2017 CAPA SUMMER CONFERENCE SAN DIEGO
Who gives a sh!%#!

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Objectives

1. Describe the age demographic shifts affecting the healthcare industry
2. Have working knowledge of the common GI disorders effecting the elderly
3. Differentiate normal anatomical and physiological changes in the aged GI tract
4. Identify the common presentations of GI disease for elderly patient
5. Understand the diagnostics used in the work up of GI disorders in the elderly
6. Identify treatment strategies for elderly patients with GI disorders
7. Review the effects different medications exert on the aged GI tract
The aging population
It all started in 1946

or

EXTRA! Victory EXTRA!
Waterloo Daily Courier

PEACE!
WAR ENDS; JAPANESE ACCEPT ALLIED TERMS ON EMPEROR
And those kids grew up
The old keep getting older

- 2030
  - 78 million "baby boomers"
- 2050
  - > 85 yo "oldest old"
  - 377% increase

Source: U.S. Bureau of the Census
Geripause

- The age threshold beyond which significant changes in physiology occur that result in impaired function
  - 60-75 yo
- External and Internal assaults
  - Direct system function
    - Bowel motility, GI secretions
  - Indirect system function
    - Appetite Hormones, cognitive process, motor function
How does this affect the healthcare industry

• Increased health care costs (3-5x’s > health-care cost per capita ≥65 years)
  • Providers will increasingly be called upon to help reign in expenses

• Resource Depletion
  • Providers will increasingly be called upon to do more with less

• Less providers
  • Providers will increasingly be called upon to see more patients

• Decrease in elderly support ratio (the number of persons aged ≥65 years per 100 persons aged 20–64 years)
  • Providers will increasingly be called upon as surrogates

AKA YOU
Who gives a sh#%

• 35-40% (~50 million patients) 1 or more GI symptoms/year
• Higher costs
  • Atypical presentations
    • Different physiology and anatomy
• Delayed symptoms
  • Late findings? More severe
• Diagnostic challenges
  • Vitals don’t respond
  • Labs are different
  • Unreliable exam findings

Largest immunological system in mammals

- Aging may impair mucosal immunity
  - GI mucosal immune response
- Peyer's patches in the small intestine
- Decreased T lymphocytes and mast cells in the rectum
- Decreased differentiation and migration of lymphocytic immunoblasts

- Age-related changes to GI flora
  - Helicobacter pylori
  - Clostridium difficile
Parents are FOS and other common GI changes

- **Mouth**
  - Dentition, Saliva, Mastication
- **Esophagus**
  - Motility, architecture
- **Stomach**
  - Motility, architecture, secretions
- **Small intestine**
  - Motility, architecture, secretions
- **Colon**
  - Motility, architecture, secretions
- **Rectum**
  - Motility, architecture, secretions
- **Liver**
- **GB**
- **Pancreas**
Oral Pharynx

- Changes with aging
  - Epithelial thinning, loss of submucosal elastin and fat
  - Gingival thinning
  - Loss of alveolar bone
  - Capacity
- Meds
- Disease
  - Systemic
  - Dental

- Saliva reduced
  - Xerostomia
    - Meds
  - Taste is reduced
    - Less desire
      - Meds
      - Disease or Aged physiology
  - Mastication Impaired
    - Decreased intake
      - Ludwig’s angina
      - CVA

Dodds C. Physiology of ageing Anaesthesia & Intensive Care Medicine, Volume 7, Issue 12, 456 - 458
Esophagus

- Changes with aging
  - Impaired bolus flow
  - Decreased esophageal contractions
  - Decreased pressure in the sphincters
- Meds
- Disease
  - Systemic
  - Local

- Increased Reflux
  - Pain
    - Food choice
    - Taste
- Impaired swallow
  - Decreased intake
    - Food choice (liquids)
  - Pain
  - Aspiration

Stomach

- Changes with aging
  - Decreased clearance
  - Decreased perception of gastric distension
  - Delayed emptying
  - Atrophic gastritis
    - Decrease in pepsin output and gastric acid
    - No increased rates of duodenal ulcers,
  - Decrease mucosal cytoprotective factors
  - Decrease in blood flow
- Meds
- Disease
  - Systemic
  - Local

