Keeping Up With The Literature.

Top 3 Papers of 2017 - GI.

Robert J Bailey

“Help!”
What is the most important GI-non-liver paper for 2017?

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- Mark Borgaonkar markb@man.ca
Interesting Comments

- I am seriously biased
- Important articles to me means they change the way I do or think about things.
- I am going to cheat and give you a paper from 2016
- I don’t have any bright ideas
- At the moment I’m not reading much.
- I thought about this
- Clinical practice is about survival. I don’t have time to read and pontificate as I once did.
- I can’t recall any great papers this year
- This has not been a banner year.
- Nothing comes to mind.
- I’ve changed my practice to liver exclusively. There is no such thing as psychogenic jaundice.
- My reading is now travel planning

<table>
<thead>
<tr>
<th>Alberta</th>
<th>Topic</th>
<th>Journal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celiac testing</td>
<td>Tests for serum transglutaminase on gluten free diets</td>
<td>Gastroenterology. 2017 Sep;153(3):689-701</td>
</tr>
<tr>
<td>Polypectomy</td>
<td>Cold forceps and coagulation</td>
<td>Endoscopy. 2018 Jan;50(1):52-62</td>
</tr>
<tr>
<td>Esophageal Motility</td>
<td>When tests not needed</td>
<td>Neurogastroenterol Motil. 2017 Oct;29(10)</td>
</tr>
<tr>
<td>Celiac testing</td>
<td>Predicts mucosal healing</td>
<td>Aliment Pharmacol Ther 2017 Oct;46(7)</td>
</tr>
<tr>
<td>Cholecystectomy after ERCP</td>
<td>After ERCP remove the gall bladder</td>
<td>The American Journal of Gastroenterology Oct ‘17</td>
</tr>
<tr>
<td>Elobixibat in constipation</td>
<td>Bile salt absorption inhibitor for constipation</td>
<td>Gastroenterology , Volume 152 , Issue 5</td>
</tr>
</tbody>
</table>
### Barretts Oesophagus

- Care post Barretts ablation
  - **Journal**: American Journal of Gastroenterology 2017 Oct; 112 (10)

### Simethicone during colonoscopy

- Improves adenoma detection
  - **Journal**: Endoscopy 2017 Oct 6

### Aspiration for obesity

- Physician induced malabsorption
  - **Journal**: Gastrointestinal Endoscopy Clinics of North America 2017 Apr

### Diverticular perforation

- Surgery best over lavage
  - **Journal**: JAMA. 2015;314(13):1364-1375

### Screening colonoscopy reduces Colon Cancer

- Recommendation for screening over age 50
  - **Journal**: Clinical Gastro & Hepatology, June 2017

### Adenoma detection rate influences colon cancer results

- Support for screening colon cancer

### Ustikinumab in IBD

- Influences Rx IBD/Crohns

### Alberta: Topic

- **Ustikinumab in IBD Real Life Experience**: Stelara works in Anti TNF failures
  - **Journal**: Inflammatory Bowel Diseases: May 2017 Vol 23 Issue

- **Eosinophilic esophagitis therapy**: There is a role for diet
  - **Journal**: J of Clinical Gastroenterology: September 2017 Vol 51

- **Vedolizumab in UC**: Effective even when anti TNFs fail.
  - **Journal**: Clin Gastroenterol Hepatol 2017 Feb

- **Tofacitinib induction and maintenance in UC**: A newer agent better than placebo
  - **Journal**: NEJM May 4 2017

- **FODMAPS in IBS**: They influence the bacterial flora and work
  - **Journal**: Gut 2017 Jul;66(7)1241

- **Bezlotoxumab to prevent C diff recurrence**: Better than placebo to prevent recurrence of C diff
  - **Journal**: N Eng J Med 2017 Jan 26

