

# GERIATRIC GI

EDMUNDO RODRIGUEZ-FRIAS, MD

*"We've put more effort into helping folks reach old age than into helping them enjoy it"*

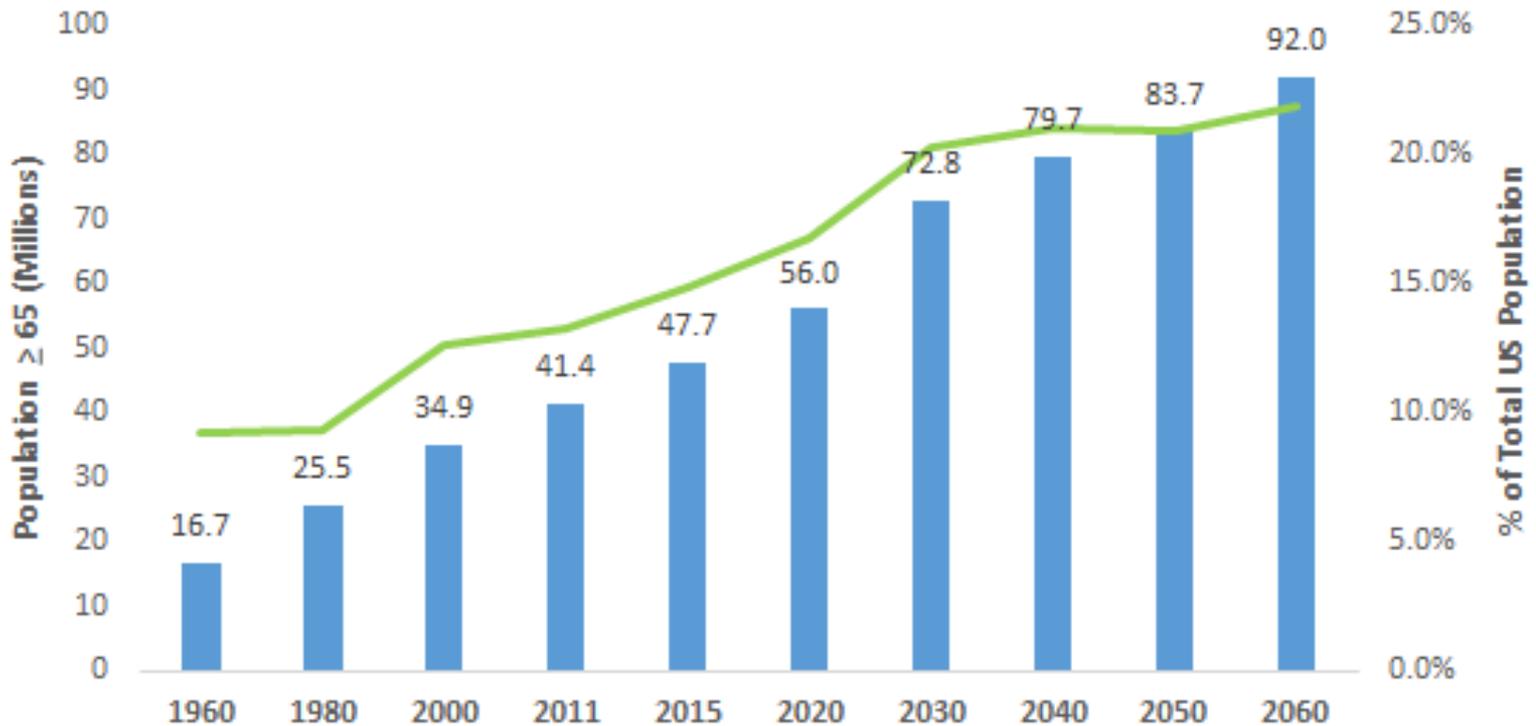
# GOALS OF TRAINING

1. Pathophysiology of aging.
2. Demographics and epidemiology of aging.
3. Impact of common geriatric disorders on gastroenterology.
4. Social and ethical issues in aging.
5. Listening skills and ethically sound relationship with elderly patient and their families.
6. Communicating bad news to the elderly.
7. Geriatric patients are a very heterogeneous population.
8. Effective strategies for inpatient and outpatient management.
9. Changes in gastrointestinal function with aging.
10. Changes in drug metabolism with aging.
11. Gastrointestinal effects of drugs. (BEERS list)
12. Effect of aging on nutrition.
13. Common gastrointestinal conditions in the elderly.

# BACKGROUND

- Geriatric: >65yo and older, patients of advanced age: >80 years of age.
- The U.S. Census Bureau projects the number of Americans >65 yo will more than double between 2010-2050.
- Americans >65yo will grow from 13% to more than 20% of the total population by 2030, and the fastest growing segment of this group (individuals > 85) is expected to triple in number over the next four decades.
- People living longer and the “baby boomer” generation crossed into the 65 and older age bracket in 2011.
- Older adults account for a disproportionate share of healthcare services:
  - o 26% of all physician office visits;
  - o 35% of all hospital stays;
  - o 34% of all prescriptions;
  - o 38% of all emergency medical responses; and
  - o 90% of all nursing home use.
- In 2006, elderly underwent 35.3% inpatient and 32.1% outpatient procedures.
- Almost 43% of medical subspecialty care is given to older Americans.
- One in five Americans will be eligible for Medicare by 2030.
- Shortage of geriatricians (appr 17,000 geriatricians are needed now to care for about 12 million older Americans, there are only 7000).

