cholestasis at 3 months compared to all other patients without cholestasis (mean 81±27 vs 183±11 months Log Rank P=0.008). Development of mild cholestasis was associated with earlier rPSC than those without cholestasis at 9 months (mean 63±14 vs. 179±12 Log Rank P=0.027) and at 12 months (mean 102±16 vs 194±12 Log Rank P=0.001). Overall, the hazard ratio for rPSC was 4.8 (95% CI 1.3-17.0, P=0.02) in patients with severe cholestasis at 3 months. Hazard ratios for mild cholestasis at 9 and 12 months was 4.9 (95% CI 1.0 - 22.9, P=0.05) and 4.8 (95% CI 1.8 - 12.8, P=0.002) respectively.

**Conclusions:** Our preliminary results indicate post-transplant cholestasis within the first 12 months following liver transplant is associated with rPSC. Our results mimic observations of other infectious disease recurrence following liver transplantation.

**Funding Agencies:** None
PLENARY III – Inflammatory Bowel Disease

INFLAMMATORY BOWEL DISEASES PATIENTS ARE AT LOWER RISK OF ACUTE CORONARY SYNDROME
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1. University of Calgary, Calgary, AB, Canada; 2. University of Calgary, Calgary AB, AB, Canada.

Background: The association between inflammatory bowel disease (IBD) and acute coronary syndrome (ACS) is controversial. Previous studies report different risk magnitude for developing ACS among IBD patients.

Aims: To assess the association between ACS and IBD using a large population-based database.

Methods: This study was conducted using the 2008 Nationwide Inpatient Sample (NIS) database. First, we identified all patients admitted with a primary diagnosis with ACS (including unstable angina, non-ST elevation MI and ST elevation MI). We matched them to controls according to age, gender, race, admission type (elective vs. non-elective) and US region. In this phase we assessed predictors of ACS including IBD. In the second stage, we identified all patients admitted primarily with IBD diagnosis; ulcerative colitis (UC) or Crohn’s disease (CD). We matched IBD patients to controls according to age, gender, race, admission type and region. In the second phase we assessed rates and predictors of developing ACS during hospitalization as a secondary diagnosis. We used weighted regression models to assess the impact of risk factors on developing primary or secondary ACS and adjusted for patient and hospital characteristics.

Results: There were 143,831 ACS admissions matched to 143,773 control admissions. ACS patients had higher rates of hypertension (67.5% vs. 59.8%), smoking (31.4% vs. 19.1%), dyslipidemia (52.3% vs. 28.3%), diabetes (32.2% vs. 28.6%), and obesity (10.1% vs. 7.3%), but not IBD (0.4% vs. 0.7%) (P value <0.001 for all comparisons). Traditional ACS risk factors were associated with higher risk of developing ACS. However, history of IBD was associated with lower risk (adjusted OR: 0.63 [95% CI: 0.54-0.74]). In the second phase, 19,650 patients admitted primarily with IBD flare were matched to 19,649 controls. Rates of developing ACS during hospitalization were less common in IBD patients (0.5% vs. 1.8%, P<0.001). IBD patients had lower rates of traditional ACS risk factors (hypertension: 24.2% vs. 32.2%; dyslipidemia 9.5% vs. 13.7%; obesity: 3.7% vs. 8.1%; diabetes: 8.4% vs. 16.8%; P<0.001). However, smoking rates were similar compared to controls (20.6% vs. 19.6%, P=0.49). Patients admitted with IBD flare were less likely to suffer from ACS during hospitalization (0.31 [0.23-0.41]).

Conclusions: In this large population-based study, we demonstrate that patients admitted with ACS had lower rates of IBD, and conversely, patients admitted with IBD flare are also less likely to develop secondary ACS. Prospective studies are needed to validate our findings.

Funding Agencies: None
PLENARY III – Inflammatory Bowel Disease

INTERVENTIONS FOR TREATING LYMPHOCYTIC COLITIS
N. AL YATAMA¹, N. Chande¹, T. Bhanji¹, J. MacDonald²
1. The University of Western Ontario, London, ON, Canada; 2. ROBARTS RESEARCH INSTITUTE, UNIVERSITY OF WESTERN ONTARIO, LONDON, ON, Canada.

Background: Lymphocytic colitis is a subtype of microscopic colitis characterized by chronic, watery non-bloody diarrhea with normal endoscopic and radiologic findings. The etiology is unknown.

Aims: To evaluate the efficacy and safety of treatments for clinically active lymphocytic colitis. This is an update of a Cochrane review

Methods: MEDLINE, PUBMED and EMBASE, Web of Science, Scopus and the Cochrane Library databases were searched from database inception to June 2015. Randomized controlled trials of medical interventions therapies for biopsy-proven, clinically active lymphocytic colitis were considered for inclusion. The relative risk and corresponding 95% confidence intervals for each dichotomous outcome and the mean difference and corresponding intervals for each continuous outcome were calculated. A random-effects model was used for the pooled analysis

Results: Six RCTs were identified. Two trials (N=56) compared budesonide 9 mg/day to placebo. At week 6 or 8, 88% (28/32) of patients in the budesonide group had a clinical response compared to 38% (9/24) of patients in the placebo group (RR 2.37, 95% CI 1.36-4.14; P=0.002). In one study patients received beclometasone dipropionate 5 mg/day (n=18), beclometasone dipropionate 10 mg/day (n=13) or mesalazine 2.4 g/day (n=5). No statistically significant difference in clinical response was observed between the 3 groups at week 8 (RR 0.97; 95% CI 0.75-1.24; P=0.8) and month 12 (RR 1.29; 95% CI 0.40-4.18; P=0.67). One study compared oral mesalazine 800 mg tid (n=20) to mesalazine 800 mg tid plus cholestyramine 4g qd (n=21). At month 6, 85% (17/20) of patients treated with mesalazine had clinical response compared to 86% (18/21) of those who received mesalazine plus cholestyramine (RR 0.99, 95% CI 0.77-1.28; P=0.95). One study compared bismuth subsalicylate 2358 mg qd (n=3) with placebo (n=2). There was no statistically significant difference in clinical (RR 5.25, 95% CI 0.41-67.73; P=0.2) or histological response (RR 1.33, 95% CI 0.27-6.61; P=0.72) between groups. One trial compared probiotics (OptiBac®; n=24) with placebo (n=22) bid. All patients received loperamide (1 mg/day). Patients in the probiotics group were significantly less likely to experience decreased abdominal pain and frequency of defecation (p<0.001)

Conclusions: Evidence indicates that budesonide may be effective for treating active lymphocytic colitis. Short-term therapy with beclometasone dipropionate may be effective, reported side effects include nausea, sleepiness and mood change. Weak evidence suggests that mesalazine with or without cholestyramine may be effective for treating lymphocytic colitis. No conclusions can be made regarding bismuth subsalicylate. Probiotics may attenuate lymphocytic colitis symptoms. More research is needed in this area

Funding Agencies: None
PLENARY III – Inflammatory Bowel Disease

INTENSIFICATION OF INFlixIMAB INDUCTION REGIMEN IMPROVES RESPONSE RATE IN STEROID-REFRACTORY PAEDIATRIC ULCERATIVE COLITIS
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Background: Infliximab is commonly given as rescue therapy for children and adolescents hospitalized with steroid-refractory ulcerative colitis (UC), and increasingly as an alternative to thiopurines in those with steroid-dependent disease. The demonstration of rapid loss of infliximab from serum in patients with active colitis has led to intensification of dosing, but the efficacy of this practice in children has not previously been assessed.

Aims: We reviewed our single-centre experience with intensified versus standard infliximab dosing in UC patients treated for steroid-refractory (SR) and steroid-dependent (SD).

Methods: The records of all UC patients aged <18 years who received planned 3-dose infliximab induction between June 2003 and November 2014 at the Hospital for Sick Children, Toronto, were reviewed. Patients were categorized as SR, unresponsive to steroids or SD, clinical remission achievable with steroids, but not maintained as steroids tapered. Patients were induced with standard regimen, 5mg/kg/dose (rounded up to the nearest 100mg) given at Week 0, 2, 6 or intensified regimen, ≥7mg/kg and/or 3 induction doses given within 5 weeks. Clinical remission and response were assessed at Week 8 using physician global assessment (PGA) and paediatric ulcerative colitis activity index (PUCAI). Clinical response was defined by decreased of PUCAI ≥20 from baseline; clinical remission by PUCAI <10 and PGA of inactive disease.

Results: 125 children (59% male; median age at diagnosis 12.7 years (IQR 9.7-15.3)) received infliximab treatment for SR (n=74) or SD (n=51) UC. Induction regimen was standard in 73 (58%) and intensified in 52 (42%). Table 1 shows patients response to infliximab induction. SR patients had higher clinical response and remission with intensified induction compared to standard induction. No difference in clinical response or remission observed in SD patients treated with standard versus intensified induction. Among 35 primary non-responders, 20 had colectomy within 6 months following stopping infliximab. Intensified induction is the only factor identified to influence the likelihood of achieving clinical response in overall patient group. (OR=2.64, 95% CI 1.12-6.27)

Conclusions: Intensification of infliximab induction is beneficial in the treatment of children with steroid-refractory UC, but does not improve primary response rates in ambulatory steroid-dependent patients. Point-of-care infliximab level testing would guide optimal dosing for all patients.

Patients Response to Infliximab Induction

<table>
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<tr>
<td>SR Intensified (n=38)</td>
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<td>20 (54)</td>
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* p<0.05 vs standard
# p=0.06 vs standard

Funding Agencies: Data extraction for this study was supported in part by an investigator-initiated grant from Janssen
POSTER 25

SITAGLIPTIN FOR THE TREATMENT OF NON-ALCOHOLIC STEATOHEPATITIS IN PATIENTS WITH TYPE 2 DIABETES
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Background: The prevalence of non-alcoholic fatty liver disease (NAFLD) is increasing worldwide. This is likely due to the rising numbers of those with impaired insulin sensitivity, dyslipidemia and obesity. NAFLD is best characterized based on histologic changes with non-alcoholic steatohepatitis (NASH) showing the presence of hepatocyte damage, inflammation and possible fibrosis. Pharmacotherapy has been a growing area of interest to treat NAFLD, specifically through modifying underlying risk factors. In patients with type two diabetes mellitus (DM2), oral hypoglycemic agents such as sitagliptin have proven to be effective. As a highly selective dipeptidyl peptidase-4 (DPP-4) inhibitor, it has proven to decrease HbA1C levels while being weight neutral.

Aims: To determine improvement in liver disease with sitagliptin therapy among patients with DM2 and NASH.

Methods: A randomized double-blinded, placebo-controlled pilot study of sitagliptin therapy (100 mg/day) in patients with biopsy proven non-alcoholic fatty liver disease and type two diabetes mellitus. After baseline evaluation, repeat liver biopsy, anthropometric and biochemical measurements were performed 6 months following treatment. Primary outcome was improvement in liver histology, assessed using the non-alcoholic fatty liver disease activity score (NAS) and change in hepatic steatosis measurement using MRI Iterative Decomposition of water and fat with Echo Asymmetry and Least-squares estimation (IDEAL). Secondary outcomes included improvement in the individual components of the NAS and liver fibrosis.