- **Remicade to Remsma**: Tolerated and feasible
  - **Journal**: J Crohns Colitis 2017 Mar 1
<table>
<thead>
<tr>
<th>Alberta: Topic</th>
<th>Thought</th>
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<tbody>
<tr>
<td>Anti TNF therapy within 2 years for Crohn’s improves outcomes</td>
<td>Give Anti TNFs early for better results in Crohn’s</td>
<td>Inflamm Bowel Dis. 2016;22:870-879</td>
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<tr>
<td>Switching from Remicade to Inflectra. The Norswich study</td>
<td>Biosimilars are effective</td>
<td>Lancet 2017 May 11</td>
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<tr>
<td>Serrated polyps predict Metachronous polyps sooner than usual</td>
<td>? closer follow up when polyps serrated.</td>
<td>Gastroenterology 2017 Sep 16</td>
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<td>Band Ligation is best for diverticular bleed therapy</td>
<td>Think banding with diverticular bleeding</td>
<td>Gastroenterology 2017 Sep 16</td>
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<tr>
<td>Real Risk for Malignancy in Branch Duct Intraductal Papillary Mucinous Neoplasms</td>
<td>Careful observation of IPMN s</td>
<td>Gastroenterology 2017 Jul 21</td>
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<tr>
<td>Safety of Endoscopic Dilation in Eosinophilic Esophagitis</td>
<td>Its safe and effective to dilate</td>
<td>Gastrointest Endosc 2017 Apr 28</td>
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<tr>
<td>Probiotics Prevent C difficile Infection in Hospitalized Adults</td>
<td>USE THEM!</td>
<td>Gastroenterology 2017 Feb 10</td>
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</table>

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<tr>
<td>Gastrointestinal safety of direct oral anticoagulants: a large population-based study</td>
<td>For patients with a anticoagulation-associated GI bleed risk-use Apixoban ?</td>
<td>Gastroenterology. 2017;152:1014</td>
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<tr>
<td>Sterile fecal filtrate transfer for treating patients with clostridium difficile infection</td>
<td>Bacteria free donor stool works</td>
<td>Gastroenterology 2017 Mar;152(4):799</td>
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<tr>
<td>Canada and USA: Topic</td>
<td>Thought</td>
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<tr>
<td>Iron absorption from oral iron supplements given on consecutive versus alternate days doses versus twice-daily: two trials</td>
<td>Alternate days may be better for absorption</td>
<td>Lancet Hematology. Vol 4, No 11, November 2017</td>
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<td>Endoscopic Mucosal Resection</td>
<td>High Quality Mucosal Resection</td>
<td>Gastroenterology. 2017; 152(3):466-471</td>
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<td>ESG guidelines for polypectomy</td>
<td>Many important guidelines</td>
<td>Endoscopy 2017; 49(03): 270-297</td>
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<td>Associations of fats and carbohydrate intake with cardiovascular disease and mortality</td>
<td>Carbohydrates are associated with increased mortality</td>
<td>The Lancet. Vol 390, No 10107: p2050 4 November 2017</td>
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<td>Doppler endoscopic probe monitoring of blood flow improves risk stratification and outcomes of patients with severe nonvariceal upper gastrointestinal hemorrhage</td>
<td></td>
<td>Gastroenterology 2017; 152:1310-1318</td>
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<td>Risks Associated with Anesthesia Services During Colonoscopy</td>
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<td>Gastroenterology 2016; 150:888-894</td>
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<tr>
<td>Water Exchange Method Significantly Improves Adenoma Detection Rate: A Randomized Controlled Trial</td>
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<td>Am J Gastroenterol 2017; 112:568-576</td>
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<td>ACG Clinical Guideline: Treatment of Helicobacter pylori Infection</td>
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<td>Am J Gastroenterol 2017; 112:212–238</td>
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<td>Percutaneous Gastrostomy Device for the Treatment of Class II and Class III Obesity: Randomized Controlled Trial</td>
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<td>Am J Gastroenterol 2017; 112:447–45</td>
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<td>ACG and CAG Clinical Guideline: Management of Dyspepsia</td>
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<td>Am J Gastroenterol 2017; 112:988–1013</td>
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<tr>
<td>ACG Clinical Guideline: Preventive Care in Inflammatory Bowel Disease</td>
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<td>Am J Gastroenterol 2017; 112:241–258</td>
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<td>Hydrogen and Methane-Based Breath Testing in Gastrointestinal Disorders: The North American Consensus</td>
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<td>Am J Gastroenterol 2017; 112:775–784</td>
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<td>Bloating and Abdominal Distension: Old Misconceptions and Current Knowledge</td>
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<td>Am J Gastroenterol 2017; 112:1221–1231</td>
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<tr>
<td>A Randomized Controlled Trial Comparing the Low FODMAP Diet vs. Modified NICE Guidelines in US Adults with IBS-D</td>
<td></td>
<td>Am J Gastroenterol 2016; 111:1824–1832</td>
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<td>Diagnosis and Management of Microscopic Colitis</td>
<td></td>
<td>Am J Gastroenterol 2017; 112:78–85</td>
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</table>
HISTORY AND GOSSIP

