GI Disorders in the Elderly

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GI Disorders in the Supraquinquagenarian (SQGen)

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Talk Roadmap

• GERD in the SQGen
• Dysphagia in the SQGen
• IBS in the SQGen
• Fructose intolerance
• IBD in the SQGen

The Rationale for this Talk

• In 2011, 77.2 million baby boomers turned 65
• 8-10,000 per day or 4 million per year for next 19 years
• GI complaints third most common cause of visit to primary providers

http://www.cdc.gov/nchs/products/vsus.htm
Question

Which of the following is true?
A. Elderly patients experience more classic symptoms with GERD than younger patients.
B. There is no reported increase in mortality/morbidity in the elderly with antireflux surgery.
C. 25% of residents of nursing home complain of dysphagia.
D. Elderly patients with IBS more often complain of diarrhea than constipation.
E. None of the above is true

Talk Roadmap

• GERD in the SQGen
• Dysphagia in the SQGen
• IBS in the SQGen
• Fructose intolerance
• IBD in the SQGen
Gastroesophageal Reflux in the Elderly:
Epidemiology

• ½ adults in US experience heartburn once per month
  – 15 million experience every day
• Increased prevalence with age
  – confirmed on manometry/pH studies

Gastroesophageal Reflux in the Elderly:
Age-Specific Differences

• More serious disease
  – Severe esophagitis (on endoscopy)
    • Age < 21: 12%
    • Age > 70: 37%
  – Recurrent Peptic strictures
  – Barrett’s esophagus (greater frequency of cancer)
    • Up to 1/3 silent
  – Esophageal cancer
    • Increased morbidity with esophagectomy
• More “silent”, more “atypical”, more “alarm symptoms”
Aggravation of GERD in the Elderly: Why?

- Decreased LES tone (medications)
- More frequent hiatal hernias
- Impaired esophageal peristalsis
- Differences in saliva
  - Decreased volume
  - Lower concentration of bicarbonate

Diagnosis of GERD: Age-Specific Differences

- In younger patients, PPI trial before investigate
  - Sensitivity 68%, Specificity 83%
- In elderly, no specific guidelines
  - Early endoscopy
    - Complications
    - Obviate need for PPIs
Treatment of Gastroesophageal Reflux: Lifestyle Modification

- **Little evidence**
  - Even less evidence for the elderly
- Weight loss if overweight
- HOB elevation if nocturnal symptoms (RCTs)
- Avoid late meals if nocturnal symptoms
- Avoid promoting medications
  - Anticholingercis, opiates, nitrates, CCBs, HRT
- Avoid trigger foods if identify a culprit

Treatment of Gastroesophageal Reflux: OTCs and Prescriptions

- Anacids/H2RAs for mild transient reflux
  - Short duration, do not heal (52% with H2RAs)
  - Magnesium-containing OTCs
    - Diarrhea, renal failure
- PPIs for more persistent reflux
  - Heal (73-91%) but 90% relapse in a year
  - Increased $t_{1/2}$ and reduced clearance with lanso-, ome-, rabeprazole
Risks of PPI Use in the Elderly

• Short Term:
  – Headache, nausea, constipation, diarrhea, rash
• Long Term:
  
  **FDA Drug Safety Communication: Possible increased risk of fractures of the hip, wrist, and spine with the use of proton pump inhibitors**

Update: 3/23/2011

FDA has determined that osteoporosis and fracture warnings on the over-the-counter (OTC) proton pump inhibitor (PPI) medication Drug Facts label is not indicated at this time. Following a thorough review of available safety data, FDA has concluded that fracture risk with short-term, low dose PPI use is unlikely.

The available data show that patients at highest risk for fractures received high doses of prescription PPIs (higher than OTC PPI doses) and/or used a PPI for one year or more.

In contrast to prescription PPIs, OTC PPIs are marketed at low doses and are only intended for a 14 day course of treatment up to 3 times per year. FDA acknowledges that consumers, either on their own, or based on a healthcare professional’s recommendation, may take these products for periods of time that exceed the directions on the OTC label. Healthcare professionals should be aware of this risk for fracture if they are recommending use of OTC PPIs at higher doses or for longer periods of time than in the OTC PPI label.