Results: Twelve patients completed follow up. There was no significant reduction in NAS (0.20, P > 0.999) 95% CI (-1.62, 2.02) or MRI IDEAL (2.0, P = 0.639) 95% CI (-7.3, 11.2) in those treated with sitagliptin compared to placebo. There was a non-significant improvement in hepatocyte ballooning, but no improvement in lobular inflammation (0.60, P = 0.156) 95% CI (-0.13, 1.33), steatosis (0.00, P = 0.908) 95% CI (-1.08, 1.08) or fibrosis (0.40, P = 0.233) 95% CI (-0.98, 1.78).

Conclusions: Use of sitagliptin therapy in non-alcoholic fatty liver disease patients with DM2 did not lead to a significant improvement in liver histology or hepatic fat measurement on MRI. The small number of patients as well as the relatively short follow up duration of study may have an effect on potential clinical significance.

Funding Agencies: PSI - Physicians Services Inc. Foundation
CAN FECAL CALPROTECTIN PREDICT THE FUTURE?
L. Kwapisz3, M. Mosli4, N. Chande2, B. Yan1, M. Beaton1, J. Micsko1, W. Barnett1, K. Bax1, T. Ponich1, J. Howard1, A. Tirolese1, R. Lannigan1, J. Gregor1
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Background: Fecal calprotectin (FC) is a marker of bowel inflammation that is currently used to diagnose and evaluate inflammatory bowel disease (IBD). In a previously reported prospective diagnostic cohort study, rapid FC testing was helpful in identifying patients with active IBD (Kwapisz et al, Saudi J Gastro 2015). The same cohort was then followed up for one year and re-evaluated.

Aims: The aim of this study is to assess if FC levels could predict future bowel inflammation manifesting as IBD relapse requiring escalation of therapy or diagnosis of IBD in patients previously diagnosed with IBS at baseline.

Methods: 126 consecutive adult patients who presented to outpatient clinics with lower gastrointestinal symptoms provided high range FC samples within 4 weeks of their baseline scheduled endoscopic assessment. All patients were followed up for at least one year and monitored clinically for any change in symptomatology, escalation of therapy, or development of IBD, confirmed endoscopically. IBD flare-ups required endoscopic confirmation. Escalation of therapy included any intensification in dosage, frequency, or addition of new therapies for IBD such as: 5-ASA agents, corticosteroids, immunosuppressants, TNF antagonists, leukocyte trafficking inhibitors, investigational drugs, or need for surgery. Diagnosis of IBD was based on conventional clinical, endoscopic and histologic criteria.

Results: 126 patients, of whom 66 were females, were included with a mean age of 44.4 years (+-16.7). At baseline, 72 had known IBD and active endoscopic evidence of disease activity. Utilizing an FC cut-off of 100 μg/g, 66% (33/50) of patients with endoscopically active IBD went on to have escalation in therapy within one year. Among those with FC levels <100 μg/g, only 18% (4/22) required an increase in therapy. Thirty three percent (2/6) of patients with quiescent IBD at baseline who had FC levels >100 μg/g, required escalation in therapy due to disease flare up, whereas none of those with FC levels <100 μg/g (0/12) needed change in therapy. Lastly, for patients who did not have IBD and had normal endoscopic evaluation with an FC level >100 μg/g, none (0/17) were diagnosed with IBD within one year.

Conclusions: Elevated FC concentrations in the absence of endoscopically visible IBD can predict future relapses requiring escalation of therapy in those known to have IBD, and future development of IBD in IBS patients.

Funding Agencies: None
CLINICAL, ENDOSCOPIC, AND CYTOPATHOLOGIC DETERMINANTS OF NON-DIAGNOSTIC ENDOSCOPIC ULTRASOUND GUIDED FINE NEEDLE ASPIRATION IN SOLID PANCREATIC MASSES

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Background: Endoscopic ultrasound guided fine needle aspiration (EUS-FNA) diagnostic yield in solid pancreatic masses should be approximately 75% based on previously published studies. A recent quality improvement study of our EUS-FNA results for pancreatic masses revealed non-diagnostic results in 47% of cases, despite having rapid on-site evaluation (ROSE). This study was completed to determine reasons for low diagnostic EUS FNA in solid pancreatic masses.

Aims: The aim of this study was to determine the clinical, procedural, and cytopathologic features that predict a non-diagnostic EUS-FNA for a pancreatic mass

Methods: Retrospective chart review of all EUS-FNA cases performed for pancreatic masses between January 2010 and Dec 31, 2014. Predictors of a non-diagnostic EUS-FNA including patient related risk factors for pancreatic cancer, imaging characteristics, tumor marker, EUS-FNA procedural factors, and ROSE evaluations were recorded. Cases were considered diagnostic if their cytopathology were reported as either 1) positive for a malignancy, or 2) negative for a malignancy in the setting of sufficient cellularity. Cases were deemed non-diagnostic if cytopathology were reported as: 1) suspicious for malignancy, 2) atypical, 3) indeterminate, or 4) insufficient. Potential predictors of non-diagnostic EUS-FNA were assessed using univariate and multivariate logistic regression modeling.

Results: A total of 254 pancreatic masses were included in this study. One hundred sixty were in the head of the pancreas, 61 in the body, and 15 in the tail, 1 in the uncinate, and 8 not reported.

Of these lesions, 103 were diagnostic and 142 non-diagnostic. No significant patient clinical factors predicted non-diagnostic FNA. The only statistically significant determinant for non-diagnostic FNA was mass location in the head of the pancreas.

On multivariate analysis, the odds ratio for a non-diagnostic specimen in the head compared to elsewhere in the pancreas else was 2.6 (p=0.007).

EUS procedural factors (including needle size, number of passes, year of procedure, physician and trainee involvement) did not affect probability of diagnostic specimen. Non-diagnostic samples were not associated with any particular cytopathologist.

Conclusions: Lesions in the head of the pancreas were associated with a higher non-diagnostic EUS FNA rate compared to lesions elsewhere in the pancreas. The reason for this requires further study. Efforts to optimise sampling and interpretation of pancreatic head lesions should be a focus of quality improvement programs in centers with low diagnostic rates in EUS FNA.

Funding Agencies: None
VALIDATION OF ADMINISTRATIVE DATA FOR CAPTURING CROHN’S DISEASE PATIENTS REQUIRING SURGICAL BOWEL RESECTION

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**Background:** Administrative databases have been widely used to evaluate surgical outcomes in Crohn’s disease (CD) patients but the validity of administrative data for defining the diagnosis of CD and CD-related bowel resections has not been adequately validated.

**Aims:** To evaluate the accuracy of International Classification of Disease (ICD) coding in identifying patients who are admitted for CD and undergo bowel resection.

**Methods:** Population-based surveillance was conducted in the Calgary Health Zone between January 1 and December 31, 2011 using the Discharge Abstract Database to identify adults (≥18 years) admitted for CD who underwent surgical resection using Canadian Classification of Health Intervention (CCI) coding. Surgical resection codes were stratified by site of resection, surgical approach, surgical urgency, and post-surgical anatomy (anastomosis, stoma, or pouch). The administrative data was validated against chart review and reported as a positive predictive value (PPV) with 95% confidence interval (CI).

**Results:** The administrative database identified 104 admissions of CD requiring bowel resection and correctly identified the diagnosis of CD in 101/104 patients (97.1%, Figure 1). Administrative data was highly predictive for small bowel (PPV 0.86 [95% CI: 0.70-0.95]) and large bowel CD (PPV 1.00 [0.80-1.00]), but was less accurate for ileocolonic CD (PPV 0.67 [0.46-0.83]). Sensitivity for ileocolonic CD improved when K50.8 and K50.9 (CD, unspecified) codes are combined (0.85 [0.68-0.94]).

112 surgical resections were performed. The administrative data was accurate in identifying partial small (PPV 0.87 [0.75-0.94]) or large bowel resections (PPV 0.81 [0.64-0.91]), but less accurate for partial rectal excisions (PPV 0.57 [0.22-0.88]). It was also accurate for defining elective surgery (PPV 0.90 [0.79-0.96], and open (PPV 0.93 [0.84-0.97]) vs. laparoscopic (PPV 0.83 [0.67-0.93]) approach but was only moderately predictive of post-surgical anatomy (Table 1).

**Conclusions:** In CD patients requiring bowel resection, administrative data accurately identifies large or small bowel CD, surgical urgency, location, and approach but is limited for defining ileocolonic CD and post-surgical anatomy. This may reflect the heterogeneous clinical phenotype and complex operations required in this cohort.

**Table 1 - Validation of Surgical Procedure Codes**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Total Codes (n, %)</th>
<th>Resections (n, %)</th>
<th>PPV (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgical Approach</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Open</td>
<td>74 (67.3)</td>
<td>79 (70.5)</td>
<td>0.93 [0.84-0.97]</td>
</tr>
<tr>
<td>Laparoscopic</td>
<td>36 (32.7)</td>
<td>35 (31.3)</td>
<td>0.88 [0.72-0.96]</td>
</tr>
<tr>
<td>Surgical Urgency</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elective Surgery</td>
<td>63 (57.2)</td>
<td>73 (65.1)</td>
<td>0.90 [0.79-0.96]</td>
</tr>
<tr>
<td>Surgical Excision</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partial excision small intestine</td>
<td>55 (50.0)</td>
<td>57 (50.9)</td>
<td>0.87 [0.75-0.94]</td>
</tr>
<tr>
<td>Partial excision large intestine</td>
<td>37 (33.6)</td>
<td>38 (33.9)</td>
<td>0.81 [0.64-0.91]</td>
</tr>
<tr>
<td>Partial excision rectum</td>
<td>7 (6.4)</td>
<td>5 (4.5)</td>
<td>0.57 [0.20-0.88]</td>
</tr>
<tr>
<td>Total excision large intestine</td>
<td>4 (3.6)</td>
<td>5 (4.5)</td>
<td>1.00 [0.40-1.00]</td>
</tr>
<tr>
<td>Total excision rectum</td>
<td>7 (6.4)</td>
<td>7 (6.3)</td>
<td>0.86 [0.42-0.99]</td>
</tr>
<tr>
<td>Post Surgical Anatomy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simple Excision</td>
<td>16 (15.1)</td>
<td>10 (9.0)</td>
<td>0.50 [0.26-0.74]</td>
</tr>
<tr>
<td>Enterostomy</td>
<td>6 (5.7)</td>
<td>11 (9.9)</td>
<td>0.50 [0.14-0.86]</td>
</tr>
<tr>
<td>Enterocolostomy</td>
<td>51 (48.1)</td>
<td>59 (53.2)</td>
<td>0.88 [0.75-0.95]</td>
</tr>
<tr>
<td>Colocolostomy</td>
<td>5 (4.7)</td>
<td>7 (6.3)</td>
<td>0.80 [0.30-0.99]</td>
</tr>
<tr>
<td>Colo/ileorectal anastomosis</td>
<td>4 (3.8)</td>
<td>3 (2.7)</td>
<td>0.50 [0.09-0.91]</td>
</tr>
<tr>
<td>Stoma or pouch</td>
<td>24 (22.6)</td>
<td>21 (18.9)</td>
<td>0.79 [0.57-0.92]</td>
</tr>
</tbody>
</table>

**Funding Agencies:** None
MEDICAL AUDIT: A PRACTICE REVIEW OF THE RATE OF H. PYLORI OBTAINED DURING ACUTE MANAGEMENT OF UPPER GASTROINTESTINAL BLEEDING.
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Background: Peptic ulcer disease (PUD) is one of the main causes of acute upper gastrointestinal bleed (UGIB). The major risk factors of PUD are Helicobacter pylori (HP) infection and NSAIDs use. The most recent guideline from European Society of Gastroenterology on the management of non-variceal UGIB recommends investigating for the presence of HP in acute UGIB secondary to PUD.