• Crohn identified fourteen patients whose symptoms and intestinal abnormalities discovered at surgery, while consistent with each other, did not fit any previously identified disease.

• Crohn, Leon Ginzburg and Gordon Oppenheimer, prepared the classic paper describing this new condition. This paper was read at a professional meeting in May 1932 and published in the Journal of the American Medical Association in October 1932. The title of the published paper was "Regional Ileitis: A Pathologic and Clinical Entity"
AND

Crohn practiced medicine until he was 90!


Crohns’ in Canada

CD is a Progressive Disease with High Incidence and Prevalence in Canada

Bernstein et al. Am J Gastroenterol. 2006;101:1559-68;
CCHS 2005 data. Statistics Canada;
Treatment Goals in Crohn’s Disease

- Rapidly induce remission
- Maintain remission without steroids
- Prevent complications of uncontrolled disease

TREATMENTS HAVE TO BE SAFE
PREVENT DISEASE PROGRESSION

The Step-up Treatment Approach Has Many Limitations and is Now Outdated

- Based largely on symptoms
- Treats all patients the same
- Delays more effective therapies
- Misses window of opportunity for some therapies
- Mucosal healing is not achieved in majority of patients, disease progresses
Original Article

Ustekinumab as Induction and Maintenance Therapy for Crohn’s Disease

Brian G. Feagan, M.D., William J. Sandborn, M.D., Christopher Gasink, M.D., Douglas Jacobstein, M.D., Yinghua Lang, M.A., Joshua R. Friedman, M.D., Ph.D., Marion A. Blank, Ph.D., Jewel Johanns, Ph.D., Long-Long Gao, Ph.D., Ye Miao, M.S., Omoniyi J. Atekudekun, M.S., R.Ph., Bruce E. Sands, M.D., Stephen B. Hanauer, M.D., Severine Vermeire, M.D., Ph.D., Stephan Targan, M.D., Subrata Ghosh, M.D., Willem J. de Villiers, M.D., Ph.D., Jean-Frédéric Colombel, M.D., Zsolt Tulassay, M.D., Ursula Seidler, M.D., Bruce A. Salzberg, M.D., Pierre Desreumaux, M.D., Scott D. Lee, M.D., Edward V. Loftus, Jr., M.D., Levinus A. Dieleman, M.D., Ph.D., Seymour Katz, M.D., Paul Rutgeerts, M.D., Ph.D., for the UNITI–IM–UNITI Study Group

N Engl J Med
Volume 375(20):1946-1960
November 17, 2016
IL-12 and IL-23 have been implicated in CD pathogenesis
Structurally related heterodimers with a common 40 kD subunit
UST a human IgG1κ mAb that binds the p40 subunit and prevents IL-12 and IL-23 from binding IL-12Rβ1
Reduces IL-12 and IL-23 mediated signaling, cellular activation, and cytokine production