## US Population 65 Years and Older



Source: US Census Bureau

The over-65 population is expected to more than double by 2050, bolstered by Baby Boomers, people born between 1946 and 1964, adding to the strain on an already existing shortage of physicians

# BACKGROUND

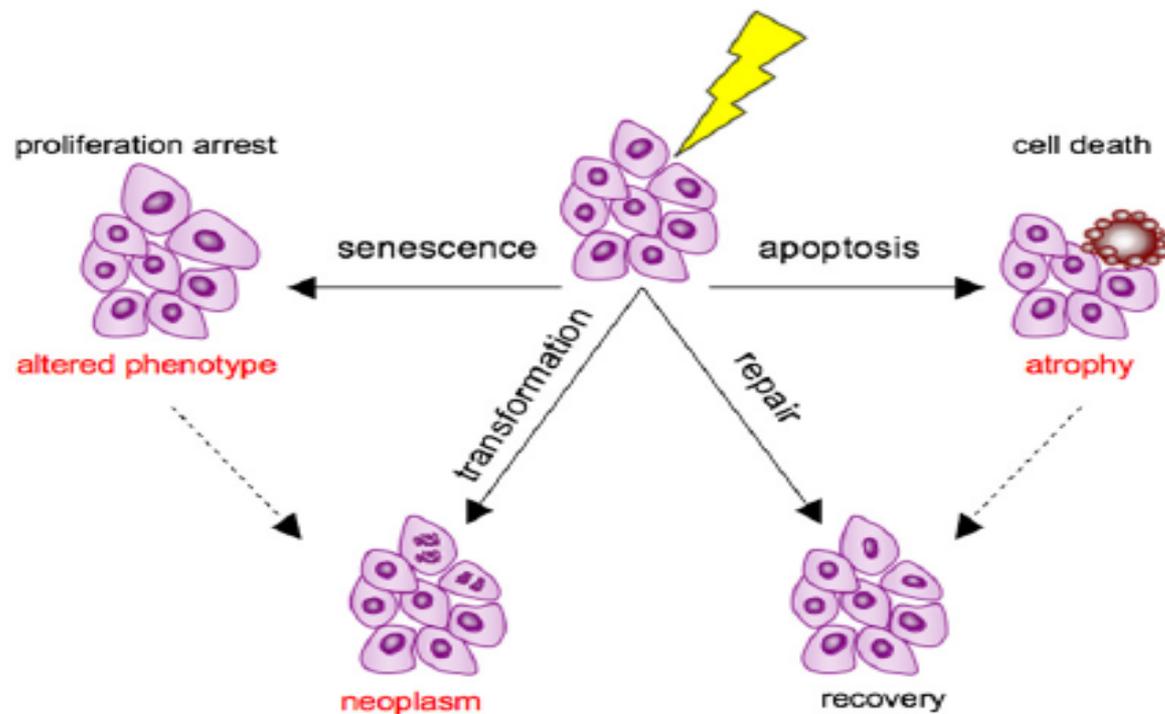
- The GI Core curriculum includes a section on training in geriatric GI but recent national survey of program directors and fellows demonstrated a lack of GI-specific geriatric training tools for GI fellows.
- Geriatric population represent a majority of the cohort requiring screening and surveillance colonoscopy.
- Visits for other GI complaints such as constipation, diarrhea, weight loss, dysphagia, fecal incontinence and reflux, comprise a significant percentage of the total medical visits to PCP.
- 30 % of all adult medical visits are for GI disorders of some kind.
- Important changes in GI pathophysiology and function that predispose older adults to a variety of clinical problems: impaired swallowing and aspiration, increased risk of acid- and NSAID-mediated mucosal injury, increased colon ca risk, slowing of colonic motility with subsequent constipation and fecal incontinence, diminished functional reserve, etc.

# BACKGROUND

- Impairment in appetite, absorption, and food intake are important causes of malnutrition.
- Aging associated changes in drug metabolism and polypharmacy result in potential interactions and side effects of drugs used to treat GI disease.
- Depression, dementia and neurodegenerative conditions affect nutrition, symptom presentation and response to therapy.
- Atypical presentation is not uncommon often due to age associated decline in sensory and autonomic neuronal reflexes.
- We should be aware about the importance of functional assessment of ADL as a guide to screen for functional and cognitive impairment.
- Common geriatric syndromes: dementia, depression, delirium, urinary incontinence, falls, mobility impairment, osteoporosis, and chronic pain.
- Polypharmacy not only can further complicate diagnosis and treatment of GI diseases, but also be the cause or exacerbate digestive symptoms.