- Increased Reflux
  - Pain
    - Food choice
    - Taste
  - Impaired emptying
    - Decreased intake
    - Food choice (liquids)
    - Pain/Dyspepsia
  - Impaired secretion/protection
    - Pernicious anemia
    - Gastric lymphoma
    - H-Pylori (80%)

Small Intestine

- Changes with aging
  - Decreased surface area
  - Decreased uptake (mostly dictated by disease not age)
    - vitamin D, folic acid, vitamin B-12, calcium,
    - copper, zinc, fatty acids, cholesterol
  - +/- Decreased bowel motility
  - Decreased peyer’s patches
    - Bacterial Overgrowth
- Meds
- Disease
  - Systemic
    - Atherosclerotic
    - Mesenteric ischemia
  - Local
- Dumping
  - Decreased intake
    - Food choice (liquids)
  - Incontinence
    - Social
- Impaired absorption
  - Nutrient specific sxs
  - Protein deficiency
  - > lactose intolerance
  - Celiac
  - FTT

Colon

- Changes with aging
  - +/- Decreased bowel motility
  - Decreased tensile strength
  - Decreased colonic transit
  - Changes in epithelial DNA
  - Changes in microbial fauna
- Meds
- Disease
  - Systemic
    - Obesity
      - diastasis
  - Local
- Strength
  - Tics
  - Impaired transit time
  - Pain
  - Constipation
- Biome adjustment
  - > C-Diff

Rectum

- Changes with aging
  - Decreased anal pressures
  - Decreased rectal volume stimulant
  - Increased difficulty with bulk passage
- Meds
- Disease
  - Systemic
  - Local

- Strength
  - Incontinence
    - 10% geri population
- Impaired passage
  - Pain
  - UTI
  - Prolapse

Common GI disorders in the elderly

- Constipation
- Celiac Disease
- IBS
- GERD
- CRC
- Esophagitis
- Ulcer disease
- Diverticulosis
- Hemmorhoids
- Incontinence
- Malabsorption
- Gastroparesis
Presentation

- More severe
  - Cognitive impairment
  - Poor reserve
  - Decreased mounted response
- Systemic symptoms

....or Not
Non-Specific symptoms

- Confusion
- Self-neglect
- Falling
- Incontinence
- Apathy
- Anorexia
- Dyspnea
- Fatigue

Constipation

- Masked/Worsened by systemic disorders and polypharmacy
  - > Elderly women
  - > chronic
    - Sxs present for 3 of the prior 12 months
      - infrequent stools
      - difficult stool passage
        - straining, sense of incomplete evacuation
      - hard or lumpy stools
      - prolonged time to stool
      - manual maneuvers to stool
  - Neuro change, acute abdomen, bacteremic, UTI
Celiac Disease

- Masked/Worsened by systemic disorders and polypharmacy
- Elderly men (younger > female)
- 10% dermatitis herpetiformis
- FTT
- May be ASX
  - Delay in Diagnosis
  - > age 65
    - Conflicting studies on presentation
    - >more likely to present with abdominal and GI symptoms than younger
  - Predisposing factors and coexisting pathologies
- Diagnosis
  - serological screening tests
  - Duodenal biopsy = villous atrophy (reversed on a gluten-free diet).

IBS

• Masked/Worsened by systemic disorders and polypharmacy

• Rare for onset after age 65
  • Pain distribution and recognition is skewed
    • younger patients have pain in lower quadrants vs elderly no pain or non localized

• ROME IV criteria
  • Recurrent abdominal pain on avg 1d/wk x 3mos with 2 of the following:
    • Related to defecation
    • Associated with a change in stool frequency
    • Associated with a change in stool form

• Conflicting studies
  • > women
  • India study > men

• Prevalence = to younger population
GERD

• Masked/Worsened by systemic disorders and polypharmacy
  • Pain distribution and symptoms skewed
    • Atypical symptoms the rule
      • Chest pain not heartburn
        • R/O MI
      • Dysphagia not regurg
        • R/O CVA
    • FTT
      • R/O CA
    • Anemia
      • R/O CA
PUD

- Masked/Worsened by systemic disorders and polypharmacy

- More complicated
  - *Helicobacter pylori*
  - 80% of the very elderly are affected.