Patient Response to Induction Therapy (Anti-TNF Failures)

UNITI - 1
741 pts
1º or 2º Non responders
Or
Loss of response
Or Side Effects

<table>
<thead>
<tr>
<th>Ustekinumab 130 mg</th>
<th>34.3%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ustekinumab 6 mg / Kg</td>
<td>33.7%</td>
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<tr>
<td>Placebo</td>
<td>21.5%</td>
</tr>
</tbody>
</table>

Response at week 6
(CDAI <150 or decrease =/>100)

P< 0.003

Body Weight

< 55 Kg = 260 mg
55- 85 Kg = 390 mg
> 85 Kg = 520 mg

Ustekinumab - Induction at Week 6/8 (UNITI-1) (Anti TNF- Failures)

Patient Response to Induction Therapy (Conventional Treatment Failures)

Ustekinumab- Induction at Week 6/8 (UNITI-2) (Conventional Failures)

% of patients

- PBO (n = 209)
- UST 130 mg (n = 209)
- UST ~6 mg/kg (n = 209)

CDAI <150 or decrease 100 points
CDAI <150 at 8 weeks

Change from Baseline in C-Reactive Protein and Fecal Calprotectin Levels During Induction.

Patient Response to Maintenance Therapy

Successful Induction
397 patients

Ustekinumab
90mg q-8 weeks
53.1%
P< 0.005

Ustekinumab
90 mg q-12 weeks
48.8%
P< 0.004

Placebo
35.9%

Remission (CDAI<150)
Week 44


Maintenance at week 52

397 Responders at week 8
includes 50% UNITI-1 aTNF-Failure

% of patients

Clinical Remission
CR-100

PBO Maintenance (n = 131)
UST 90 mg SC q12w (n = 129)
UST 90 mg SC q8w (n = 128)

CDAI <150 or decrease 100 points
Patient Response to Maintenance Therapy

Change in CDAI score from week 0

Change in CRP from week 0


Conclusion

• In two trials in patients with moderately to severely active Crohn's disease, intravenous ustekinumab was effective in those who did not have a response to conventional therapy or TNF antagonists.

• Subcutaneous ustekinumab was more effective than placebo in maintaining remission.

N Engl J Med
Volume 375(20):1946-1960
November 17, 2016
Conclusion

• There were no deaths and rates of overall adverse events, serious adverse events and adverse events within one hour after infusion occurred at similar rates across groups.
• There was no relationship between dose and safety.
• The adverse events were consistent with 5 years of data acquired for patients with psoriasis

N Engl J Med
Volume 375(20):1946-1960
November 17, 2016

• Will this data change your practice?
  If you treat IBD it should.

• Should hospital pharmacies have ustekinumab on the formulary?
  • Humm?
The Royal Alexandra Hospital is one of the most vital pieces of public infrastructure in Edmonton — and in all of Northern Alberta.
Royal Alexandra Hospital

It has the busiest emergency department in the province. It performs more surgeries than any other hospital in Alberta. It provides all kinds of specialized treatments, from neo-natal intensive care to eye surgery to child psychiatry. The Alex serves communities across Alberta’s north — and the high-needs populations of Edmonton’s inner city.

Paula Simons Edmonton Journal February 2017

Royal Alexandra Hospital

In 2016, the Alex’s infection rate for C. difficile, an antibiotic-resistant hospital-acquired infection, was 6.8 per every 10,000 patient days, the highest of any city hospital, and the second-highest infection rate in the province.

Paula Simons Edmonton Journal February 2017
WHAT CAN WE DO ABOUT THIS?

IS THERE A ROLE FOR PROBIOTICS?

Antibiotics can disturb gastrointestinal microbiota which may lead to reduced resistance to pathogens such as Clostridium difficile (C difficile).