Aims: To determine whether obtaining biopsy during the upper endoscopy (EGD) for acute UGIB is a routine practice in our center.

Methods: In a six-month period between October 2014 to March 2015, 98 patients were admitted to Saint Paul's Hospital, Vancouver, British Columbia, with initial diagnosis of UGIB. 13 patients were excluded: 6 had UGIB outside the aforementioned period, 2 had no official records of EGDs, and 5 had lower endoscopies. 85 with EGDs for UGIB were included in this study. Patients' age, gender, EGD findings, PUD Forrest classification, HP biopsy, and any further recommendation for HP serology were documented.

Results: The average age of included subjects was 66 years, with 29 females and 56 males. 37 patients (41.4%) had documented PUD as the most likely cause of UGIB, with Forrest classification III (23/36), IIC (4/36), IIB (2/36), IIA (5/36), IB (2/36), and IA (1/36), recording the most severe PUD pathology per patient. Other causes of UGIB in index patients were: 10 cases of esophagitis (i.e. post-variceal banding and GE junction ulcers), 9 with gastropathies (i.e. erosions, gastritis), 14 patients with normal EGDs, 7 with angiodysplasias (i.e. AVM, GAVE, portal hypertensive gastropathy), 6 with Mallory-Weiss tears, 1 with a bleeding submucosal lesion, 1 with an ulcerated hyperplastic polyp and 1 with variceal UGIB. 45 patients (52.9%) had HP biopsies from gastric antrum and body. 1 patient became combative prior to planned biopsy, so instead HP serology was recommended. 1 patient who had HP biopsy during EGD was also empirically started on appropriate HP eradication treatment. After looking more closely at the UGIB etiologies, 7 out of 37 (19%) patients with confirmed PUD did not have biopsy obtained for HP or any recommendations regarding further HP testing at the time of endoscopy.

Conclusions: We have demonstrated that obtaining H. pylori biopsy in the setting of acute upper gastrointestinal bleeding may not be obtained routinely, despite strong recommendation for such practice during the endoscopic management of UGIB, particularly secondary to PUD. Further quality improvement projects are required to evaluate such limitations, and implement the quality measures to ensure H. pylori biopsy will become part of the routine management of acute upper gastrointestinal bleed in the setting of PUD.

Funding Agencies: None
ACADEMIC OUTPUTS AND UTILITY OF GRIT COURSE ABSTRACT PRESENTATIONS: THE UBC EXPERIENCE

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Background: The Gastroenterology Residents-in-Training (GRIT) Course is held in conjunction with the annual Canadian Digestive Disease Week. Its predecessor was the Post Graduate Course in Gastroenterology. The format of the GRIT Course, and its predecessor, requires Gastroenterology trainees to submit an abstract, and if accepted, they are then allowed to attend the meeting. At UBC, it is strongly recommended that trainees submit to the meeting. The academic utility of the experience to the trainee and the outcome of the submitted abstracts, however, remains unknown.

Aims: To assess the utility of the GRIT course from a UBC academic perspective by reviewing the outcomes (including publication and presentation at international meetings) of the projects submitted and to determine the value of the process to the trainees.

Methods: A list of former Gastroenterology trainees was obtained from the UBC database. A questionnaire composed of 11 multiple choice questions was sent to all former and current trainees.

Results: 88.8% of fellows responded (32 of 36). 43.75% are currently working in Academic Centers, 37.5% are in the Community, and 18.75% are still in training (that may be extra to core GI training). The abstract was a case report (33.3%), a clinical research (61.9%), or a basic science project (4.8%). 43.75% were presented at international meetings. 68.75% were published (only one was a non-peer review paper). The reasons for not publishing were: “Too busy and not enough time given during my training” (22.2%), “the abstract was appropriate for the GRIT/CDDW meeting, I did not feel that it was strong enough to be published in a journal” (44.5%) “the abstract reported work that was part of a greater research project and I was not significantly involved in the overall project” (33.3%). 21.8% received awards for their projects in GRIT either at the GRIT or at UBC trainee research days. 68.3% thought the GRIT experience was worthwhile, although one responder thought it was irrelevant.

Conclusions: We can conclude that more than two third of the projects submitted to GRIT were published, although less than half were presented internationally. The main reason for not publishing was that the abstract was not felt strong enough to be published. Most responders thought that the GRIT experience was worthwhile.

Funding Agencies: None
ATLANTIC MULTI-ORGAN TRANSPLANT PROGRAM QUALITY IMPROVEMENT PROJECT: ISCHEMIC-REPERFUSION INJURY AND GRAFT DYSFUNCTION POST LIVER TRANSPLANT

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Background: The incidence of graft dysfunction due to hepatic preservation injury (HPI) may be as high as 27% after deceased-donor liver transplant (LTx). The extent of hepatocellular damage is commonly assessed according to the opening aspartate aminotransferase (OAST) levels. The trends have not been documented in our Program.

Aims: This quality improvement project was designed to evaluate frequency, trends and outcomes of HPI as determined by measurement of the OAST levels in LTx recipients within Atlantic Canada (AC).

Methods: We used the Atlantic Multi-Organ Transplant Program (MOTP) database to extract data on our LTx patients between 2010 and 2015 (Table 1). Patient identifiers were removed and we used MINITAB for statistical analysis. Three groups of patients were compared according to the extent of HPI. Group 1 (Minor injury: AST < 1000 U/L), group 2 (moderate: AST 1000-5000 U/L), and group 3 (severe: AST > 5000 U/L). Postoperative HPI of the transplanted graft was estimated by peak values of the enzyme AST during the first 72 hours post surgery.

Results: There were a total 123 LTx in 115 patients, with 8 retransplants. OAST levels within the first 72 hours after LTx were 2,124±2,274 (mean±SD) U/L with a median of 1,220 U/L. The mean peak AST, deaths, retransplants, death or retransplantation and patient status (CanWAIT classification) are demonstrated in (Table 1). During the mean follow up of 913±639 days with a median 901 days, there were 25 deaths due to graft failures. Those with severe injury had death or graft failure of 38.9%, versus 29.1% in those with moderate injury and 20.0% in those with minor injury (Table 1).

Conclusions: OAST levels post LTx are a well known measure of hepatocellular injury due to ischemia-reperfusion. This quality improvement project will allow us to identify reversible factors that may reduce HPI and postoperative morbidity and mortality.

Table 1

<table>
<thead>
<tr>
<th></th>
<th>Group 1 (Minor Injury)</th>
<th>Group 2 (Moderate injury)</th>
<th>Group 3 (Severe injury)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient, n (%)</td>
<td>50(40.7%)</td>
<td>55(44.7%)</td>
<td>18(14.6%)</td>
</tr>
<tr>
<td>Mean Peak AST</td>
<td>573</td>
<td>1,860</td>
<td>6,917</td>
</tr>
<tr>
<td>Deaths, n (%)</td>
<td>7(14%)</td>
<td>13(23.6%)</td>
<td>5(27.8%)</td>
</tr>
<tr>
<td>retransplant, n (%)</td>
<td>3(6.0%)</td>
<td>3(5.5%)</td>
<td>2(11.1%)</td>
</tr>
<tr>
<td>Death and retransplant</td>
<td>10 (20.0%)</td>
<td>16(29.1%)</td>
<td>7(38.9%)</td>
</tr>
<tr>
<td>Ratio M/F</td>
<td>1.33</td>
<td>2.67</td>
<td>1.25</td>
</tr>
<tr>
<td>Status 1, n (%)</td>
<td>28(56.0%)</td>
<td>31(56.4%)</td>
<td>9(50.0%)</td>
</tr>
<tr>
<td>Status 1T, n (%)</td>
<td>13(26.0%)</td>
<td>14(25.5%)</td>
<td>5(27.8%)</td>
</tr>
<tr>
<td>Status 2, n (%)</td>
<td>7(14.0%)</td>
<td>3(5.5%)</td>
<td>1(5.6%)</td>
</tr>
<tr>
<td>Status 3, n (%)</td>
<td>1(2.0%)</td>
<td>4(7.3%)</td>
<td>2(11.1%)</td>
</tr>
<tr>
<td>Status 4, n (%)</td>
<td>1(2.0%)</td>
<td>3(5.5%)</td>
<td>1(5.6%)</td>
</tr>
</tbody>
</table>

Funding Agencies: None
POSTER 32

DOUBLE-BALOON ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY IN PATIENTS WITH SURGICALLY ALTERED ANATOMY: A SINGLE CENTER EXPERIENCE

University of Alberta, Edmonton, AB, Canada.

Background: Balloon assisted enteroscopy has improved our ability to perform endoscopic retrograde cholangiopancreatography (ERCP) in patients with surgically altered anatomy. We reviewed the experience with double-balloon ERCP (DBE-ERCP) in patients with altered anatomy and suspicion of biliary obstruction in a tertiary center.

Aims: To assess procedure indications, rates of success and procedural related complications with DBE-ERCP.

Methods: Retrospective analysis of all patients who underwent DBE-ERCP at the University of Alberta hospital between August 2011 and September 2015.

Results: A total of 57 DBE-ERCPs were performed in 28 patients (16 males) with a mean age of 51 ± 19 years (range: 20-81) using a short-type double balloon enteroscope. Twenty-seven patients had a Roux-en-Y reconstruction (25 hepatico-jejunostomies) and one patient had a prior Billroth-II gastro-jejunostomy. There were 19 patients that had previous liver transplantation (9 cadaveric, 10 living donor). Mean time from surgery to the first DBE-ERCP was significantly lower in liver transplant patients compared to other surgeries [1100 ± 1466 vs 3950 ± 3826 days, (p = 0.01)]. There was a trend to earlier DBE-ERCP in living related vs cadaveric transplants [1826 ± 1907 vs 519 ± 619 (p = 0.06)]. The main indications for procedures were suspicion of stricture at the hepatico-jejunostomy [n=25 (44%)], recurrent cholangitis [n=21 (37%)] and stent retrieval [n=8 (14%)]. Therapeutic maneuvers included: stricture dilation (n=31), extraction of stones (n=10), stent placement (n=10) and stent retrieval (n=8). The hepatico-jejunostomy or major papilla was reached in 46 of 57 procedures (81%). Bile duct cannulation was successful in 40 of 46 procedures (87%). The mean number of procedures per patient was 2 ± 1.5 (range: 1-7 procedures). The number of procedures was higher in those with liver transplantation compared to other surgeries [mean: 2.5 ± 1.7 vs 1.3 ± 0.48 (p=0.04)]. There were two patients with mild cholangitis that resolved with intravenous antibiotic therapy.