# NORMAL AGING AND PHYSIOLOGY

- **Aging:** decline and deterioration of functional properties at the cellular, tissue, and organ level.
- Loss of hemostasis and decreased adaptability to internal and external stress, increasing vulnerability to disease and mortality.
- **Functional capacity** is a measure of the ability of cells, and organ systems to operate properly and is influenced by genes and environment.
- Hemostasis is regulated by different mechanisms of maintenance: DNA repair, synthesis; detection and clearance of defective proteins and lipids; clearance of defective organelles and cells; and defense against pathogens and injury.
- Stressors at the cellular level (eg, free radicals, DNA damage, cell injury/insult) challenge maintenance mechanisms.
- **Apoptosis:** process of cellular self-destruction, and crucial for survival of multicellular organisms as cell division. It is important in embryogenesis: morphogenesis, selection (eliminating nonfunctional cells), immunity (eliminating dangerous cells), and organ size.
- **Immunosenescence:** decline in the function of the adaptive immune system that occurs during aging and is associated with thymic involution, alterations in T-cell subsets, and reduction in antibody production. The adaptive immunity declines, and there is a low-level chronic proinflammatory state known as "*Inflammaging*".



**Fig. 1.** Cellular responses to stressors. Stressors (free radicals, DNA damage, nutrient or oxygen constriction, cell injury [represented by the *lightening bolt*]) challenge cellular homeostasis. The cellular response can be senescence, apoptosis, repair, or neoplastic transformation of the cell. Senescence, a tumor-suppressive response is associated with an altered secretory phenotype. The controlled cell death of apoptosis can also be tumor-suppressive, although many cells, especially immune cells, normally exit through apoptosis. Apoptosis can, however, yield tissue/organ atrophy. Repair enables recovery of homeostasis. In some cases, apoptosis is a precursor of repair and recovery (*dotted line with arrow*). Also, the senescent cell phenotype is sometimes a precursor/contributor to neoplasm formation and cancer progression.

# NORMAL AGING AND PHYSIOLOGY

- Tooth loss and mild loss of saliva → difficult mastication.
- **Gastric secretions:** Pepsin secretion normal in healthy elderly but reduced in HP+
- Increased prevalence of atrophic gastritis (up to 50-70%) with subsequent reduced acid secretion, bacterial proliferation, malabsorption of nutrients and vit B<sub>12</sub>, reduce the production of ghrelin and stimulate leptin activity, favoring anorexia and undernutrition in the elderly.
- Decrease in cytoprotective mucus-bicarbonate barrier and cell proliferation in the gastric wall (decreased concentrations of PGE<sub>2</sub>) → more vulnerable to NSAID's.
- **Liver and bile:** increases in cholesterol secretion and decreased secretion of bile acids. Increase prevalence of hypokinetic GB disease and sphincter of Oddi dysfunction.
- **Nutrient digestion and absorption:** Decrease secretion of gastric acid, pepsin pancreatic juice and bile salts can impaired food absorption. Excessive use of PPI can also promote bacterial proliferation in SB and produce malabsorption (recent study suggest association with higher morbidity in elderly).\*

\*Corsonello. PPI and risk of 1-year mortality and rehospitalization in older patients discharged from acute care hospitals. JAMA 2013;173:518-23

## EXPECTED MOTILITY CHANGES IN ELDERLY

- **Oropharynx:** retention in the vallecula and the piriform sinuses increases, the driving force of the tongue diminishes, pharyngeal peristalsis is preserved, and the pressure and opening of the UES decrease; pharyngo-UES contractile reflex also declines.
- **Esophagus:** presbyesophagus → low-amplitude peristaltic waves, polyphasic waves in the esophageal body, incomplete UES relaxation, esophageal dilatation, delayed muscle relaxation after swallowing, reduced postdeglutition peristalsis secondary to esophageal distention, with incomplete clearance of low and high-viscosity liquids. The reduced amplitude of the peristaltic waves decreases clearance of the esophageal contents and prolongs episodes of reflux.
- **Stomach:** Subtle changes in liquid and solid emptying, and peristaltic contractions. Postprandial gastric peristalsis is diminished and gastric emptying after a high-fat meal is markedly delayed (decrease cholinergic neurons and interstitial cells of Cajal).
- **SB** motility does not change with aging.
- Fecal material transit through the **colon** is slowed due to reduced number of neurons in the myenteric plexus.
- **Anorectal:** external sphincter thinning, thickening of the internal sphincter, reduced maximal squeeze pressures (women), reductions in resting anal canal pressures, and reduced pressure thresholds for relaxation of both sphincters.