- May or may not have pain
  - Dyspepsia
  - Bloating
  - Early satiety
Important considerations

- Gender and race less statistically relevant
- Common is uncommon
- ASX until presentation
  - High Index of suspicion
- Masked as other diseases or symptoms
  - Decline in baseline
  - Onset and progression help differentiate
    - Dysphagia
      - CVA vs neuromuscular disease (Parkinsons)
Work up

• The shortest distance between 2 points is not always the safest
• Consider co-morbidities
• Overlapping symptoms
• R/O the bad
Diagnostics

• Labs
  • May not be accurate
  • Compare
  • Treat the patient

• Radiology
  • Contrast
    • AKI
      • > age 60
      • Egfr <30

• Scopes <80 y.o.
  • Decreased yield
    • Unable to complete
    • Poor prep
  • Sedation
  • Perforation
    • Similar rates
      • Inc w colonoscopy (>65yo)

• Referrals
  • Careful what you wish for

Primum non nocere

Surgery

• Higher risk
  • Nursing home residents higher mortality and morbidity
  • Surgical intervention for four types of major abdominal surgery (bleeding duodenal ulcer, colectomy, appendectomy, cholecystectomy) All factors equal (age, comorbidities, etc..) \(^1\)
  • Increasing age is a risk factor for postoperative morbidity and mortality\(^2\)
  • Co morbidities play a bigger role in surgical outcomes in the elderly
    • Surgical intervention for IBD mortality rates 4.4-fold greater in ulcerative colitis (6.1% vs 0.7%) and 11.7-fold greater in Crohn’s disease (CD; 4.2% vs 0.3%) compared with nonelderly IBD patients\(^3\)

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Peri operative management

- More complicated
  - Polypharmacy
  - Multiple co-morbidities
  - Too many cooks in the kitchen
    - Multiple providers
  - Travel and home care
  - Nutrition
  - Hospital post op diseases and med reconciliation
  - Sun downing
Drug induced GI tract problems

- Drug’s mode of action
- Direct injury
- Compromise GI defenses
- Changes in colonic bacterial flora
Drug induced GI tract problems

- Oral Pharynx
  - Dysgeusia
    - Captopril
      - salty
    - Lithium, Macrolides, Cyclines
    - Metal
    - Antifungals
      - No taste

- Esophagus, Stomach
  - Dyspepsia, Ulcers, Hemorrhage
    - NSAIDs
    - ASA
    - Biphosphonates
    - K+
    - Fe SO4
    - Corticosteroids

- Small Bowel and Colon
  - Motility (Inc/Dec)
    - Antihistamines
    - Anticholinergics
    - Antibiotics
    - Opioids
    - DM meds
  - Bowel flora shifts
    - Antibiotics
    - PPI
  - Ulcers, Hemorrhage
    - NSAIDs
    - ASA
    - Corticosteroids

*Not enough room on slide for nausea and vomiting inducing medications*
### GI Meds

- **5-aminosalicylates**
  - IBD meds (Asacol, Canasa)

- **Antacids**
  - Buffering agents (MOM, Mylanta)

- **Antidiarrheals**
  - Motility/Unknown (bismuth, loperamide)
  - Flora colonies (lactobacillus)
  - Adsorbs (attapulgite)

- **Digestive enzymes**
  - Lactaid (lactase)

- **Gallstone solubilizing agents**
  - Gallstone solubilizing agents

- **GI stimulants**
  - GI stimulants
    - Motility Inc (reglan, Cisapride...)