Fourteen patients required stenting and dilation of the hepatico-jejunostomy. No subsequent intervention was required in ten of these patients after a mean of 3.1 ± 1.9 (range 1-7) procedures. In 4 patients, subsequent percutaneous drainage (PTC) was required for failure of endoscopic therapy, mean time to PTC was 136 days ± 104 (30-274).

Conclusions: DBE-ERCP allows for successful therapy in patients with surgically altered anatomy of the upper-GI tract. Our single center study suggests this is a safe, and effective first line option at managing post-surgical biliary obstruction/strictures, however more than one session is generally required to achieve good outcomes.

Funding Agencies: None
INCIDENCE OF VENOUS THROMBOEMBOLISM IN GASTROINTESTINAL BLEEDING
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Background: Venous thromboembolism (VTE) is a common complication of hospital admission. For patients admitted with gastrointestinal bleeding (GIB), confusion can arise as to whether it is in the patient’s best interest to use pharmacological prophylaxis against VTE.

Aims: This was a pilot study to assess the use of VTE prophylaxis and the incidence of VTE in patients admitted to hospital with GIB.

Methods: Hospital charts of adult patients admitted for GIB from 2009-2011 at one centre in Ontario were reviewed. Charts were pulled in aliquots of 50 sequentially admitted patients. Those with previously diagnosed VTE, risk factors for VTE (malignancy, active inflammatory bowel disease, hypercoaguable state, thrombophilia, or myeloproliferative disorder), or hospital stay less than 24 hours were excluded. Patients were classified as having "confirmed" GI bleeding or "probable" GI bleeding based on reported history and physical exam. Criteria for being classified as "confirmed" included having hematochezia, melena, hematemesis, or coffee ground emesis observed by a physician or documented GIB on endoscopy at time of admission. Hospital records were reviewed for the presence of mechanical foci for thrombus formation (e.g. central venous catheters or inferior vena cava filters), smoking and alcohol use, admission to hospital within the previous 6 months, use of pharmacological prophylaxis for VTE while in hospital, death, and incidence of VTE within 6 months from index admission.

Results: 250 patient charts were reviewed. After exclusions, 125 patients were included in the analysis. 69 patients were "confirmed" GIB and 56 were "probable." 7 (10.1%) of the confirmed cases were given VTE prophylaxis whereas 11 (19.6%) of the probable cases received the same. There were 2 VTE events; a pulmonary embolism in "Patient A" and a right internal jugular vein thrombus in "Patient B," both of whom were confirmed GIB patients. Patient A had a history of cigarette and alcohol use and was not given pharmacological VTE prophylaxis. Patient B had a right central venous catheter and was given pharmacological VTE prophylaxis. 4 patients died, 2 of whom had been given VTE prophylaxis. Neither of the 2 patients with VTE died.

Conclusions: These data suggest that patients in whom the diagnosis of GIB is clinically obvious are less likely to receive pharmacological VTE prophylaxis and that this may translate into an increased risk for VTE events. VTE does not appear to increase the occurrence of death in GIB. A larger review encompassing more events will help deliniate these relationships further.

Funding Agencies: None
HIRSCHSPRUNG DISEASE AS A CHALLENGING DISEASE: DATA FROM A PEDIATRIC HIRSCHSPRUNG COHORT IN QUEBEC, CANADA

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Background: Hirschsprung disease (HSCR) is a congenital disorder of the enteric nervous system, incidence 1:5000 of live births and male to female ratio of 4:1. Treatment is surgical resection of the aganglionic segment and anal pull-through surgery. Bowel dysfunctions such as fecal incontinence or constipation are known complications and can impair quality of life.

Aims: Determination of the phenotype and long-term outcome of a HSCR population.

Methods: Retrospective study of patients with HSCR diagnosed between 1994 and 2014 at Sainte-Justine Hospital.

Results: 101 patients were identified (22 F). 68 patients had short form (rectosigmoid), 16 long form (descending ± transverse ± ascending colon), 5 total colonic and 4 extended aganglionosis; data not available in 8. 37 patients had other malformations (cardiac malformations, n=27; intestinal atresia, n=3; urinary tract malformation, n=6; skeletal malformation, n=9; sensory-neuronal anomalies, n=9; endocrinopathies, n=9). 14 patients were diagnosed with Trisomy 21, 2 with Smith Lemli Opitz syndrome and 2 with Ondine syndrome. Five patients died after birth (4 with Trisomy 21 and one with Ondine syndrome). Patients underwent modified Swenson or modified Soave procedure. Median age at first surgery (one-step repair, n=68; two-step repair with colostomy or ileostomy, n=26; n.a., n=7) was 5.5 weeks (range 1-412 weeks), median weight at first surgery was 3.55kg (range 2.45-18.9kg). Necrotizing enterocolitis and/or bowel perforation occurred in 23 patients pre-surgery (short form, n=12; long form, n=5; total colonic, n=3; extended form, n=2, n.a., n=1) and in 15 after surgery (short form, n=10; long form, n=4; extended form, n=1). Post-surgery follow-up was available in 87 patients (median duration 61 months, range 3-223 months). Anal dilatations were performed in 71 children (40 with anastomotic anal stenosis) from 3 to 189 weeks of age, maximal daily/minimal monthly. Constipation and fecal incontinence were reported in 36 and 51 patients respectively (23 suffered from both). Median age at date of diagnosis of constipation and fecal incontinence was 41 and 51 months respectively.

Conclusions: Distribution of type and age was comparable with the literature. Complications prior to surgery were more frequent in the longer form than in the short form (40% vs 18%). During follow-up fecal incontinence was more present than constipation. This study demonstrates the potentially complicated and complex course of HSCR. If phenotype, surgery, complications and genotype influence the long-term outcome has to be confirmed. A prospective study in collaboration with the university of Québec in Montreal is ongoing.

Funding Agencies: None
LIVER TRANSPLANT IN AN INFANT PRESENTING WITH HEPATIC FAILURE SECONDARY TO SEVERE PYRUVATE KINASE DEFICIENCY

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Background: Pyruvate kinase deficiency (PKD) is the most common cause of congenital nonspherocytic chronic hemolytic anemia and results from an erythrocyte enzyme defects. Patients with pyruvate kinase deficiency can have a broad spectrum of clinical manifestations, ranging from mild asymptomatic anemia to severe and transfusion dependent anemia. Most patients normally present with some degree of hemolysis, hyperbilirubinemia, anemia and splenomegaly. Only few reports have documented associated severe progressing liver failure.

Aims: To describe the case of an infant with severe pyruvate kinase deficiency leading to liver failure and requiring liver transplantation.

Methods: We retrospectively reviewed the medical chart of our patient with pyruvate kinase deficiency and liver failure. All articles about such a rare complication of pyruvate kinase deficiency published in the English literature from 1962 o October 2015 were reviewed.

Results: Our patient presented with severe hemolytic anemia and cholestasis at birth, requiring double exchange transfusion and repeated transfusions thereafter. He subsequently developed progressive cirrhosis, portal hypertension, ascites and liver failure requiring prolonged hospitalization and biweekly paracentesis. Two liver biopsies done more than one month apart showed progressive liver fibrosis. Despite extensive investigations, the only identified etiology for cholestasis and liver failure was compound heterozygous mutations for PKD and single heterozygous mutation for ABCB4, the latter being a likely benign variant. The patient was transplanted at 6 months of age and underwent a splenectomy during the same intervention. To the best of our knowledge, only three cases of severe hepatic failure secondary to PKD have been reported but this is the first to have successfully undergone liver transplant.

Conclusions: The hepatic failure in patients with severe pyruvate kinase deficiency is most likely multifactorial, involving prenatal hemolysis with subsequent bile ducts obstruction, minimal inflammation secondary to iron overload and extramedullary hematopoiesis, but the most likely explanation is that genetic mutations of PKLR in our patient affect both the expression of PK-R (in erythrocytes) and PK-L (in hepatocytes) with an inappropriate compensation of PKM2, leading to severe and fatal enzymatic defect.

Funding Agencies: None
EFFICACY AND SAFETY OF OVER-THE-SCOPE CLIP (OTSC) IN THE ENDOSCOPIC CLOSURE OF FISTULA AND PERFORATION IN THE GASTROINTESTINAL TRACT: A CASE SERIES

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Background: Over-the-scope clip (OTSC) (Ovesco Endoscopy GmbH, Tübingen, Germany) is a novel device utilized in the management of fistula, perforation, dehiscence, and bleeding in the gastrointestinal tract via tissue approximation and compression.

Aims: To determine the efficacy and safety of OTSC in the endoscopic closure of fistula and perforation in the gastrointestinal tract.

Methods: A retrospective chart review was performed.

Results: Seven patients (mean age 62.9 years; 3 women [42.9%]) were treated with OTSC from 10/13 to 03/15 in an outpatient (42.9%) or inpatient (57.1%) setting and on an elective (14.3%), semi-elective (42.9%), or urgent (42.9%) basis. The gastrointestinal diagnosis and treatment were nausea/vomiting with fistulizing percutaneous endoscopic gastrostomy tube (n = 1), duodenal ulcer perforation with failed Graham omental patch (n = 1), gastric cancer with total gastrectomy and leaking esophagojejunual anastomosis (n = 1), transverse colon cancer with left hemicolecctiony and fistulizing primary anastomosis (n = 1), and rectosigmoid cancer with low anterior resection and leaking primary anastomosis (n = 3). The OTSC was utilized in the endoscopic closure of gastrocutaneous fistula (n = 1), duodenal ulcer perforation (n = 1), jejunocutaneous fistula (n = 1), colocutaneous fistula (n = 1), and rectocutaneous fistula (n = 3). The defect size ranged from 2 to 10 mm. Technical success with defect closure was achieved completely in 62.5% (5/8 clips) and partially in 25.0% (2/8 clips). There were no complications related to OTSC application. Additional interventions were hemoclips (n = 2), argon plasma coagulation (n = 1), sclerotherapy with histoacryl and lipiodol (n = 2), and hyperbaric oxygen (n = 1). Clinical success was achieved in 71.4% (n = 5). One patient required surgical resection of fistula for definitive management. Another patient died of persistent bleeding from anastomotic site.

Conclusions: The endoscopic application of OTSC appeared to be safe. The rates of technical success and long-term clinical success were satisfactory. Future prospective studies should compare the relative efficacy of OTSC to other endoscopic modalities in an effort to determine the most optimal indications and to maximize clinical outcomes.