Long-Term PPIs in the Elderly

<table>
<thead>
<tr>
<th>Adverse event</th>
<th>Background incidence</th>
<th>Biological mechanism</th>
<th>Strength of association</th>
<th>Consistency of evidence</th>
<th>Limitations of studies</th>
<th>Conclusion/precaution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug interaction with clopidogrel</td>
<td>Not applicable</td>
<td>Competitive inhibition of CYP2C9 by PPIs impairing the conversion of clopidogrel to its active substance and thereby affecting the platelet inhibition function</td>
<td>Low strength (risk estimates &lt;2)</td>
<td>Inconsistent</td>
<td>Limited evidence out of design and timing of intake</td>
<td>No drug interactions found with clopidogrel. No strong evidence suggesting potential for increased bleeding risk. These concerns require further evaluation.</td>
</tr>
<tr>
<td>Drug interaction with LDA</td>
<td>Not applicable</td>
<td>Decreased gastric acidity limits the bioavailability of LDA and thereby reduces the positive absorption of LDA across the gastric mucosal membrane</td>
<td>Low strength (risk estimates &lt;2)</td>
<td>Inconsistent</td>
<td>Conflicting evidence. Association may be due to confounding</td>
<td>For any anticoagulant therapy, lower doses of LDA is recommended.</td>
</tr>
<tr>
<td>Drug interaction with levofloxacin</td>
<td>Not applicable</td>
<td>Decreased absorption of levofloxacin in the jejunum and ileum</td>
<td>Low strength (risk estimates &lt;2)</td>
<td>Inconsistent</td>
<td>Short-term follow-up/dose monitoring of TSH levels</td>
<td>Limited evidence for interaction. No evidence for increased risk of hypoglycemia.</td>
</tr>
<tr>
<td>Bone fractures</td>
<td>Cumulative 1-year incidence of hip fractures: Women aged 70-74 y: 300 per 100,000 persons 60-64 y: 500 per 100,000 persons Men aged 70-74 y: 300 per 100,000 persons 60-64 y: 500 per 100,000 persons</td>
<td>Decreased calcium absorption</td>
<td>Low strength (risk estimates &lt;2)</td>
<td>Inconsistent</td>
<td>No dose or duration response observed. Association likely influenced by prevalence of polypharmacy and comorbidity among the elderly</td>
<td>Fractures likely to occur in elderly subjects who are already more prone to fractures due to comorbid diseases.</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>Annual incidence 25-44 per 1,000 for non-institutionalized elderly 53-144 per 1,000 for elderly in residential care</td>
<td>By suppression of the gastric acid environment bacterial and viral colonization may occur</td>
<td>Low to moderate strength (H4 estimates &lt;2-4)</td>
<td>Inconsistent</td>
<td>No dose or duration response observed. Confounding by indication and prognostic. Baseline present.</td>
<td>A very small effect of PPIs on pneumonia may remain present but will have very little impact on clinical practice.</td>
</tr>
</tbody>
</table>

**Correction:**

Vitamin D
Calcium citrate

**References:**

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<th>Limitations of studies</th>
<th>Conclusions/implications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hypomagnesemia</strong></td>
<td>Persistently low serum Mg levels in the elderly</td>
<td>Poorly understood</td>
<td>Unknowns</td>
<td>Inconsistent</td>
<td>Limited data</td>
<td>Scarce data on the association of PPIs and hypomagnesemia but the mechanism may be due to absence of evidence.</td>
</tr>
<tr>
<td><strong>Acute Intestinal Necrosis</strong></td>
<td>Incidence not well-known</td>
<td>1. Dehydration and hypotension 2. Inadequate intestinal perfusion 3. Enhanced intestinal permeability</td>
<td>Unknowns</td>
<td>Inconsistent</td>
<td>Limited data</td>
<td>Limited data</td>
</tr>
</tbody>
</table>
Antireflux Surgery in the Elderly

- High response in short- and long-term follow-up
- No reported increase in morbidity, mortality, or hospital stay with open or laparoscopic Nissen fundoplication