Probiotics are live microbial preparations that, when administered in adequate amounts, may confer a health benefit to the host, and are a potential C. difficile prevention strategy.
Lactobacilli and bifidobacteria in the prevention of antibiotic-associated diarrhoea and Clostridium difficile diarrhoea in older inpatients (PLACIDE): a randomised, double-blind, placebo-controlled, multicentre trial.

1493 in microbial group, 1488 in placebo group. Probiotics started within 7 days

Identified no evidence that lactobacilli and bifidobacteria were effective in prevention of antibiotic associated diarrhea and C Difficile diarrhea.
Timely Use of Probiotics in Hospitalized Adults Prevents Clostridium difficile Infection: A Systematic Review With Meta-Regression Analysis

Nicole T.Shen, Anna Maw, Lyubov L.Tmanova, Alejandro Pino, Kayley Ancy, Carl V.Crawford, Matthew S.Simon, Arthur T.Evans
Weill Cornell Medicine, New York, New York

Gastroenterology. 2017 Jun;152(8)1889-1900
Flow Diagram of Studies

Results

• **C. difficile infection in probiotic cohort -- 1.6%**
  (54 of 3277)
• **C difficile infection in controls -- 3.9%**
  (115 of 2984)

Analysis showed probiotics given 1-2 days close to the first dose of antibiotics reduced the risk of C. difficile infection by 50% in hospitalized patients
The optimal probiotic formulation remains uncertain. There is sufficient data to recommend Lactobacillus or Lactobacillus in combination with another species within 2 days of the first antibiotic dose.

Gastroenterology. 2017 Jun;152(8)1889-1900

<table>
<thead>
<tr>
<th>Probiotic species</th>
<th>Trials, n</th>
<th>Study manufacturer</th>
<th>Contact</th>
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</thead>
<tbody>
<tr>
<td>L. acidophilus</td>
<td>1</td>
<td>Flexin, American Lifeline, Inc, WI</td>
<td>800-257-5433</td>
</tr>
<tr>
<td>L. acidophilus, B. billium</td>
<td>1</td>
<td>Cultech, Swansea, UK</td>
<td>01639 823100</td>
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<tr>
<td>L. acidophilus, B. billium, B. lactis</td>
<td>1</td>
<td>National Collection of Industrial, Food and Marine Bacteria, Aberdeen, UK</td>
<td>+44 (0) 1224 711100</td>
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<td>L. acidophilus, L. bulgaricus, B. billium, S. thermophilus</td>
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<td>Not specified</td>
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<tr>
<td>L. acidophilus, L. casei</td>
<td>2</td>
<td>Bio-K International Inc, Quebec, Canada</td>
<td>800-590-BIOK</td>
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<tr>
<td>L. acidophilus, L. paracasei, B lactis</td>
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<td>HOWARU Restore, Danisco USA, Inc, Madison, WI</td>
<td>danisco.com</td>
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<td>L. casei, Lactobacillus bulgaricus, S. thermophilus</td>
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<td>Actimel, Danone, France</td>
<td>0 890 125 125</td>
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<tr>
<td>L. casei Strata</td>
<td>1</td>
<td>Yakult Light Yakult Honsha Co, Ltd, Fountain Valley, CA</td>
<td>714-434-6000</td>
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<tr>
<td>L. rhamnosus GG</td>
<td>3</td>
<td>QAS Functional Foods, CorAgre Foods, Inc, Omaha, NE</td>
<td>402-595-5117</td>
</tr>
<tr>
<td>L. rhamnosus GG, L. acidophilus, B lactis</td>
<td>1</td>
<td>Biota THH, Oslo, Norway</td>
<td>+47 513 71 513</td>
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<tr>
<td>S. bouardii</td>
<td>5</td>
<td>Biocodex (density, France), United States and Italy distributed</td>
<td>877-356-7877</td>
</tr>
<tr>
<td>Parenteral forte, Isforth, Germany</td>
<td>+49 (0) 2371 937-0</td>
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</tbody>
</table>

Probiotics compared to No Probiotics for prevention of C difficile infection in hospitalized patients receiving antibiotics

Gastroenterology. 2017 Jun;152(8)1889-1900
Nicole Shen et al report and suggest:

“There was no increased risk for adverse events among patients given probiotics”. “These findings are restricted to nonpregnant immune-competent hospitalized patients without prosthetic heart valves, cared for outside the intensive care unit”.