The effects of aging on gastrointestinal hormones

Hormone	Function	Aging effect
Gastrin	Gastric acid secretion	Increased
Ghrelin	Increased food intake and growth hormone	No change
Cholecystokinin	Satiation Gallbladder secretion Pancreatic enzyme secretion	Increased
Secretion	Pancreatic enzyme secretion Bicarbonate secretion	Unknown
Gastric inhibitory peptide	Insulin secretion Slows gastric emptying	No change
Glucagon-like peptide	Insulin secretion Slows gastric emptying	No change
Pancreatic polypeptide	Inhibits pancreatic secretion	Increased
Somatostatin	Inhibits gut secretion, intestinal motility, and peptide hormone secretion	Increased
Motilin	Gastric emptying Migratory motor complexes	Increased
Insulin	Glucose regulation	Increased
Amylin	Inhibits insulin	Increased above middle age levels
Calcitonin gene-related peptide	Satiation Postprandial hypotension	No change or increased

# APPROACH TO THE ELDERLY PATIENT

- Attention to more subtle, atypical, or nonspecific symptoms, recognition of the importance of maintaining function.
- Geriatric assessment includes evaluation of basic and intermediate activities of daily living (ADLs), cognitive function, and symptoms of depression.
- Obtain additional information to develop a comprehensive plan of care.
- Understand the importance of rehabilitation and community-based services, as well as involvement of a caregiver
- Depression and subtle changes in cognitive function are common in older patients, and structured assessment.
- Physiological changes in hepatic and renal blood flow and function, as well as body composition, affect the pharmacokinetics of many drugs used in the elderly (increase the likelihood of adverse drug event).
- Because diminished physiological reserves, they are more vulnerable to disturbances in the environment and have reduced capacity to maintain homeostasis.
- Modest declines in function gastric mucosal cytoprotection and esophageal acid clearance. Significant decreases in lower GI motor function (motility and transit), GI immunity, bile lithogenesis, hepatic drug metabolism (cP450 system).
- Anorexia of aging, sarcopenia, constipation, diarrhea or fecal incontinence, and postprandial hypotension.

# Rules of Getting Older <sup>3</sup>



Never pass a bathroom,  
don't waste a hard-on,  
and never trust a fart



# NUTRITIONAL ISSUES IN OLDER ADULTS

- Up to 71 % older inpatients are at nutritional risk or are malnourished.
- Weight loss in the elderly is a predictor of mortality (as little as 5 % of weight over 3 year period is associated with increased mortality among community-dwelling older adults).
- Lack of ability to compensate decrease oral intake due to illness can result in long-term, persistent weight changes, especially if associated to social (isolation, poverty), medical, or psychological factors that can negatively impact body weight.
- Dysphagia up to 7-10 % older population.
- Depression is one of the most important causes of weight loss- up to 30% followed by malignancy at 9%.
- Assess for dental conditions, difficulty chewing, poor vision.
- Patients with CVA, severe arthritis, hand tremors, and dementia may require feeding assistance.
- Physiologic factors in the elderly associated with weight loss: decrease in taste and smell sensitivity, delayed gastric emptying, early satiety, and impairment in the regulation of food intake.

# NUTRITIONAL ISSUES IN OLDER ADULTS

- **Anorexia:** Influenced by multiple physiological changes, food intake gradually diminishes with age being an appropriate response to decreased energy needs due to reduced physical activity, decreased resting energy expenditure, and loss of lean body mass.
- **Cachexia** can be associated with anorexia, inflammation, insulin resistance. Increase acute phase response, CRP production and down-regulation of albumin due to pro-inflammatory cytokines: IL-1, IL-6, TNF- $\alpha$  that enhance lipolysis, muscle protein breakdown, and nitrogen loss.
- **Sarcopenia:** syndrome characterized by the loss of muscle mass, strength, and performance. It does not necessarily require an underlying medical problem. Associated with increased rates of functional impairment, disability, falls and mortality.
- Appetite stimulants: megestrol (monitor for edema, CHF and DVT), dronabinol but significant CNS side effects.
- B12 def- 10-20% (poorly absorb protein-bound B12 secondary to malabsorption and gastric achlorhydria).
- Vit D def linked with muscle weakness, functional impairment, depression, and increased risk of falls and fractures.

**Box 1. Possible factors contributing to the physiologic anorexia of aging**

Diminished sense of smell and taste

Reduced sensory-specific satiety

Increased cytokine activity

Alterations in gastrointestinal function

    Delayed gastric emptying

    Altered gastric food distribution

Hormonal

*Increase appetite/food intake*

Opioids: decreased activity; not proven in humans

Testosterone: decreased activity with age

Ghrelin: possible decreased activity with aging (unproven)

NPY: possible decreased activity with aging (little evidence)