Table 3. Operative and Postoperative Data

<table>
<thead>
<tr>
<th></th>
<th>Group A (65 Years)</th>
<th>Group B (65 Years)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation time, mean ± SD, min</td>
<td>120 ± 41</td>
<td>120 ± 56</td>
<td>&gt;.99</td>
</tr>
<tr>
<td>Additional procedures, %</td>
<td>12</td>
<td>27</td>
<td>.008</td>
</tr>
<tr>
<td>Intraoperative complications, %</td>
<td>2.5</td>
<td>0</td>
<td>.24</td>
</tr>
<tr>
<td>Conversion rate, %</td>
<td>2.0</td>
<td>1.5</td>
<td>.72</td>
</tr>
<tr>
<td>Postoperative complications, %</td>
<td>2.5</td>
<td>3.2</td>
<td>.16</td>
</tr>
<tr>
<td>Length of hospital stay, mean ± SD, h</td>
<td>24 ± 60</td>
<td>24 ± 44</td>
<td>&gt;.99</td>
</tr>
</tbody>
</table>

GI Drug Interactions:
Peptic Diseases and Hypertension

Table 1. Interactions between common medications used for hypertension and acid peptic disease

<table>
<thead>
<tr>
<th>Drug</th>
<th>Calcium Carbonate</th>
<th>Ranitidine</th>
<th>Omeprazole</th>
<th>Carafate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metoprolol</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Lisinopril</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Hydrochlorothiazide</td>
<td>Interaction</td>
<td>None</td>
<td>Interaction</td>
<td>None</td>
</tr>
<tr>
<td>Furosemide</td>
<td>None</td>
<td>None</td>
<td>Interaction</td>
<td>None</td>
</tr>
<tr>
<td>Spironolactone</td>
<td>None</td>
<td>None</td>
<td>Interaction</td>
<td>None</td>
</tr>
<tr>
<td>Nifedipine</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Isosorbide</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Hydralazine</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Losartan</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
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</tbody>
</table>
### GI Drug Interactions: Peptic Diseases and Diabetes

<table>
<thead>
<tr>
<th></th>
<th>Calcium Carbonate</th>
<th>Ranitidine</th>
<th>Omeprazole</th>
<th>Carafate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metformin</td>
<td>None</td>
<td>Interaction</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Glyburide</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Rosiglitazone</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Glargine</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Intermediate-acting insulin</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Pioglitazone</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

### GI Drug Interactions: Peptic Diseases and Hyperlipidemia

<table>
<thead>
<tr>
<th></th>
<th>Calcium Carbonate</th>
<th>Ranitidine</th>
<th>Omeprazole</th>
<th>Carafate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simvastatin</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Pravastatin</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Fenofibrate</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Niacin</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Cholestyramine</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>
GI Drug Interactions: Peptic Diseases and Pain/Psych

Talk Roadmap

- GERD in the SQGen
- Dysphagia in the SQGen
- IBS in the SQGen
- Fructose intolerance
- IBD in the SQGen
Dysphagia in the Elderly: Epidemiology and Implications

• Oropharyngeal and esophageal
• 50% of residents in nursing homes
• Higher risk of malnutrition, aspiration PNA
  – 50% with oropharyngeal dysphagia with aspiration PNA

Dysphagia: Why?

• Loss of jaw strength
• Decrease salivary production
• Poor dentition
• Increased connective/fatty tissue in tongue
• Longer pharyngeal swallow
• Neurologic disorders
  – TIA/CVA (50% result in dysphagia; majority regain function)
  – Neurodegenerative disease
• Other disorders
  – Zenker’s diverticulum (increased prevalence)
  – Achalasia (low prevalence, 1/10,000)
  – Esophageal strictures/tumors
Dysphagia: Evaluation

- Necessary change in consistency of foods
- Solids vs liquids
- Weight loss
- Nasopharyngeal regurgitation
- Examine dentition, tongue range of motion, cranial nerves

Fig. 1. Referrals and testing for dysphagia.
Talk Roadmap

• GERD in the SQGen
• Dysphagia in the SQGen
• **IBS in the SQGen**
• Fructose intolerance
• IBD in the SQGen

IBS in the Elderly: Epidemiology

• More common age of onset is adolescence and young adulthood
• Age > 65 is rare age of onset ("red flag")
• 10-20% prevalence in elderly
  – Predominantly women 2:1
**IBS in the Elderly:**