Practice should be updated to reflect the evidence in this paper

Gastroenterology 2017;152:1889-1900

Evidence Gaps

• Which probiotic for which antibiotic?
• How does diet impact these studies?
• A single probiotic or probiotic community?
• Are probiotics safe in the critically ill and immune compromised Patient

Editorial Gastroenterology 2017;152:1817l
“But it’s not cost effective”!

So, I have heard!

Consider Perspective

The number of patients needed to be treated with probiotics to prevent 1 case of C. difficile diarrhea is 43.

The number of patients needed to be treated with heparin prophylaxis to prevent 1 case of DVT is 250.

Ann Intern Med 2011;155:625-632
<table>
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<th>Method:</th>
<th>We programmed a decision analytic model</th>
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<tbody>
<tr>
<td>Results:</td>
<td>Probiotic use dominated (more effective and less costly) no probiotic use.</td>
</tr>
<tr>
<td>Conclusions:</td>
<td>Our findings suggest that probiotic use may be a cost-effective strategy to prevent CDI in hospitalized adults receiving antibiotics age 65 or older or when the baseline risk of CDI exceeds 1.6%.</td>
</tr>
</tbody>
</table>

Cost-Effectiveness Analysis of Probiotic Use to Prevent Clostridium difficile Infection in Hospitalized Adults Receiving Antibiotics.

- Division of Gastroenterology and Hepatology, Department of Medicine, Department of Healthcare Policy and Research, and Hospitalist Medicine Section, Division of General Internal Medicine, Department of Medicine, University of Colorado, Denver.
- Division of Gastroenterology, Department of Medicine, New York University, New York.
- Division of Infectious Diseases, Department of Medicine, Weill Cornell Medical College, New York, New York.
Cost-Effectiveness Analysis of the Use of Probiotics for the Prevention of *Clostridium difficile*–Associated Diarrhea in a Provincial Healthcare System

Calgary

Infection Control & Hospital Epidemiology
Vol 37 Issue 9 Sept 2016
Jenine Leal, Steven J. Heitman, John M Conly, Elizabeth A Henderson

Treatment with oral probiotics led to direct costs of CDN $24 per course of treatment per patient. The risk of CDAD was reduced from 5.5% in those not receiving oral probiotics to 2% in those receiving oral probiotics.

Costs

44 patients x $24 (estimates) = $1056 per treatment!
Probiotics for the prevention of Clostridium difficile-associated diarrhea in adults and children

Cochrane IBD Group
Published Online: 19 DEC 2017

• Based on this systematic review and meta-analysis of 31 randomized controlled trials including 8672 patients, moderate certainty evidence suggests that probiotics are effective for preventing CDAD.
• (NNTB = 42 patients, 95% CI 32 to 58).

“probiotics are effective among trials with a CDAD baseline risk >5%”
(NNTB = 12; moderate certainty evidence).
Probiotics for the prevention of Clostridium difficile-associated diarrhea in adults and children

“when probiotics are given with antibiotics the risk of developing CDAD is reduced by 60% on average”

Cochrane Database; Plain Language Summary
December 19, 2017

Probiotics for the prevention of Clostridium difficile-associated diarrhea in adults and children

“participants at high risk of developing CDAD (> 5%), the potential benefit of probiotics is more pronounced with a 70% risk reduction on average”

Cochrane Database; Plain Language Summary
December 19, 2017
Probiotics for the prevention of Clostridium difficile-associated diarrhea in adults and children

“taking probiotics does not increase the risk of developing side effects”