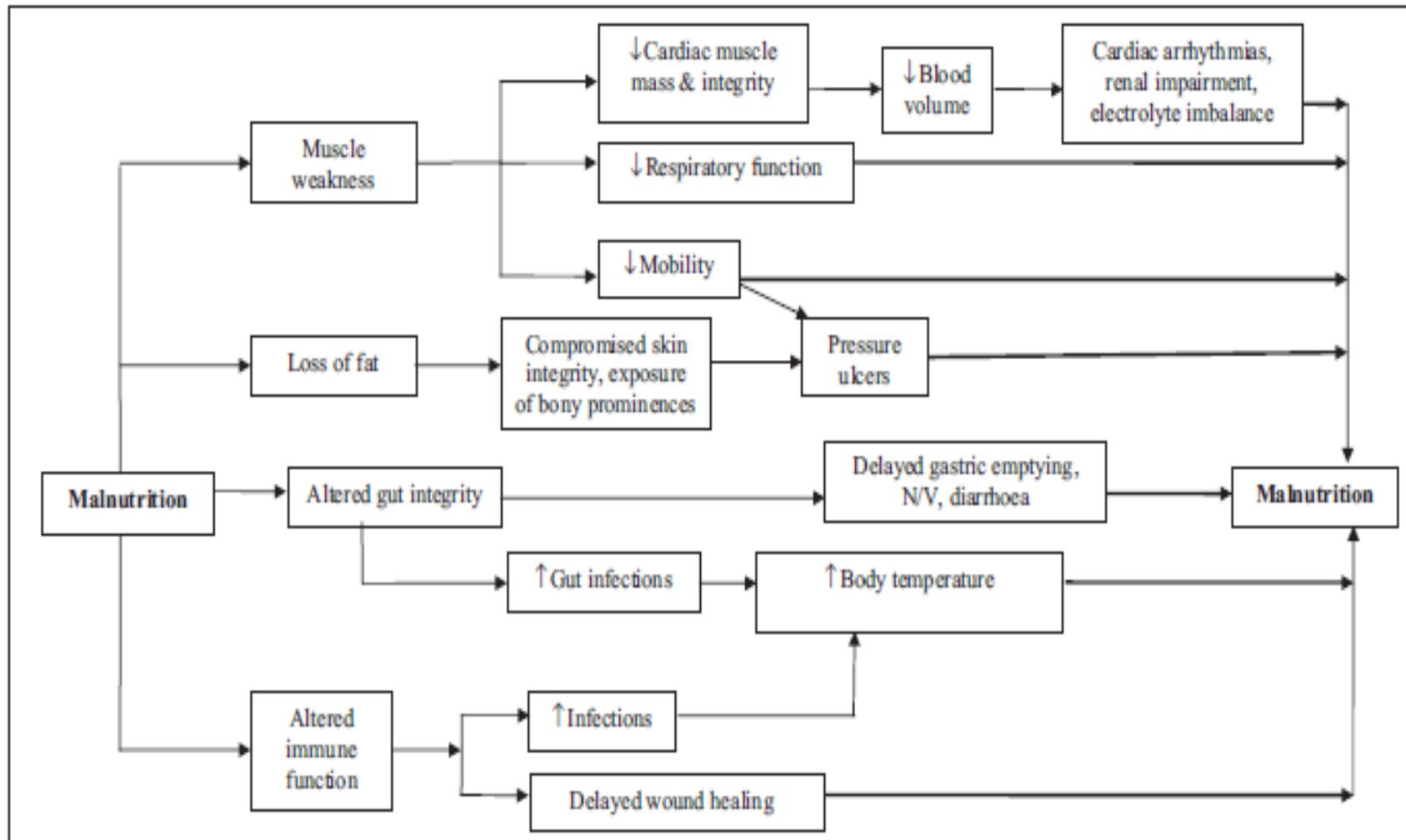
*Decrease appetite/food intake*

Cocaine-amphetamine-regulated transcript: possible increased central levels (rodent)

CCK: increased circulating levels, increased cerebrospinal fluid levels, increased sensitivity to satiating effects

Leptin: situation complex: circulating levels increased in men but possible leptin resistance

PYY: possible increased activity (little evidence)



(Summarised from (50, 51, 55))

(↓: Reduced/Altered; ↑: Increased; —→: decreased dietary intake; N/V= nausea/vomiting)

# MODIFICATIONS IN ENDOSCOPIC PRACTICE FOR THE ELDERLY

Upper: NPO rules the same as for younger patients

Bowel prep: Avoid Na phosphate in the elderly, especially if renal or cardiac dysfunction (fluid and electrolyte shifts that can result in hyperphosp, hyperNa, hypoK, and AKI). Important to maintain adequate hydration throughout the bowel prep. Do not use Mg-based bowel prep as only preparation.

Poor prep in the elderly is much higher (16-21%) because less likely to tolerate high volume of oral prep thus consider split dosage preparations.

Prophylactic antibiotics are not recommended for most routine endoscopic procedures.

Geriatric preoperative assessment with evaluation of cognitive ability and capacity to understand the anticipated procedure, screening for depression, and documenting the patient's baseline functional status. Consider to refer to geriatrics if any impairment.

Monitoring procedures are the same: monitoring devices, resuscitative equipment, and drugs.

Never assume a patient is beyond treatment on the basis of age.

# MODIFICATIONS IN ENDOSCOPIC PRACTICE FOR THE ELDERLY

Increase risk of aspiration, cardiorespiratory response is blunted, mismatch v/q, more sensitive to sedatives.