**Why?**

- Pathophysiology studies in younger patients
  - ? Applicability
- Altered-gut Motility
  - Colonic motility, higher [serotonin]
- Visceral Hypersensitivity
- Psychosocial Factors
- Brain-gut Axis (hormones)
- Post-infective IBS (30%)
- Altered Flora (less Lacto- and Bifidobacteria)

**IBS:**

**Age-Specific Differences**

- More constipation
- Poorly localized pain
  - Mid/lower abdomen
- More distension, borborygmi
- Increased perineal descent (women)
- Rectal urgency, fecal incontinence
IBS and Pain: Medication Safety

- Antispasmodics (pain)
  - Blurred vision, dry mouth, fatigue, urinary hesitancy
  - Avoid in narrow-angle glaucoma/urinary retention
- TCAs (pain)
  - Constipation
  - Anticholinergic effects (confusion)
- SSRIs (bloating, pain)
  - Weight changes

IBS and Constipation: Medication Safety

- Laxatives
  - Bloating, pain, diarrhea, dehydration
- Lubiprostone
  - Nausea, diarrhea, abdominal pain, headache, edema
- Linaclotide
  - Diarrhea, abdominal pain, headache
IBS and Diarrhea: Medication Safety

- Loperamide
  - Constipation
  - Rule out impaction (overflow)
- Alosetron
  - Constipation
  - Ischemic colitis

Other Therapies

- Psychological Treatments
- Diet
Psychosocial Therapies

• Some people benefit from formal counseling  
  – Hypnosis  
  – Cognitive behavior therapy (focus on thoughts/feelings influencing behaviors)  
  – Antidepressants/antianxiety medications  

• Support groups  
• Daily exercise

Elimination Diet

• Milk products (temporarily)  
  – Highest amount in milk/ice cream  
  – Avoid for 2 weeks  
  • If better: continue to avoid or use lactase  
  • If no different: resume
Elimination Diet - Gas

- Beans
- Cabbage
- Brussels sprouts
- Cauliflower
- Broccoli
- ? Onions, celery, carrots, raisins, bananas, apricots, prunes, sprouts, wheat

Low-FODMAPs Diet
Fiber

- Helpful in constipation
- In patients with diarrhea, can improve consistency of bowel movements
- Supplements:
  - Psyllium (Metamucil ®)
    - 20-30 grams/day
  - Methylcellulose (Citrucel ®)

Talk Roadmap

- GERD in the SQGen
- Dysphagia in the SQGen
- IBS in the SQGen
- **Fructose intolerance**
- IBD in the SQGen
**Low-FODMAPs Diet**

**Table 3. Characteristics and sources of common FODMAPs**

<table>
<thead>
<tr>
<th>Category</th>
<th>Example Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>Fermentable by colonic bacteria</td>
</tr>
<tr>
<td>O</td>
<td>Oligosaccharides</td>
</tr>
<tr>
<td>D</td>
<td>Disaccharides</td>
</tr>
<tr>
<td>M</td>
<td>Monosaccharides</td>
</tr>
</tbody>
</table>

**Fructose Intolerance**

- Fructose natural component of many plants
  - In most fruits and vegetables
- No specific enzyme for digesting or transporting fructose
  - GLUT-5 and GLUT-2 transport glucose and can help with fructose
  - Large quantities overwhelm transporters
- Intolerance seen in 1/3 of IBS patients
- ~60% of Northern European and Mediterranean Caucasian populations
Talk Roadmap

• GERD in the SQGen
• Dysphagia in the SQGen
• IBS in the SQGen
• Fructose intolerance
• IBD in the SQGen

Question

Which of the following is false?

A. Aspirin 81mg daily is associated with increased activity in IBD.
B. In the elderly with distal UC, constipation is more a common presentation than abdominal pain or anemia.
C. 80% of elderly patient respond to medical therapy.
D. Elderly patients with Crohn’s disease require surgery less frequently.
E. None of the above.
### Incidence of IBD in the Elderly

- 10-30% of IBD population is over 60
  - 65% aged 60-70
  - 25% aged 70-80
  - 10% over age 80
- Up to 1/3 of new cases of Crohn’s occur in elderly
- In US: 4-8/100,000
- In Europe: 8-10/100,000