Cochrane Database ; Plain Language Summary
December 19 2017

Going To Change Your Practice?
Going To Change Practice In Your Hospital? I hope so!!
Forrest 1a

Risk of re-bleeding by Forrest grade

Patients with endoscopic or clinical re-bleeding (%)

- Forrest IA: 55%
- Forrest IIA: 43%
- Forrest IIB: 22%
- Forrest IIC: 10%
- Forrest III: 5%

PRE - Proton Pump Inhibitors
Forrest Classification

<table>
<thead>
<tr>
<th>Forrest Classification</th>
<th>Rebleeding Incidence</th>
<th>Surgical Requirement</th>
<th>Incidence of Death</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type I: Active Bleed</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Spurting Bleed</td>
<td>55-100%</td>
<td>30%</td>
<td>11%</td>
</tr>
<tr>
<td>B. Oozing Bleed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Type II: Recent Bleed</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Non-Bleeding Visible Vessel (NBVV)</td>
<td>40-50%</td>
<td>30%</td>
<td>10%</td>
</tr>
<tr>
<td>B. Adherent Clot</td>
<td>20-30%</td>
<td>10%</td>
<td>7%</td>
</tr>
<tr>
<td><strong>Type III: Lesion without Bleeding</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flat Spot</td>
<td>10%</td>
<td>6%</td>
<td>3%</td>
</tr>
<tr>
<td>Clean Base</td>
<td>2%</td>
<td>0.5%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Doppler Endoscopic Probe Monitoring of Blood Flow Improves Risk Stratification and Outcomes of Patients With Severe Nonvariceal Upper Gastrointestinal Hemorrhage

Dennis M. Jensen, Thomas O. G. Kovacs, Gordon V. Ohning, Kevin Ghassemi, Gustavo A. Machicado, Gareth S. Dulai, Alireza Sedarat, Rome Jutabha, and Jeffrey Gornbein

Gastroenterology 2017;152:1310–1318
A Picture Of The VTI Doppler Endoscopic Control Unit And An Endoscopic Catheter

A diagram of an ulcer base with an invisible artery underneath that can be located by the Doppler endoscopic probe as it courses in the ulcer base. The ear indicates that an auditory sound results as a “swish, swish” for the artery.
Dennis Jensen; Gastroenterology 2017;152:

Severe Non Variceal Bleeding 148 Patients

Blood, PPI =/- Anti Emetics H. pylori Therapy

Visual Control (standard) 76
Epinepherine
Bipolar Cautery +/- Hemoclips

Doppler Monitoring 72
Additional Bipolar cautery Hemoclips

Severe Rebleeding Rate within 30 days

26.3%
P=0.0214 NNT 7

11.1%

Differences in Rebleeding by Stigmata of Recent Hemorrhage and Use of Doppler Probe

<table>
<thead>
<tr>
<th>Stigmata</th>
<th>Standard</th>
<th>Doppler</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active arterial bleed</td>
<td>5/10 (50.0%)</td>
<td>4/14 (28.6%)</td>
<td>.403</td>
</tr>
<tr>
<td>Nonbleeding visible vessel</td>
<td>7/27 (25.9%)</td>
<td>4/26 (15.4%)</td>
<td>.501</td>
</tr>
<tr>
<td>Adherent clot</td>
<td>4/16 (25%)</td>
<td>0/12 (0%)</td>
<td>.113</td>
</tr>
<tr>
<td>Flat spots</td>
<td>3/16 (18.8%)</td>
<td>0/16 (0%)</td>
<td>.226</td>
</tr>
<tr>
<td>Oozing bleeding</td>
<td>1/7 (14.3%)</td>
<td>0/4 (0%)</td>
<td>.428</td>
</tr>
<tr>
<td>Totals</td>
<td>20/76 (26.3%)</td>
<td>8/72 (11.1%)</td>
<td>.0214</td>
</tr>
</tbody>
</table>

Gastroenterology 2017;152:1310–1318
CONCLUSIONS

- In a randomized controlled trial of patients with severe upper gastrointestinal hemorrhage from ulcers or other lesions, Doppler probe guided endoscopic hemostasis significantly reduced 30-day rates of rebleeding compared with standard, visually guided hemostasis.
Current Gastroenterology Reports

• The largest randomized, controlled trial of Doppler Endoscopic Probe for the assessment of bleeding control in nonvariceal UGI bleeding results show a 15% absolute difference in rebleeding rates with use of DEPs guiding the end points of therapy

• This study took almost 6 years to complete

• However, the authors provide a number needed to treat of 7 to prevent 1 episode of rebleeding


Current Gastroenterology Reports

• Use of Doppler probes is different from endoscopic ultrasound imaging and does not required advanced training, education on technique is necessary, although the learning curve is short

• Can be used before endoscopic therapy to risk stratify

Current Gastroenterology Reports

• 89% of incompletely treated lesions (8 of 9) based on Doppler signal rebled, whereas none of the patients who were treated with cessation of Doppler flow rebled. Thus, complete obliteration of Doppler flow is a necessary end point of treatment.

• Doppler endoscopic probe (DEPs) may be of greatest usefulness at the time of rebleeding as opposed to initial intervention. Rebleeding suggests the initial lesion was not adequately treated.

Once the artery is localized under and out from the stigmata such as non-bleeding visible vessel, hemoclips can be accurately placed on either side of the stigma to obliterate the underlying arterial blood flow.

Why Might Hepatologists Care About This Technique?
To Glue or Not to Glue?

or

Glued or Not?

Those are the questions?

Video #1
READY TO CHANGE YOUR PRACTICE?
THANK YOU

RJB

Dopplers in GI Endoscopy
Forrest Grade - GI bleeding

- Forrest Ia
- Forrest Ila
- Forrest IIb
- Forrest IIc
- Forrest III

Endoscopic appearance

Spurter NBVW Clot Dot Clean base

Ustekinumab - Safe

- Compared to placebo, UST had a higher incidence of:
  - Acne (0.7% vs 0.4%, respectively)
  - Asthenia (1.2% vs 0.4%, respectively)
  - Vomiting (3.6% vs 2.6%, respectively)
  - Vulvovaginal mycotic infections (0.9% vs 0.4%, respectively)

- Infusion-related reactions were comparable with UST vs. placebo (2.6% vs. 2.4%, respectively)

- No anaphylaxis or other serious infusion reactions

>1400 Patients with Moderately to Severely Active Crohn’s Disease
Proportion of patients without rebleeding (rebleed free) during the 30 days after randomization. Top curve: Doppler patients, lower curve: standard treated patients. Product limit plots, compared by log-rank test: P = .0174

Gastroenterology 2017;152:1310–1318
Current Gastroenterology Reports

- Patients at high risk of rebleeding without endoscopic treatment are those with active arterial bleeding treated medically (90% rebleed rate), a NBVV (50%), or an adherent clot (33%). These patients, and those with the intermediate-risk stigmata of oozing bleeding, benefit from endoscopic hemostasis
- Ability to help predict both the risk of rebleeding and success of endoscopic treatment

<table>
<thead>
<tr>
<th>Canada and USA: Topic</th>
<th>Thought</th>
<th>Journal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percutaneous Gastrostomy Device for the Treatment of Class II and Class III Obesity: Results of a Randomized Controlled Trial</td>
<td></td>
<td>Am J Gastroenterol 2017; 112:447-45</td>
</tr>
<tr>
<td>A Multidisciplinary Approach to Pancreas Cancer in 2016: A Review</td>
<td></td>
<td>Am J Gastroenterol 2017; 112:537-554</td>
</tr>
<tr>
<td>Colorectal Cancer Screening: Recommendations for Physicians and Patients from the U.S. Multi-Society Task Force on Colorectal Cancer</td>
<td></td>
<td>Am J Gastroenterol 2017; 112:1016-1030</td>
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