Prolong recovery after sedation (reduced liver and renal clearance, increase in lipid fraction of body mass)

Use fewer agents at a slower rate and with lower initial and cumulative doses.

Fentanyl is preferred over meperidine because faster onset of action and shorter half-life.

EGD is safe and well tolerated in the elderly.

PEG placement is controversial in elderly patients, particularly in dementia. 30-day mortality rates up to 19-24% in elderly patients after placement but largely attributed to underlying medical comorbidities rather than procedure-related adverse events.

Most of c-scopes in the elderly is for colorectal ca screening and surveillance. There is no consensus regarding when to discontinue screening for colorectal cancer.

# MODIFICATIONS IN ENDOSCOPIC PRACTICE FOR THE ELDERLY

USPSTF recommends against routine screening for CRC in adequately screened persons > 75 years and against all CRC screening in >85yo because of decreasing benefit and increased risk of the procedures but a recent study found that offering screening in unscreened elderly up to 86yo without comorbidities can still be cost-effective. \*

Decision to continue colonoscopy surveillance should be individualized based on assessment of benefit, risk, and comorbidities.

ERCP in the elderly is safer with lower rate of morbidity compared with alternative operative interventions. Adverse events including pancreatitis, perforation, and bleeding from ERCP are not different from younger populations, although elderly patients are prone to prolonged sedation and hypotension.

Limited data regarding EUS and enteroscopy in the elderly but no significant major adverse events when compared to regular population.

Be gentle when maneuvering (consider to use ped c-scope if severe diverticular disease in sigmoid, if difficult to intubate esophagus think Zencker's, etc)

Low threshold to perform procedures in symptomatic patients as organic disease is more prevalent.

Recent study showed that colon EMR large polyps in very elderly can be performed safely in experienced centers avoiding need for surgery.\*\*

\*Van Hees, et al. Colorectal Cancer Screening in Unscreened Elderly Persons. Annals of Internal Medicine 2014;160:750-59

\*\* Gomez, et al. Colonic endoscopic mucosal resection of large polyps: Is it safe in the very elderly? Digestive endoscopy, 2014 (in press)

## TUBE FEEDING IN DEMENTIA (AGS POSITION STATEMENT)

1. Percutaneous feeding tubes are not recommended for elderly with advanced dementia. Careful hand-feeding should be offered; for persons with advanced dementia, hand feeding is at least as good as tube-feeding for the outcomes of death, aspiration pneumonia, functional status and patient comfort. Tube feeding is associated with agitation, increased use of physical and chemical restraints, and worsening pressure ulcers.
2. Efforts to enhance oral feeding by altering the environment and creating patient-centered approaches to feeding should be part of usual care for older adults with advanced dementia.
3. TF is a medical therapy that can be declined or accepted by a patient's surrogate decision maker in accordance with advance directives, previously stated wishes, or what it is thought the patient would want.
4. It is the responsibility of all members of the health care team caring for residents in long term care settings to understand any previously expressed wishes of the patient regarding TF and incorporate these wishes into the care plan.
5. Institutions should promote informed decision-making, and honor patient preferences regarding tube feeding. They should not impose obligations or exert pressure to institute tube feeding.

# ETHICAL ISSUES IN END OF LIFE

- Important to consider autonomy, beneficence, and non-maleficence (avoid harm).
- Palliative care: relieve suffering in all stages of disease, is not limited to the end of life.
- Up to 50 % of individuals > 85yo have dementia and many intact elderly become delirious during hospitalization being incapable of making important decisions. In these cases, we have to find a surrogate to speak on behalf the patients.
- Ideal scenario is to discuss potential treatments, procedures and complications that can arise later in life and respect patient's wishes.
- Patients have the right to change their minds.
- If burdens of the treatment are felt to outweigh potential benefits, patients often forgo the potential treatment or procedure.
- Patients or family can not have the right to demand futile treatment.
- Medically-assisted nutrition and hydration should be considered medical interventions rather than a basic provision of comfort.
- Voluntary cessation of nutrition and hydration is a medically, ethically, and legally acceptable step that patients or their families may choose.
- Nutrition and hydration can be a symbolic value for family and it is ok to respect their point of view as long as does not conflict with the patient's previously expressed wishes, the same with a trial of rehydration.

# CONSTIPATION IN THE ELDERLY

- Prevalence of 50% in community-dwelling elderly and 74% in nursing-home residents.
- Elderly women are 2 to 3 times more likely to report constipation than their male counterparts.
- Constipation is ranked among the top 5 most common physician diagnosis for gastrointestinal outpatient visits.
- Chronic constipation can lead to fecal impaction, fecal incontinence and overflow incontinence (mistaken by diarrhea).
- In severe cases can be associated to stercoral ulcerations, intestinal obstruction and finally perforation.
- Two most common subtypes of primary constipation in elderly: **slow transit constipation** (secondary to myopathy, neuropathy or evacuation disorder) and **dyssynergic defecation** (failure recto-anal coordination due to anorectal physiological changes: reduction internal anal sphincter pressure, pelvic muscle strength and rectal sensitivity). Less common IBS-C.