Funding Agencies: None
ANALYSIS OF SAFETY AND EFFICACY OF SOFOSBUVIR-BASED THERAPY IN LIVER TRANSPLANT ASSESSED HEPATITIS C PATIENTS
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Background: Hepatitis C (HCV) infection remains the most common indication for liver transplant despite our current novel therapies with substantial cure rates. HCV Infection management in prospective and post-liver transplant patients has been evolving over the past decade with the adoption of newer treatment strategies given the tolerability these agents. Recent studies have evaluated the use of IFN-free therapies in compensated and decompensated cirrhosis has shown promise with maintaining undetectable viral loads post transplant. HCV Patients treated with Sofosbuvir-based therapy have seen hepatic recovery albeit the degree and specific patient population in which this occurs is undetermined. The safety and efficacy of Sofosbuvir-based therapy in the transplant eligible liver disease population currently is unclear.

Aims: To assess the safety and efficacy of Sofosbuvir-based therapy in patients with HCV infection undergoing transplant assessment.

Methods: Analysis of prospectively collected data of a cohort HCV patients who have undergone liver transplant assessment at London Health Sciences Centre from January 2014 to December 2014. Patients who had commenced Sofosbuvir-based therapy were selected. Patient outcomes included sustained virologic response (SVR), MELD-Na score, Child-Pugh score and liver transplant status were analyzed.

Results: Interim analysis was performed on 44 patients. A total of 7 patients (16%), all genotype 1, had commenced Sofosbuvir-based therapy with 5 patients completing therapy achieving SVR. The mean MELD-Na score of these patients was 20.4 and mean Child-Pugh score was 9.3. 3/7 patients on therapy died, 1 from small bowel ischemia after completing therapy and 2 deaths prior to completion of therapy, both patients died from sepsis. 1 patient who achieved SVR was removed from the transplant list because of substantial clinical improvement, Child-Pugh B pre-treatment and Child-Pugh A post-treatment. 1 patient remained on the transplant list after achieving SVR. In total, 18 patients underwent orthotopic liver transplantation, of these 2 patients completed treatment and achieved SVR prior to transplantation. 8 patients were pending approval for Sofosbuvir-based therapy with 1 death awaiting approval. None of the patients discontinued therapy.

Conclusions: In this preliminary analysis, 25% of the HCV patients who achieved SVR were taking off the transplant list because of substantial clinical improvement. However, a larger sample size with be presented at Canadian Digestive Diseases Week.

Funding Agencies: None
SUCCESSFUL ERADICATION OF RECURRENT CLOSTRIDIUM DIFFICILE INFECTION (RCDI) OF SMALL BOWEL WITH FROZEN ENCAPSULATED FECAL MICROBIOTA TRANSPLANTATION (FMT) IN A PATIENT WITH CROHN'S DISEASE AND ILEOSTOMY

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Aims: We report a case of ileal-pouch Crohn’s disease with rCDI of small bowel who failed vancomycin treatment, and is successfully treated with frozen FMT from upper GI tract without any adverse events.

Methods: Case report

Results: A 31 year-old male underwent subtotal colectomy and ileostomy in Sept 2013 for ulcerative colitis as he did not respond to infliximab. His post operative course was complicated by high grade small bowel obstruction, requiring multiple hospital admissions, and subsequently found to have Crohn’s involving neoterminal ileum. His maintenance therapy consisted of infliximab at 10mg/kg q 4 weeks and methotrexate 25mg SQ weekly. At baseline, he empties his ileostomy bag 4-5 times per day, each time about 250 cc of mushy stools. He developed his first episode of CDE in Jan 2014, during one of these post operative admissions. His stool C. difficile toxin was positive with no other enteric pathogens or alternative diagnosis identified. Ileoscopy revealed only mild patchy mucosal inflammation. He was treated with oral metronidazole 1g daily for 10 days with symptom resolution. Unfortunately, his symptoms recurred within 2 weeks of discontinuing metronidazole. A repeat C diff toxin was again positive, and he responded well to a course of metronidazole. His symptoms recurred again within 2 weeks of discontinuing metronidazole, associated with positive C diff toxin again. He was then treated with a long tapered course of vancomycin, again with symptom resolution. Unfortunately, his diarrhea recurred shortly after discontinuing vancomycin. In total, he had 6 episodes of recurrent CDE between Jan 2014 and March 2015. He was referred to the Edmonton FMT Program for consideration of FMT in May 2015. He received encapsulated FMT, consisted of 30 capsules daily for 3 days, from one of the universal stool donors registered with the program. The patient reported having more formed stools in his ileostomy within the first week post FMT, and by week 3 his bowel habit had returned to baseline. He had no adverse events from FMT or rCDI during the follow-up period from May to Aug 2015. There are few literatures on successful treatment of small bowel rCDI using frozen encapsulated FMT. Not only do IBD patients have an increased risk of developing CDI, but they can also develop CDI in the small bowel and ileal pouch-anal anastomosis (IPAA) following colectomy. Post operative mechanical complications, male gender and serum immunoglobulin G1 deficiency have been identified as risk factors for recurrent pouch CDI.

Conclusions: Frozen encapsulated FMT appeared to be a safe and effective therapeutic alternative for patients with small bowel rCDI, and warrants further investigation.

Funding Agencies: None
USE OF RECTAL INDOMETHACIN FOR POST-ERCP PANCREATITIS PREVENTION: A QUALITY ASSURANCE STUDY

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Background: The evidence to date suggests that rectal indomethacin should be provided for post-ERCP pancreatitis (PEP) prevention for all high risk cases. This also benefits patients at average risk of PEP as well.

Aims: The aim of this quality assurance study is to determine the current use of rectal indomethacin for PEP prevention in our centre as well as its association with risk of PEP.

Methods: This is a retrospective chart review study for all ERCP cases performed at our institution from January to March 2015. Data regarding patient demographics and clinical status, procedure indication, interventions performed and use of indomethacin for PEP prevention was collected.

Results: Data from 41 ERCP cases where a sphincterotomy was performed was collected. The median patient age was 71 years and 54% were female. 24% of cases included the use of indomethacin for PEP prevention. Among cases that involved females under 50 years or patients with a history of pancreatitis, 11% received rectal indomethacin. Among the cases considered, two patients were seen in hospital for PEP (risk 5%) and no other complications were identified.

Conclusions: Rectal Indomethacin for PEP prevention is underused in our centre, especially among higher risk patients. However, the overall risk of hospitalization for PEP remained low. This is a retrospective chart study with a very small sample of patients. However, these results will be used to develop an algorithm aimed at identifying patients at elevated risk of PEP and facilitating increased use of rectal indomethacin for PEP prevention.

Funding Agencies: None
MARKEDLY ELEVATED SERUM ALPHA-FETOPROTEIN LEVELS NOT CAUSED BY HEPATIC MALIGNANCY IN TWO INFANTS WITH END STAGE LIVER DISEASE - A CASE SERIES.
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Background: Alpha Fetoprotein (AFP) is a classical tumor marker for epithelial liver tumours. However, when elevated in a pre liver transplant patient and a true source for malignancy cannot be sourced, they pose a diagnostic dilemma and a therapeutic challenge.

Aims: To describe the clinical course of two infants with markedly elevated serum AFP levels who underwent successful liver transplantation after negative extensive investigations for presumed hepatic malignancy.

Methods: This case series with systematic literature review was approved by the Research Ethics Board at SickKids. A retrospective chart review of the electronic medical records was undertaken.

Results: Infant A, Asian term female, presented with persistent neonatal cholestasis at 4 months. Expedited liver biopsy revealed biliary atresia. The infant was referred for liver transplant assessment. A hepatic lesion was noted on ultrasound amidst a grossly cirrhotic liver. The AFP peaked at 91,621mcg/L (normal <275mcg/L). Such marked elevation in AFP levels prompted extensive radiological investigations. Consultations were sought, culminating with consensus discussion at Surgery-Pathology-Radiology multidisciplinary meetings. At time of explant, histopathological analysis revealed no areas suspicious for malignancy. Infant B, 3 month old term Asian male, presented with persistent cholestasis and synthetic liver dysfunction. A liver biopsy and intraoperative cholangiogram demonstrated clear opacification of the duodenum and biliary tree. The infant was referred to the Liver Transplantation Program due to deteriorating liver function. During evaluation, his AFP increased from 39,396mcg/L to 156,406mcg/L peaking to 618,000mcg/L. A peripancreatic/porta hepatis mass was noted on CT and he was suspended on the liver transplant list. The clear natural history of his disease would have led to death. Extensive investigations and consultations were performed to evaluate for malignancy. The cause for the elevated AFP in the setting of end stage cholestatic liver disease cannot be explained.

Conclusions: As per the American Association Study of Liver Diseases liver transplant guideline, hepatocellular carcinoma is not a contraindication to transplant. However, extrahepatic disease is an absolute contraindication. The subsequent evaluation of an increasing serum AFP titre in a potential liver transplant recipient may delay the procedure while an explanation is sought.

Funding Agencies: None
POST-POLIO SYNDROME DYSPHAGIA-ESOPHAGEAL FIBROSIS POSES A PROCEDURAL RISK OF UPPER ESOPHAGEAL PERFORATION

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Aims: Post-polio syndrome (PPS) is a clinical diagnosis characterized by neuromuscular weakness, fatigability, and pain occurring years after recovery from acute poliomyelitis. PPS is an uncommon cause of dysphagia and bulbar dysfunction related to impaired oropharyngeal muscle function. The cause of neuromuscular dysfunction in PPS is not definitively understood, but in patients with dysphagia it is assumed that the esophagus would be widely patent and symptoms would occur on a transfer and motility basis. Muscular atrophy is commonly seen post poliomyelitis infection; however, muscular hypertrophy has been reported in rare instances.

Methods: There are no prior reported cases of structural abnormalities of the hypopharynx or proximal esophagus in association with PPS and there are no reports of an associated risk of perforation at the time of endoscopy.

Results: A 74 year old woman presented with a 5 year history of progressive oropharyngeal solid and liquid dysphagia. She had initial paralytic poliomyelitis as a teenager with both bulbar and limb muscle involvement. Her dysphagia improved within approximately one year of infection with mild residual solid food dysphagia. Her swallowing symptoms were relatively stable for approximately 50 years prior to deterioration. Initial investigation via laryngoscopy showed no structural abnormality; however, a video fluoroscopic swallowing study showed severely impaired pharyngeal function with silent aspiration and reduced opening of the upper esophageal sphincter. At the time of esophagogastroduodenoscopy (EGD) there was difficulty with esophageal intubation, thought related to cricopharyngeal spasm. A complete EGD was performed without evident abnormality. Post procedurally there was increasing pain and subsequent CT scanning showed significant retropharyngeal air and pneumomediastinum. Urgent ENT evaluation and esophagoscopy showed an abrasion and stenosis at the level of the cricopharyngeus that prevented esophageal intubation necessitating placement of a 24f bougie. Subsequent open left neck exploration showed a 5mm perforation at the level of the cricopharyngeus. The cricopharyngeus was thickened and densely fibrotic with the consistency of very thick scar tissue. A cricopharyngeal myotomy was performed for improvement in symptoms. No specimen was submitted to pathology.