### Challenges in Management of IBD in the Elderly

- Mimics of IBD
- Misdiagnosis
- Managing comorbid diseases
- Polypharmacy
- Restrictive diets with comorbidities
- Majority of clinical trials exclude or have very few older patients
Differences in Clinical Presentation of IBD in the Elderly

• Constipation, bleeding, fever
• Less abdominal pain, anemia
• Colonic Crohn’s disease more common
• Less fistula/stricture but greater inflammatory component at presentation
• Greater risk of osteoporosis

Disease Course in the Elderly

• First attack particularly severe, leading to surgery
• After first attack, less severe disease with fewer hospitalizations in UC
• Lower surgical rate for elderly with Crohn’s
  – Mayo clinic: OR surgery in CD 0.86
• 80% respond to medical therapy
Challenges with Medical Therapy

- Forgetting medications secondary to frequent dosing
- Difficulty in retaining enemas
- Lower clearance of therapy
- Drug interactions
- Higher risk of infection and malignancy

Important and Common Drug Interactions

- 6MP/azathioprine and allopurinol (gout)
- Methotrexate and alcohol
- Antibiotics and statins
- Corticosteroids and phenytoin or phenobarbital
- Warfarin

<table>
<thead>
<tr>
<th>Coumadin Interactions</th>
<th>Increase INR</th>
<th>Decrease INR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ciprofloxacin</td>
<td>Azathioprine</td>
<td>6MP</td>
</tr>
<tr>
<td>Metronidazole</td>
<td>Infliximab</td>
<td>Adalimumab</td>
</tr>
<tr>
<td>Corticosteroids</td>
<td>Certolizumab</td>
<td>Corticosteroids</td>
</tr>
</tbody>
</table>
Corticosteroid-Specific Considerations

• Higher incidence of corticosteroid dependence in elderly
• Higher risk of fractures (15%), altered mental status, diabetes, and hypertension

Biologic Therapy Considerations

• Most information from studies in rheumatoid arthritis and psoriasis
• Same remission/response rates as young
• Higher risk of severe infection (10%)
• Contraindicated in those with hepatic disease, congestive heart failure, concomitant infections, bone marrow depression
Effect of anticoagulation/antiplatelet therapy in IBD

• Aspirin and warfarin not associated with increased Crohn’s activity
• Also shown for clopidogrel in IBD population

Risks and Outcomes of Surgery in UC

• Earlier after diagnosis
• Poor outcomes if urgent surgery and low albumin
• Fecal incontinence more common after IPAA (rarely done)
• Dysplasia more common indication for surgery
Risks and Outcomes of Surgery in CD

- Less frequent need for surgery
- Higher mortality and more perioperative problems

Prostate Cancer Screening

![Diagram showing prostate cancer screening process]

Figure 2. A proposed algorithm for screening and diagnosis of prostate cancer in pouch patients. PSA, prostate-specific antigen.
Vaccinations

- Rate of immunization low (10-40%)
- Lack of awareness (even amongst GI)
- Not associated with flare of disease
- Appropriate response but at lower levels, especially on anti-TNF or combination therapy
- Best time at diagnosis

Routine Vaccinations with No Differences

- Td/Tdap: 1-time Tdap, Td every 10 years
- Influenza (not LAIV): 1 dose annually
- HBV: especially prior to anti-TNF
- HAV: especially in high-risk
- Meningococcus: if asplenic
- Pneumococcus: 1 dose between 19-26, second dose after 5 years
Vaccinations with Differences

• Avoid in those on immunosuppressive therapy (for 1-3 months):
  – LAIV (safety not established)
  – MMR (consider if titers negative)
  – Varicella (consider if IgG negative)

Zoster Vaccination, per CDC

• **Contraindicated:**
  – >20mg/d prednisone for >2 weeks
    • hold for 1 month
  – AntiTNF therapy
    • Hold for at least 1 month

• **Compatible:**
  – less prednisone than above
  – Methotrexate <0.4mg/kg/week
  – Azathioprine <3.0mg/kg/day
  – 6-MP <1.5mg/kg/day
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Which of the following is true?

A. Elderly patients experience more classic symptoms with GERD than younger patients.
B. There is no reported increase in mortality/morbidity in the elderly with antireflux surgery.
C. 25% of residents of nursing homes complain of dysphagia.
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