- **H. pylori eradication agents**
  - H. pylori eradication agents
    - Packaged for $$$

- **H2 antagonists**
  - H2 antagonists
    - Block histamine gastric secretion

- **Laxatives**
  - Laxatives
    - Lubricate Stimulate
    - Soften Bulk Hyperosmotics

- **Proton pump inhibitors**
  - Proton pump inhibitors
    - Block H+/K + ATPase

- **Miscellaneous GI agents**
  - Miscellanous GI agents
  - Simethicone
  - Cytotec
  - Simethicone

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**YES THIS SLIDE IS BUSY**
PPI

- Headaches
- Skin rashes

- Nausea
- Vomiting
- Abdominal pain
- Gas
- Diarrhea
- Constipation

- Dementia
- Osteoporosis

https://www.drugjustice.com/ppi-side-effects/
- Headache (may be severe)
- Drowsiness
- Decreased sex drive
- Impotence
- Anorgasmia
- Gynecomastia

- Nausea
- Vomiting
- Abdominal Pain
- Diarrhea
- Constipation
- Dizziness
- Insomnia
I’m nauseous

- Zofran (odansetron)
  - N/V
- Compazine (Prolorperazine)
  - N/V
- Reglan (metoclopramide)
  - Nausea
- Phenergan (promethazine)
  - N/V
The AGS Beers Criteria for Potentially Inappropriate Medication Use in Older Adults

- one of the most frequently consulted sources about the safety of prescribing medications for older adults

- Describing
  - Reduce polypharmacy
    - Drug-drug
    - Adverse effects

Take meds away

- Prescription medications
- Age 62-85yo
  - 87% At least one prescription medication
  - 36% Five or more prescription medications
  - 38% percent use over-the-counter medications
  - 20% of Medicare beneficiaries have five or more chronic conditions
- Elderly discharged from an acute hospitalization to a skilled nursing facility
  - prescribed an average of 14 medications,
  - > 33% with side effects that could exacerbate underlying geriatric syndromes
- Polypharmacy
  - variable, but usually 5 to 10 meds at once
    - 50 percent receive five or more medications
    - Independent risk factor for hip fractures in older adults
    - Increases the possibility of “prescribing cascades”
    - Poor adherence with multiple meds

https://www.uptodate.com/contents/drug-prescribing-for-older-adults#H115
Prescribing Cascade

- NSAID – HTN – Antihypertensive
- Pro motility drug – Nausea – Anti nausea
- Dizzy ............
Cascade effect

• I’m dizzy
  • Here’s your meclizine

• My mouth is dry
  • Here’s your biotene

• I’m constipated
  • Here’s your docusate

• My vision is blurry
  • Here’s your Ophthalmology referral

• I’m dizzy
  • Here’s more meclizine (se’s include – hnmnmnmnm ……dizzy?)
Med combos

- NSAIDS
- Coumadin
- PPI
- Already frail system
Side effects  AKA unintended consequences

- Drug-drug interactions
  - elderly > risk
  - multiple chronic conditions with multiple drug regimens
- “Side effects”
  - C-Dif
  - Rx CASCADE
- Dosing Errors
  - Renal impairment
  - Clearance
  - Poor reconciliation and duplication
  - Patient errors
    - Taking and Telling

And then there was 74-year-old Lola Cal. She had a long history of health problems, including high blood pressure and respiratory disease. She was in the hospital with pneumonia and had difficulty breathing. Her medical records showed she was on 36 medications.
Patient Interactions

• You: Mr. Jones which medications are you on.
• Mr Jones: a blood pressure pill and something for my cholesterol
• Mrs. Jones: Oh Harold don’t forget your blood thinner, and your other heart pillssssss, and your pain medicine, and your sleep aide, and your antidepressant, and occasional viagra.
• Ms. Jones: My parents forgot to mention his diabetes meds and his new antibiotic he got from his urgent care visit last week
Appropriate prescribing in the elderly

Appropriate RX

1. Is there an indication for the drug? YES – DO you really need to prescribe it?
2. Is the medication effective for the condition?
3. Is the dosage correct?
4. Are the directions correct?
5. Are the directions practical?
6. Are there clinically significant drug-drug interactions?
7. Are there clinically significant drug-disease/condition interactions?
8. Is there unnecessary duplication with other drugs?
9. Is the duration of therapy acceptable?
10. Is this drug the least expensive alternative compared with others of equal usefulness?
Take Home

- Not all symptoms are disease
  - Changes occur
- Geripause doesn’t have to be combated
- Polypharmacy is bad
- Sh#% happens
  - Primum non nocere
Primum non nocere