Conclusions: Dysphagia is a common symptom in PPS patients and EGD is a commonly performed investigation in the evaluation of dysphagia. Our case highlights a possible increased risk of EGD in this patient population attributable to anatomic and functional changes of the upper esophageal sphincter leading to muscular thickening and fibrosis. We recommend appropriate caution at the time of EGD in this patient group and minimization of unnecessary procedures.

Funding Agencies: None
CYTOMEGALOVIRUS (CMV) COLITIS TRIGGERING INFLAMMATORY BOWEL DISEASE (IBD) IN AN IMMUNOCOMPETENT ADULT: A CASE REPORT AND REVIEW OF THE LITERATURE.

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Background: Cytomegalovirus (CMV) colitis is a rare condition in immunocompetent patients. When severe, CMV colitis can lead to significant morbidity and mortality. We describe CMV colitis developing in an immunocompetent adult and leading to IBD. We also provide a brief review of the literature related to this condition.

Aims: N/A

Methods: N/A

Results: A 36 year-old male, with no known past medical conditions but positive family history of ulcerative colitis, presented with a 5-day history of bloody diarrhea and mucus in the stool, associated with fever. On physical examination, he was noted to have swinging pyrexia, ranging between 37 and 40°C. No other signs were observed during the examination. His initial blood investigations and stool cultures did not reveal any abnormalities. The patient was admitted for further investigations. Computed tomography (CT) scan of the abdomen showed diffuse circumferential wall thickening involving the descending and sigmoid colon, consistent with colitis. Patchy non-specific colitis was observed during colonoscopy. Biopsies revealed non-specific inflammatory process. One week following his admission, pancytopenia and splenomegaly developed. A blood film was then ordered, which revealed non-specific findings. He was started on piperacillin/tazobactam and vancomycin for his febrile neutropenia. A complete viral serology workup showed positive CMV IgG and IgM, as well as a high CMV polymerase chain reaction (PCR) titer. A repeat colonoscopy with biopsies was positive for CMV. Immunodeficiency was then ruled out with the appropriate investigations. A 3-week course of intravenous ganciclovir therapy was completed. The patient then reported complete resolution of his symptoms. After four weeks he remained with diarrhea. A colonoscopy revealed left sided active colitis. Biopsies were consistent with ulcerative colitis. Patient was started on oral 5-ASA. On subsequent follow-up visit his symptoms had almost completely resolved.

Conclusions: The diagnosis of CMV colitis should be considered in immunocompetent adults presenting with a clinical picture of acute infectious diarrhea. In severe cases, early diagnosis and treatment with the appropriate antiviral therapy is essential in order to avoid serious complications. CMV colitis may trigger the onset of Ulcerative colitis.

Funding Agencies: None
MAIN-DUCT INTRADUCTAL PAPILLARY MUCINOUS NEOPLASM OF THE PANCREAS ASSOCIATED WITH SPONTANEOUS PANCREATICODUODENAL AND PANCREATICOGASTRIC FISTULAS

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Background: Intraductal papillary mucinous neoplasms (IPMNs) of the pancreas are slow growing neoplasms arising from the epithelial lining of the pancreatic duct system. IPMNs represent a spectrum ranging from benign to invasive carcinoma. IPMNs complicated by the development of fistulas, however, are rare.

Aims: To describe a case of a main-duct (MD) IPMN associated with spontaneous pancreaticoduodenal and pancreaticogastric fistulas.

Methods: Case report and literature review

Results: A 90-year-old woman with a prior history of a distal pancreaticojejunostomy for a pancreatic ductal carcinoma in situ 18 years ago, presented with cholangitis. An endoscopic retrograde cholangiopancreatography (ERCP) at the initial institution was unsuccessful due to altered anatomy. She was then transferred for percutaneous transhepatic cholangiography drain placement, which achieved biliary drainage. An esophagogastroduodenoscopy undertaken prior to a repeat ERCP showed a large gastric lesion with central ulceration along the greater curvature of the proximal body, with mucinous extrusion from the center and further drainage emanating from the second part of the duodenum obscuring visualization of the papilla (Fig 1). A multiphase CT of the pancreas showed an abnormal pancreaticobiliary system with a complex loculated cystic lesion in the pancreatic bed, approximately 13x6x16 cm in size, compressing the stomach and communicating to the greater curvature of the stomach and the superior wall of the third part of the duodenum (Fig 2). Histological examination of the gastric biopsies showed superficial villous architecture and gastric foveolar type epithelium with intestinal metaplasia and low grade dysplasia (Fig 3). This constellation of endoscopic, radiographic and histologic features was suggestive of malignant transformation of a MD-IPMN with spontaneous fistulization to the stomach and the duodenum.

The IPMN-associated fistulization to adjacent viscera has an incidence rate of 1.9%-6.6%. The mechanistic basis is hypothesized to include mechanical pressure, tumor penetration and pancreatic enzyme related autodigestion. While predominantly associated with malignancy, fistulization has also been reported in benign IPMNs. IPMN fistulas commonly involve the duodenum, followed by the stomach, CBD and colon. Whilst CT and MRI imaging characterize and diagnose IPMN fistulas, definitive diagnosis depends on histopathology. Accurate prognostic data on IPMN fistulas is unknown, however, scant literature suggests a 5-year survival rate of 43% after resection.

Conclusions: The rare complication of fistula formation in IPMN preferentially involves the duodenum, and usually occurs in the setting of malignant transformation. While uncommon, IPMN fistulization should be considered in the setting of cholangitis.

Funding Agencies: None
CHOLEDOLITHIASIS IN INFANCY
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Background:
Symptomatic choledocholithiasis in infancy is uncommon. While the underlying pathophysiology is unclear, increased incidence is observed in infants with prematurity, infection, dehydration, parenteral nutrition, furosemide and gastrointestinal dysfunction. A small number of case reports describe favourable outcome with conservative management.

Aims: Assess conservative management of choledocholithiasis.

Methods: We describe two cases of stone resolution using a combination of ursodeoxycholic acid and antibiotics. These cases suggest the potential application of this safe, noninvasive therapy as initial management in infants with choledocholithiasis.

Results:
Case 1: 2 month old healthy term baby presented with scleral icterus, conjugated jaundice and acholic stools. Abdominal ultrasound (US) revealed dilation of the common bile duct (CBD) and intrahepatic bile ducts with an echogenic shadowing focus in the distal CBD measuring 5 x 4 x 3 mm, consistent with a stone. The patient was started on intravenous (IV) Ampicillin, Gentamicin and Metronidazole for 10 days along with oral ursodeoxycholic acid. 5 days into treatment, a liver biopsy was performed revealing cirrhosis with severe diffuse cholestasis, severe hepatocellular degeneration, ductal proliferation and portal fibrosis, favouring an obstructive etiology. Intraoperative cholangiogram confirmed a dilated CBD however no visible stone was observed. A repeat US performed 14 days later reported a normal CBD and resolved choledocolithiasis. Liver enzyme elevation, acholic stools and jaundice resolved.

Case 2: 4 month old healthy term baby presented with jaundice and acholic stools. Abdominal US revealed a dilated CBD and intrahepatic bile ducts with a 4 mm stone in the distal CBD. The patient was treated with IV Ampicillin, Gentamicin, Metronidazole and oral ursodeoxycholic acid. Serial abdominal US were performed which demonstrated resolution of choledolithiasis after 10 days of treatment. Acholic stools and hyperbilirubinemia resolved. Investigations including metabolic, viral, thyroid and hemolysis work up were completed for both patients and revealed no abnormalities.

Conclusions: This case series highlights the potential benefit of a non-invasive approach to the management of choledocholithiasis, which may lead to resolution in both clinical symptoms and radiologic evidence of obstruction, avoiding the need for an invasive procedure. The postulated mechanism of action is a reduction in inflammation and edema associated with cholangitis, following antibiotic treatment. The use of ursodeoxycholic acid may help facilitate the passage of the stone by stimulating bile flow.

Funding Agencies: None
ENDOSCOPIC ULTRASOUND IN NOVA SCOTIA, A QUALITY ASSURANCE STUDY
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Background: Endoscopic ultrasound (EUS) is technique that utilizes endoscopic technology with an ultrasound transducer at the tip to allow visualization of submucosal lesions, and structures surrounding the gastrointestinal tract. Newer technology has allowed real-time fine needle aspiration (FNA) to be performed under EUS guidance. It has proven to be a highly sensitive tool for diagnosing lesions in and adjacent to the gastrointestinal tract.

Aims: Since the single most important function of EUS is in its ability to obtain tissue via FNA, our primary outcome measure will be yield of FNA for the various indications. Secondary outcome measures will include the referral base, indications, waiting time and complications of EUS in Nova Scotia. This quality assurance study will help in improving the EUS program in our province.

Methods: It is an observational, retrospective cohort study of all the men and women who had undergone EUS in Nova Scotia, in the CDHA, throughout the calendar year of 2013. Subjects of this research consist of 114 patients. Patient files will be analyzed to determine the reason for referral to EUS, the complications if any, and the waiting time for an EUS appointment in the outpatients settings. Results of EUS with or without FNA will be charted as well as the diagnosis obtained via cytological analysis.

Results: The most common reasons for referral to EUS were for evaluation of pancreatic mass/cyst (44 patients, 39%), and assessment of sub-mucosal lesions (26 patients, 22.8%). Other indications were lymph node FNA (mostly mediastinal), Dilated CBD, pancreatic cancer screening, chronic unexplained pancreatitis. Rectal EUS were performed in 4 patients; in which 3 of them referred for fecal incontinence and 1 had para-anal mass for FNA. A total of 49 FNA’s were performed by EUS for different indications; most of them were from a pancreatic mass/cyst, Lymph node and submucosal lesions; 69, 10 and 8 percent respectively. 82% of total FNAs results were conclusive, either positive or negative; among the FNA obtained from a pancreatic mass 85% were conclusive, while FNAs from Lymph node and submucosal lesions were conclusive in 60 and 50 percent respectively. The most common abnormal FNA results from the pancreas were pancreatic adenocarcinoma (46%) and mucinous neoplasia (30.7%). Other results included pancreatic lymphoma, metastatic malignancy from lymph node FNA, lung cancer and anal cancer.

4 patients developed complications post EUS, 2 (1.7%) had pancreatitis and 2 (1.7%) had mild bleeding.

Conclusions: EUS can be used for variety of indications, most commonly to further characterize a pancreatic lesion, with the ability of obtaining a tissue diagnosis through FNA with good diagnostic yield that guided patients management. It is a minimally invasive procedure with low complication rate.