## **Box 1. Classification of fecal incontinence and its causes**

### *Overflow*

Cognitively impaired

Bedridden individuals in a nursing home

### *Reservoir dysfunction (diminished colonic or rectal capacity)*

Radiation proctopathy

Chronic rectal ischemia

Idiopathic inflammatory bowel disease

Proctocolectomy with ileoanal anastomosis

### *Rectosphincteric*

Structural damage to one or both anal sphincters

Pudendal neuropathy

Degenerative

Myogenic disorders affecting internal or external anal sphincter

**Table 1** Common causes of constipation in the elderly

**Medications**

- Analgesics (opiates, tramadol, NSAIDs)
- Tricyclic antidepressants
- Anticholinergic agents
- Calcium channel blockers
- Anti-parkinsonian drugs (dopaminergic agents)
- Antipsychotics (phenothiazine derivatives)
- Antacids (calcium and aluminum)
- Calcium supplements
- Bile acid resins
- Iron supplements
- Antihistamines
- Diuretics (furosemide, hydrochlorothiazide)
- Anticonvulsants

**Endocrine and metabolic diseases**

- Diabetes mellitus
- Hypothyroidism
- Hyperparathyroidism
- Chronic renal disease

**Neurologic disorders**

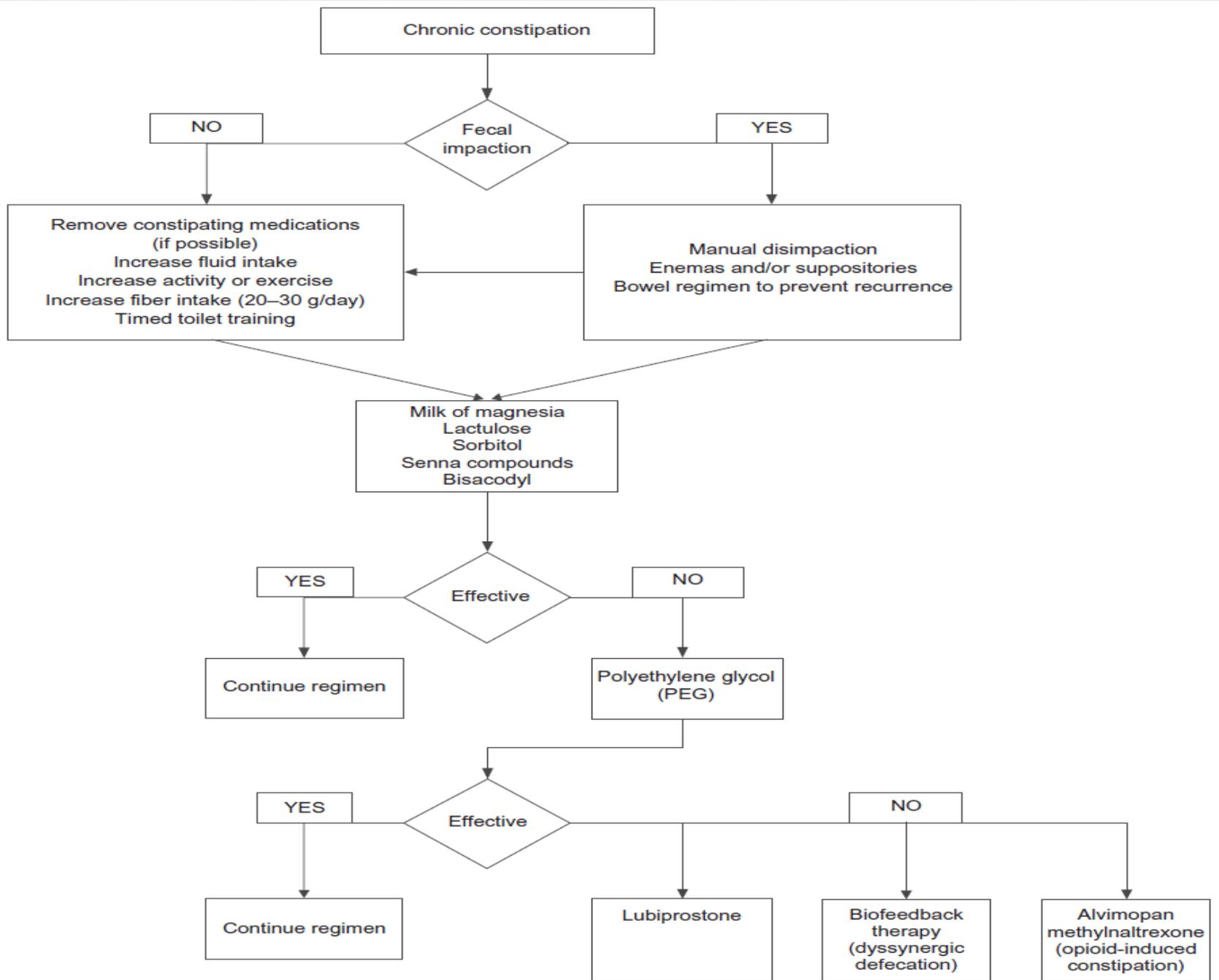
- Cerebrovascular disease and stroke
- Parkinson's disease
- Multiple sclerosis
- Autonomic neuropathy
- Spinal cord lesions
- Dementia

**Myopathic disorders**

- Amyloidosis
- Scleroderma

**Others**

- Depression
- General disability
- Poor mobility



# DYSPHAGIA IN THE ELDERLY

- Three common symptoms of dysphagia in elderly: eating meals slowly; choking, coughing, or throat-clearing either during or after meals; and feeling as if food is stuck in throat.
- Food consistency, neurological or weight change?
- Most common cause of oropharyngeal dysphagia is neurologic (up to 50% of stroke patients will show clinical and fluoroscopic signs of dysphagia but most recover after few weeks).
- Elderly susceptible to complications of inadequately treated esophageal disease (aspiration, malnutrition, metaplasia).
- Esophageal dysmotility mostly result of DM, neurologic disorders or medication side effects rather than age per se.
- Referral to speech therapy (ST) in case of neuromuscular-related oropharyngeal dysphagia for ongoing rehabilitation.
- If oropharyngeal dysphagia is suspected, refer to ST with MBSS and ENT, consider esophagram with barium pill. If work up is negative or history is suggestive of esophageal then proceed with endoscopy and/or manometry.

## Box 1

### Dysphagia: key associated findings

#### *Historical Findings*

- Choking, coughing, or throat clearing during or after meals
- Food stuck in throat or mid-chest
- Frequent pulmonary infections
- Weight loss, change in diet or consistency of food
- Neurologic changes

#### *Physical Examination Findings*

- Loss of dentition
- Abnormal lip closure or tongue range of motion
- Vocal changes
- Neurologic deficits

## Box 2

### Disorders causing oropharyngeal dysphagia

#### *Neuromuscular Causes*

- Stroke
- Myasthenia gravis
- Parkinson's disease
- Amyotrophic lateral sclerosis (ALS)
- Multiple sclerosis (MS)
- Huntington's disease
- UES dysfunction
- Muscular dystrophy
- Other disorders of striated muscle

#### *Structural Causes*

- Head and neck tumors
- Zenker's diverticulum
- Cricopharyngeal bar/cricopharyngeal achalasia
- Osteophytes and other extrinsic causes

### Box 3

#### Disorders causing esophageal dysphagia

##### *Structural Causes*

- Esophageal webs
- Esophageal rings, including Schatzki rings
- Peptic and other strictures
- Esophageal malignancies
- Vascular compression and other extrinsic causes

##### *Functional Causes*

- Inflammatory disorders including erosive esophagitis
- Eosinophilic esophagitis (EoE)
- Achalasia
- DES
- Nutcracker esophagus
- Hypertensive LES
- Ineffective esophageal motility
- Scleroderma and other rheumatologic disorders

# GI BLEEDING IN OLDER ADULTS

- 350,000 patients are hospitalized for UGIB each year in the US and 35-45% are >60 yo.
- Annual incidence of UGIB ranges 50 per 100,000 population per year, with women aged 60 years and older accounting for 60%
- Mortality of UGIB has remained appr 6-10% for the past 6 decades.
- Exact incidence of LGIB is not known, but annual incidence of hospitalization is appr 20-27 episodes per 100,000 ppy.
- 75% GIB in elderly is upper with 50% due to NSAID use.
- Esophagitis and gastritis, PUD account for 70-91% of hospital admissions for UGIB.
- LGIB: diverticular bleeding 17-56%; angiodysplasia 3-30%; hemorrhoids 3-28%; and polyps 2-30% (emergent surgery up to 10-25%)
- Prognostic factors: rebleeding, length of stay and older age (>70yo)

# ISCHEMIC COLITIS

- 90% of ischemic colitis occurs in patients > 60 yo.
- Many misdiagnosed as having other non-urgent diseases such as IBD or infectious colitis.
- Severity from transient segmental colopathy to fulminant gangrenous colitis (two forms: gangrenous and non-gangrenous).
- Non-gangrenous form can be transient and reversible in 50% of cases and accounts for 85% of cases.
- Urgent surgery is indicated for gangrenous form (mortality up to 60%).
- Risk factors: aging, female, HTN, CV disease (arrhythmias) and previous abdominal surgery.
- More predominant in descending and sigmoid 50-75%. Splenic flexure 25-50% and rare in rectum because of good collateral blood supply.
- CT scan shows thickening bowel wall, heterogeneous enhancement with an enhancement of the mucosal and muscular layers and marked fat stranding.
- Endoscopy can be considered the gold standard for identification of ischemic colitis before surgery.
- Initial treatment: IVF, empiric broad-spectrum abx, decompression of the distended colon, and bowel rest.

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