Funding Agencies: None
SPINDLE CELL SQUAMOUS CELL CARCINOMA IN A PATIENT WITH CROHN'S DISEASE ON LONG-TERM IMMUNOSUPPRESSION: A CASE REPORT AND LITERATURE REVIEW

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**Background:** Treatment with thiopurines increases the risk of non-melanoma skin cancers (NMSC) in patients with inflammatory bowel disease (IBD). This risk is higher in patients with Crohn's disease as compared to ulcerative colitis. Spindle cell squamous cell carcinoma (SpSCC) is a rare NMSC of the head and neck. It is most often found in the larynx or oral cavity and is rarely confined to the skin. SpSCC most commonly presents as a polypoid lesion with or without ulceration though appearance varies. Histological examination shows elongated, spindle-shaped cells in a pinwheel formation staining positive for keratin proteins. Treatment is surgical excision. Unfortunately, there is a high rate of local recurrence and metastatic potential.

**Aims:** N/A

**Methods:** A 67 year old non-smoking, Caucasian male with Crohn's disease on Azathioprine (Aza) for twelve years presented with a raised lesion on the right cheek. His dose of Aza ranged from 50 to 100mg daily. Pathology from the excised lesion identified a poorly differentiated SpSCC. Immunohistochemistry stained positive for keratin proteins. Three months after the lesion was excised, a 1 by 2cm raised, ulcerated lesion appeared on the forehead concerning for recurrent SpSCC. Aza was immediately discontinued.

**Results:** Aza causes photosensitivity. Skin damage occurs at low doses of sunlight exposure. Use of Aza results in incorporation of 6-thioguanine (6-TG) into skin cell DNA. 6-TG absorbs UVA light and creates reactive oxygen species resulting in DNA mutation and increased risk of malignancy. Long et al. showed that recent (<90 days) use of Aza increased the risk of developing NMSC with an odds ratio of 3.56 (95% CI, 2.81-4.50). Persistent (>365 days) use of Aza further increased the risk of developing NMSC with an odds ratio of 4.27 (95% CI, 3.08-5.92). Abaas et al. found a 2 fold increase in the risk NMSC after 2 years of exposure, climbing to a 3.6 fold increase observed by 5 years. The risk of NMSC fell back to baseline after discontinuation of the medication irrespective of the previous cumulative dose.

**Conclusions:** Our case highlights the important and significant risk of NMSC in patients with inflammatory bowel disease (IBD) on Aza. Patients with IBD should be counselled about the increased risk of NMSC before starting a thiopurine. In addition, patients taking thiopurines should be advised to minimize other risk factors for NMSC, such as sun exposure and cigarette smoking. Current guidelines suggest regular screening dermatological examinations for all patients taking thiopurines.

**Funding Agencies:** None
HEPATIC DUCTOPENIA AND VANISHING BILE DUCT SYNDROME FOLLOWING ANABOLIC ANDROGENIC STEROID USE
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Background: Vanishing bile duct syndrome (VBDS) is a rare group of disorders that result in a progressive destruction of intrahepatic duct and hepatic ductopenia, highlighted by a significant reduction in the number of intrahepatic biliary ducts loss. It has been linked to a variety of etiologies, including idiopathic presentations, medication exposure, autoimmune conditions, graft versus host disease, infections, and malignancy. Drug toxicity counts for 2-5% of hospitalized patients of jaundice. Cholestasis is usually resolved after discontinuation of the offending drugs but might persist and end up with VBDS. Multiple drugs has been reported in association with VBDS include antibiotics, NSAIDs, anticonvulsants, anabolic steroids, and others.

Aims: Case report

Methods: Case report and Literature review

Results: A 29-year-old male presented with a 6 day history of progressive jaundice and severe pruritus. He was previously healthy and was not using medication. Five weeks prior to his presentation, he had started a cycle of an androgenic anabolic steroid for total of 4 weeks for body building. On examination, he was stable. Abdomen was soft to palpation with mild tenderness in the right upper quadrant. He had significant scleral and dermal icterus. Initial laboratory findings revealed significantly elevated total bilirubin of 131 mmol/L, conjugated 94.2 mmol/L, ALT 316 U/L, and within normal ALP. All other basic blood work were normal. Abdominal ultrasound was normal. Patient was asked to discontinue all supplements, empiric ursodeoxycholic acid, with weekly blood work for monitoring. Two weeks later, bilirubin was noted to have progressively increased to 828 mmol/L. The patient was admitted to hospital with recurrent nausea and anorexia. Comprehensive investigations were sent, including serology for viral hepatitis which all were negative. The patient was treated supportively and ultimately sent home with outpatient follow up. Six weeks later, the patient demonstrated persistent symptoms of jaundice and severe pruritus. Despite his symptoms, the bilirubin level began to decline. Given his clinical presentation, we proceeded with liver biopsy which showed acute VBDS with marked ductopenia and severe hepato-canicular cholestasis which were felt to be in keeping with medication-associated toxicity. Over the subsequent 8 weeks, he experienced a progressive clinical and biochemical improvement with supportive treatment and a close monitor.

Conclusions: The corner stone of the management of acute liver injury in AAS is complete cessation of the offending agent and supportive management. Cholestyramine has been used empirically in many cases for management of pruritic symptoms. Almost all reported cases with acute liver injury improve over 3 to 12 months with supportive management.

Funding Agencies: None
POSTER 48

UPPER GASTROINTESTINAL BLEEDING DUE TO GASTRIC STROMAL TUMOR- ONE OF THE FORGOTTEN DIFFERENTIALS
S. bharadwaj1, M. alzahrani1, R. alkhiari1, R. Al-Dabbagh2, T. Gohel1, R. Spaziani2
1. McMaster University, Hamilton, ON, Canada; 2. McMaster University, Stoney Creek, ON, Canada.

Background: Gastro-intestinal stromal tumours are the most common mesenchymal tumours of the gastro-intestinal tract. This case report highlights the importance of GIST in patients with no known risk factors for gastrointestinal bleeding.

Aims: This case report highlights the importance of GIST in patients with no known risk factors for gastrointestinal bleeding.

Methods: Case report and literature review.

Results: 54 year old female with past medical history of iron deficiency anemia and menorrhagia for which she underwent dilatation and curettage came with chief complaint of melena for 2 days. No known risk factors of gastrointestinal bleeding was elicited in history except for 1 dose of oral naproxen given prior to the procedure. Subsequently, also had a syncopal episode. On physical examination, was orthostatic and hypotensive. Rectal examination was evident for melena. Laboratory investigations showed a drop in hemoglobin from baseline of 114 to 83 g/L and also elevated BUN. After initial resuscitation with IV fluids and pantoprazole drip, EGD done showed an ulcerated sessile polyp about 5cm in diameter at the gastric body. The suspicion of GIST tumor was confirmed by a CAT scan of the abdomen. A biopsy was not obtained due to friable nature of the polyp.

Conclusions: Gastro-intestinal stromal tumours (GIST) are the most common mesenchymal tumours of the gastro-intestinal tract (GI). They account for approximately 0.1 to 3% of all GI neoplasms. In patients with no known risk factors for gastrointestinal bleeding, GIST should be suspected as one of the etiologies.

Funding Agencies: None
THE USE OF HIGH VOLUME SIMETHICONE TO IMPROVE VISUALIZATION QUALITY DURING SMALL BOWEL VIDEO CAPSULE ENDOSCOPY: A PILOT STUDY
D. Segal1, B. Yan1, N. Chande3, T. Ponich1, J. Gregor2, M. Sey1

Background: Poor bowel preparation affects up to one third of capsule endoscopy studies. Simethicone has been studied although its benefit has been inconsistent, possibly due to an inadequate volume being used.

Aims: The goal of this study is to compare standard volume with high volume simethicone for small bowel preparation during capsule endoscopy.

Methods: A double blind randomized clinical trial was conducted among outpatients undergoing capsule endoscopy. Patients were randomized to either 200 ml (standard volume) or 750 ml (high volume) of simethicone (1.5 mg/ml) 30 minutes prior to capsule ingestion. All patients received 2 L of PegLyte the night before the procedure and started fasting at midnight. Visualization quality (0-3) was assessed by a previously validated scale composed of the mean of the visualized mucosa (0-3) and degree of obstruction (0-3) scores.

Results: At the time of interim analysis, 20 patients had been randomized (10 standard volume and 10 high volume). The mean (SD) age was 64.1 (17.7) and 60% were females. The most common indication was obscure occult GI bleeding (50%). Compared to standard volume, the high volume group had higher visualization quality score (2.32 vs. 2.45), visualized mucosa score (2.59 vs. 2.67), and degree of obstruction score (2.18 vs. 2.22) although this did not reach statistical significance given the interim analysis. This trend was seen in the proximal half, distal half, and when the entire small intestine was compared. There were no adverse events in either group.

Conclusions: In this interim analysis, a strong and consistent trend was seen in favour of high volume simethicone over standard volume simethicone for improved visualization quality during capsule endoscopy.

Funding Agencies: None
PLENARY IV – Endoscopy

OPTIMIZING THE DIAGNOSTIC YIELD OF EUS-FNA FOR SOLID PANCREATIC LESIONS: A SINGLE-CENTRE QUALITY ASSURANCE STUDY.

M. Abunassar¹, A. Chatterjee¹, B. Dube², C. Marginean³, G. Martel⁴, S. Murthy¹, A. Rostom¹, C. Dube¹, P. James¹

1. The Ottawa Hospital, Department of Medicine, Division of Gastroenterology, Ottawa, ON, Canada; 2. University of Ottawa/OHRI, Ottawa, ON, Canada; 3. The Ottawa Hospital - Department of Pathology, Ottawa, ON, Canada; 4. The Ottawa Hospital - HPB Surgery, Ottawa, ON, Canada.

Background: Endoscopic ultrasound-guided fine needle aspiration (EUS-FNA) is a safe and effective procedure for the investigation of pancreatic masses. Improving EUS-FNA diagnostic yield will reduce the necessity for repeat procedures, thereby reducing risk to patients and resource use.

Aims: To examine factors associated with EUS-FNA diagnostic yield at our centre.

Methods: We performed a retrospective chart review of EUS-FNA procedures performed for the sampling of solid pancreatic lesions between September 1st 2009 to August 31st 2015 at The Ottawa Hospital. Rapid on-site evaluation (ROSE) for EUS-FNA was introduced in September 2010. Data regarding patient demographics (age and sex), lesion location, procedure details (endoscopist, FNA needle gauge, suction technique, number of passes) and the reviewing pathologist were collected. In addition to descriptive statistics, univariate and multivariable analyses were performed to determine factors associated with diagnostic yield.

Results: 350 EUS-FNAs for solid pancreatic lesions were examined by chart review. 288 (82%) of the procedures involved ROSE. The median patient age was 66 (interquartile range [IQR] 57-76) years and 56% were female. The overall EUS-FNA diagnostic yield was 81%. The diagnostic yield by the following factors were observed: patient sex (male 78%, female 84%), endoscopist (A 81% vs. B 82%), lesion location (head 84%, body 78%, tail 74%), needle gauge (g) (19g 67%, 22g 82%, 25g 80%), and number of FNA passes performed (one 50%, two 70%, three 84%, four 79%, five 80%, six 82%). The diagnostic yield with ROSE was 81% compared to 75% without ROSE. 11 pathologists were involved in the EUS cytopathology review, with a wide range in the number of cases reviewed by each pathologist (from 1 to 68 cases) and in their diagnostic yield (from 67% to 93%). No single factor was found to be significantly (p<0.05) associated with diagnostic yield in univariate or multivariate analyses.

Limitations: This was a retrospective study. Not all EUS-FNA cases have been captured to date.

Conclusions: Although our overall diagnostic yield is comparable to what is reported in the literature, there is an opportunity for improvement. Multidisciplinary FNA Cytopathology rounds have begun at The Ottawa Hospital with an aim to optimize at optimizing specimen acquisition, processing and evaluation.

Funding Agencies: The Ottawa Hospital Department of Medicine Patient Safety and Quality Research Grant
PLENARY IV – Endoscopy

SINGLE CENTER EXPERIENCE IN THE USE OF DEVICE ASSISTED ENTEROSCOPY: A RETROSPECTIVE STUDY
A. Benmassaoud, M. Sasson, C. Soulellis, T. Bessisso
McGill University Health Center, Montreal, QC, Canada.

Background: Over the last 15 years, the endoscopic evaluation of the small bowel has gone through a major revolution with the development of device-assisted enteroscopy (DAE), including single and double balloon enteroscopy. Since then, it has been used for diagnostic and therapeutic purposes in various clinical situations such as obscure gastrointestinal bleeding (OGIB), Crohn’s disease (CD) and small bowel tumors.

Aims: The main objective of this study was to evaluate the diagnostic and therapeutic yield of DAE in the evaluation and treatment of small bowel diseases using our database.

Methods: This was a single center retrospective cohort study from the McGill University Health Center. Adult patients who had a DAE between January 2010 and July 2015 were included. Patients were identified using a prospectively maintained database. Patients were excluded if data related to the enteroscopy was missing. Electronic and paper medical records were extensively reviewed. Demographic and clinical data was collected. A descriptive analysis of the recorded data was performed.

Results: 246 device-assisted enteroscopies were available for analysis. In our cohort, patients’ median age was 64 years old (IQR 47-75), and were inpatients in 9% of cases. The three most common causes of referral were OGIB in 65%, CD in 9% and gastrointestinal malignancy or polyp in 8% of cases. DAE was anterograde in 92% and retrograde in 8% of cases. 58% of patients had a previous gastroscopy or colonoscopy, 17% had prior video capsule evaluation, and 17% had prior DAE. About 49% of patients had a CT scan before DAE and 40% had no previous imaging done. Sedation consisted mainly of a combination of Midazolam and Fentanyl in 96% of cases with average doses of 3.3mg±1.6mg and 93.2mcg±39.1mcg respectively. General anesthesia was required in 6 cases. Approximately 54% of entroscopies had positive findings. Amongst them, the three most common findings were an arteriovenous malformations, an ulcer or erosion and the presence of polyps or stricture in 43%, 26%, and 9% of cases respectively. A therapeutic intervention was deemed necessary in 34% of all cases, or in 62% of cases with a positive finding.

When compared to all comers, patients with a pre-endoscopic diagnosis of OGIB trended towards being more likely to have a positive finding (65% vs 54%, OR=1.55, p=0.0581) and were more likely to have treatment applied (52% vs 34%, OR=2.13, p=0.001).

Conclusions: Our study showed that the most common indication for the use of DAE was OGIB. Patients with a pre-endoscopic diagnosis of OGIB trended towards being more likely to have a positive finding and have treatment applied. Further studies are underway to validate these findings.

Funding Agencies: None
PLENARY IV – Endoscopy

ENDOSCOPIC EVALUATION OF GRAFT-VERSUS-HOST DISEASE: RETROSPECTIVE REVIEW FROM A TERTIARY CENTRE
S. Ip, V. Marquez, D. Schaeffer, F. Donnellan
University of British Columbia, Vancouver, BC, Canada.

Background: Graft-versus-host disease (GVHD) is a complication of hematopoietic stem cell transplantation (HSCT) that frequently affects the gastrointestinal (GI) tract. The diagnosis requires pathologic confirmation from endoscopic biopsies; however, the ideal location of these biopsies has not been clearly established.

Aims: To determine the best sites for obtaining biopsies in evaluating GI GVHD.

Methods: All cases of biopsy-proven GI GVHD (GVHD+) were obtained from a pathology database over a two-year period at a tertiary centre (n=46). Demographic, clinical, and endoscopic data were extracted. For comparison, a randomized sample of GVHD negative cases (GVHD-) was obtained (n=50). Sensitivities for the diagnosis of GVHD at different sites of both the upper GI tract and colon were determined.

Results: Diarrhea was the most common symptom in both the GVHD+ and GVHD- groups. In the GVHD- group, they were commonly investigated with an esophagastroduodenoscopy (EGD) (60% versus 22% in the GVHD+ group, p<0.01) while a colonoscopy (CLN) was commonly performed in the GVHD+ group (33% vs 12%, p=0.02). Non-specific erythema was more often found in the GVHD+ group (p=0.05). Among the GVHD+ patients, for EGDs, the sensitivity was highest for duodenal biopsies at 89%. There was only one case in which GVHD was not detected by duodenal biopsy but found on a gastric biopsy. For FS and CLN, the sensitivities among all sites were similar (85% agreement, kappa 0.58, p=0.01). There were no cases in which GVHD was diagnosed in the right-side of the colon without a positive biopsy in the left-side of the colon. The grade of GVHD appeared to have no effect on sensitivities.

Conclusions: In this cohort of GI GVHD patients, duodenum biopsies seem to produce the highest yield for diagnosing GVHD with a sensitivity of 89% when compared to other sites of the upper GI tract. Sensitivities were similar among all sites on lower endoscopies, suggesting that a FS is sufficient for diagnosing GVHD in suspected patients with diarrhea. As shown in this cohort, CLNs may be overly utilized and unnecessary in the investigation for GVHD.

Funding Agencies: None
PLENARY IV – Endoscopy

THE IMPACT OF WARMED CARBON DIOXIDE INSUFFLATION DURING COLONOSCOPY ON POLYP DETECTION: A RANDOMIZED DOUBLE-BLIND CONTROLLED TRIAL

J. Green¹, A. Patel², L. Hookey¹
¹. Queen’s University, Kingston, ON, Canada; ². Queen’s University, Mississauga, ON, Canada.

Background: Colonoscopy is used for detection of neoplastic polyps, but significant miss rates are reported. Methods to reduce spasm of the colon have been investigated to increase adenoma detection rates by allowing better inspection of colonic folds. Room temperature carbon dioxide (CO2) insufflation has been demonstrated to be as efficacious as water immersion for both decreasing patient discomfort and achieving similar adenoma detection rates. These studies, however, utilized un-warmed CO2, which can produce spasms when released from high-pressure storage tanks. Warmed water instillation has been shown to reduce colon spasm; therefore, administration of warmed CO2 during colonoscopy may improve polyp detection.

Aims: To determine whether colonoscopy using warmed CO2 insufflation achieves greater detection of polyps per patient compared to room air insufflation.

Methods: This was a prospective, single centre, double-blinded, randomized control trial using warm CO2 versus room air insufflation. Patients undergoing colonoscopy for screening and surveillance indications were included and randomized to receive either room temperature room air or warmed CO2 (37 degrees Celsius). The primary outcome was polyp detection rate. A pre-specified power calculation determined that 444 enrolled patients would allow for detection of 50% increase in polyp detection rate, with alpha 5% and beta 20%. Secondary outcomes included adenoma detection rates and advanced lesion detection rates.

Results: The study was stopped after 222 patients had been recruited, as an interim analysis determined that continuation would be futile. Data was available for 202 participants. The room air and warmed CO2 groups consisted of 106 and 96 participants, respectively. The groups were similar in age (p=0.809), gender (p=0.778), indication for examination (p=0.164), and bowel preparation score (p=0.404). Sixty-five percent of participants in the room air group had polyps (n=69), compared with 59% of participants in the warmed CO2 group (n=57) (p=0.402). Adenomas were detected in 51 and 44 participants in the room air and warmed CO2 groups, respectively (p=0.746). There was no difference between groups in number of adenomas detected (p=0.224).

Conclusions: Warmed carbon dioxide insufflation did not improve polyp or adenoma detection rates when compared with room air insufflation. One potential reason is that CO2 does not exert a significant effect on colonic motility. Alternatively, there may have been a loss of temperature of the CO2 as it travelled from the insufflator to the tip of the endoscope, thereby reducing its potential effect. At this time, warmed CO2 cannot be recommended as a method for increasing polyp or adenoma detection rates.

Funding Agencies: None
### Poster Session I – Judging Assignments

**Mark Borgaonkar**, Adel Alghamdi, Katherine Prowse

**Geoff Williams**, Mohammad Shehab, Shishira Bharadwaj

**Kevin Waschke**, Nadia Griller, Resheed Alkhiari

**Leanna McKenzie**, John Coneys, Eileen Crowley

**Robert Berger**, Rowena Almeida, Benson Thomas

**Veronique Morinville**, Sébastien Rolland, Julie Zhu

### Poster Session II – Judging Assignments

**Mark Borgaonkar**, Amit Dhillon, Fahd Jowhari

**Geoff Williams**, Rammal Almotasembiliah, Joanna Stanisz

**Kevin Waschke**, Nayima Clermont Dejean, Ahmed Kayal

**Leanna McKenzie**, Jessica Breton, Gregory Eustace

**Robert Berger**, Raed Al-Dabbagh, Robert Battat

**Veronique Morinville**, Galab Hassan, Meshari Alaifan

### POSTER JUDGING CRITERIA

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<th>Quality of Research Project</th>
<th>1. Is the hypothesis/research question/study purpose clear?</th>
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<td>2. Is the research question important?</td>
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<td>3. Is the environment (participants, setting, resources) clearly defined?</td>
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<td>4. Do the methods appropriately address the research question?</td>
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<td>5. Do the results accurately reflect the evidence? (appropriate analysis of data)</td>
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<td>6. Do the authors draw sensible conclusions? (supported by data, avoiding bias)</td>
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<td>7. Is there mention/recommendation of future directions?</td>
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<th>Quality of Poster</th>
<th>8. Does the visual information have clear organization and logical flow?</th>
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<td>9. Is the poster easily legible? Does it attract/hold the viewer’s interest?</td>
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<td>10. Are the figures and tables clear and useful?</td>
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| Quality of Presenter | 11. Does the presenter clearly and concisely explain the research question, results and conclusions? |
Groups for Breakout Sessions

**Group 1**

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<td>McMaster University</td>
<td>PGY4</td>
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<td>Lukasz Kwapisz</td>
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Feedback Form

If you have any comments on the GRIT course that you would like to share, please clearly write them in the space provided below. Feedback forms should be handed in to GRIT Course Organizer Dr. Mark Borgaonkar or email comments to joanne@cag-acg.org.

Please suggest ways to improve the GRIT Course for next year: