Care of the Geriatric Population

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A 70 yr old man asks his wife "Do you feel sad when you see me running after young girls?"
Wife replied, "No not at all. Even dogs chase cars they can't drive!"
Old Age

"There are three signs of old age. The first is your loss of memory and the other two I forget."

Author Unknown

Objectives

- Increased knowledge of geriatric population
- Identify the anatomical and physiological changes associated with the normal aging process
- Assessment and atypical presentation of the geriatric patient
- Differentiate delirium versus dementia
- Knowledge of the BEERS criteria
- Geriatric Acute Care Models
- Geriatric end of life issues
Conflict of Interest

None

Demographics of Oklahoma

Baby boomers began turning 60 in 2006

- 2005 Age > 60: 829,641 (17.9%) vs national average 16.8%
- 2010 Age > 60: 894,024 (19.3%) vs national average 18.4%
- Projected 2030 Age 60: 954,795 (24.4%) vs national average 25.1%

Persons age 85 and older

- 2005 Age 85 > 62,741 (1.8%) vs national average 1.7%
- 2010 Age 85 > 70,555 (2.0%) vs national average 2.0%
- 2030 Age 85 > 99,539 (2.5%) vs national average 2.6%

Physiological changes of normal aging process
Physiological changes of cardiovascular system include but not limited to:
- Decrease in cardiac reserve
- Inability to increase heart rate or cardiac output in response to physical activity or acute injury or illness
- LVH and atrial hypertrophy
- Increase functional reserve resulting in reduced exercise tolerance, fatigue, shortness of breath
- HR greater than 90 may indicate significant physiological stress
- Increased risk for postural hypotension secondary to impaired Baroreceptor function

Physiological changes of the pulmonary system include but not limited to:
- Decrease in ventilatory capacity
- Decreased respiratory muscle strength with decline in maximal ventilatory capacity
- Increased rigidity of chest wall, secondary to calcification of the rib-cage
- Loss of elastic recoil in small airways
- Decrease surfactant production, alveolar surface area and vascularization
- Decrease in effective gas exchange
- Decrease cough reflex
- Increased risk for aspiration, infection and bronchospasm

Physiological changes of the renal & GU system include but not limited to:
- Decline in kidney mass, glomeruli and tubules function, blood flow
- 10% decline per decade of life of GFR function after age of 30
- Impaired electrolyte and water management, secondary to impairment of activity of regulatory hormones, vasopressin (ADH), atrial natriuretic hormone and the renin-angiotensin-aldosterone system
- Decreased ability to excrete renal cleared medications (aminoglycosides, digoxin, NSAIDS, radiocontrast dye)
Physiological changes of the oropharyngeal and GI system include but not limited to:

- Difficulty with mastication
- Xerostomia
- Dysphagia
- Increased risk for aspiration
- Diminished gastric motility
- Vitamin absorption
- Hepatic decline with decrease in ability of medication clearance (Benzodiazepines)

Physiological changes of the musculoskeletal system include but not limited to:

- Sarcopenia – reduced muscle mass, physical ability, grip strength
- Loss of lean body mass
- Increased weakness, fatigue
- Decline in exercise tolerance
- Adequate nutritional support and physical activity (muscle strength training) can help prevent or reverse Sarcopenia. Tia Chi

Physiological changes of the nervous system and cognition system include but not limited to:

- Decreased number cerebral and peripheral neurons
- Decreased levels of neurotransmitters, particularly dopamine
- Overall slowing of motor skills
- Difficulty with balance, gait, coordination, reaction time, agility
- Thinning of skin may comprise thermoregulation
- Fever responses to infection are blunted or absent
- Cognitive decline is common but not universal
- Increased risk for sleep disorders and delirium
Physiological changes of the immune system and vaccination include but not limited to:

- Dysfunction in immune response
- Increased risk for infections
- Infectious illness increases mortality rate, especially age 85+
- Reduced response to vaccinations, i.e. Flu vaccine – protection rate is approximately 50% in the older patients
- Current recommendations from the CDC for 65 and older:
  - Flu
  - Tetanus, diphtheria, pertussis
  - Shingles (Zoster) if < 80
  - Pneumococcal
  - Varicella, as of 2009

Atypical Presentations of Illness

- Definition: “when an older adult presents with a disease state that is missing some of the traditional core features of the illness usually seen in younger patients”

Atypical presentation usually include 1 or 3

A. Vague presentation of illness
B. Altered presentation of illness
C. Non-presentation of illness (under reporting)

Patients at Risk

Most common risk factors

- Increasing age, especially ages 85 and greater
- Multiple comorbidities
- Polypharmacy
- Cognitive or functional impairment
Atypical Presentations Occur Secondary to:

- Physiologic changes in the normal aging process
- Loss of physiological reserve
- Multiple co-morbidities
- Geriatric syndromes

Dehydration

- Most common fluid and electrolyte issue
- Alteration in thirst perception
- Decreased urine concentration ability, secondary to renal function
- Typical S/S of dehydration vague or absent
- VS unrevealing, tachycardia, skin turgor not reliable
- Combination of symptoms and abnormal lab values to diagnosis
- Only symptom mild orthostatic hypotension

Acute Abdomen

- Misdiagnosed 40%
- No localizing signs, may be diffuse no specific quadrant
- Afebrile rather than hyperthermic
- Lack of leukocytosis
- Lack of rebound tenderness secondary to less abdominal musculature
- Delayed presentation, difficult to diagnosis
- Increased mortality and complication rate
Infection

- Not the usual typical presentation
- Temp of 37.3 might be indicative of infection
- Change in functional status
- Change in mental status
- Most common source UTI and pneumonia

Cardiovascular

- Mild or absent complaints of pain
- No complaints of dyspnea
- May present with:
  - New-onset fatigue
  - Dizziness
  - Confusion
- CHF common in the older, rather than breathless may present with:
  - Fatigue
  - Loss of appetite

- Provider be able to recognize both atypical and typical of illnesses
- Delayed recognition may lead to adverse health outcomes, prolong hospitalizations, and increased mortality
- Be knowledgeable of optimal treatment of illness for the geriatric population
American Geriatrics Society (AGS)
BEERS Criteria
- Note worthy changes to PIMs and Older Adults
- Note worthy Changes to Drug-Disease and Drug Syndrome PIMs
- Drugs to be used with caution
- Drug-Drug interactions
- PIMs Based on Kidney Function
- Drugs with Strong Anticholinergic Properties


Key Elements of Delirium
1. Disturbances in attention and awareness
2. Develops short period of time, fluctuate during day
3. Disturbance in memory deficit, disorientation, language or perception
4. 1 & 3 not explained by another condition
5. Direct physiological consequence of another medical condition
Types of Delirium

- Hyperactive
  - Restless
  - Easily distracted
  - Hallucinations
  - Agitation
- Hypoactive
  - Reduced alertness
  - Lethargic/quite
  - Withdrawn
  - Confusion
  - Decreased motivation
- Mixed
  - Features of both increased and decreased psychomotor activity

Is it delirium or is it dementia?

**Delirium**
- Sudden, transient
- Any age & associated with physical stressor
  - D= drug, alcohol, opium, post-general anesthetic
  - E= electrolyte imbalance
  - L= lacking medication, ETOH withdrawal, low O2 saturation
  - I= infection
  - R= reduced sensory input (lack of sleep)
  - V= intracranial pathology
  - M= metabolic

**Dementia**
- Gradual onset
- Occurs over age of 60 years
  - D= drug reaction/interactions
  - E= emotional disorders
  - M= metabolic/endocrine disorders
  - E= eye/ear disorders
  - N= nutritional problems
  - T= tumors
  - A= arteriosclerosis

Acute Care Models for the Geriatric

- Transitional Care Models
  - Complex medical needs
  - Complex social needs
  - Decrease re-admission rate
Acute Care Models continued

- **ACE (Acute Care for Elders) Units**
  - Specifically designed for the elderly
  - Flooring to reduce glare
  - Ongoing orientation for the patient
  - Discharge goals
  - Support staff observation
  - Led by Geriatrician or Geriatric Advance Practice Nurse

Acute Care Models continued

- **NICHE (Nurses Improving Care for Healthsystem Elders)**
  - National program to improve outcomes of hospitalized older adults
  - Improving nurse competency
  - Modification of the nurse practice environment
  - GRN (Geriatric Resource Nurse)
  - Nurse driven protocols
  - Decreased fall rates
  - Decreased pressure ulcers
  - Decreased LOS

End of Life

- End of life issues addressed
- What are the patients wishes
- Advanced Directives
- Instruction directives (living wills)
- Appointment directives (health care proxies or durable power of attorney)
- DNR/DNAR
- Discussion regarding artificial nutrition and hydration
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<td>Disease or Syndrome</td>
<td>Kidney/Urinary Tract Disease or Syndrome</td>
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<td>Estrogen oral and transdermal (excludes intravaginal)</td>
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<td>Anticholinergics/antispasmodics</td>
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<td>COX-2 selective NSAIDs</td>
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<td>Aspirin for primary prevention of cardiovascular events</td>
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<td>Diltiazem</td>
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<td>Prasugrel</td>
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<td>Vincristine</td>
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<td>Cisplatin</td>
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<td>Carboplatin</td>
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<td>Carbinoxamine</td>
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<td>Brompheniramine</td>
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<td>Cyproheptadine</td>
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<td>Dextromethorphan</td>
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<td>Doxepin, imipramine, and</td>
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<td>triptans</td>
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<td>Dexbrompheniramine</td>
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**Table 3 Abbreviations:**
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- AChEIs, acetylcholinesterase inhibitors
- CNS, central nervous system
- COX, cyclooxygenase
- NSAIDs, nonsteroidal anti-inflammatory drugs
- SIADH, syndrome of inappropriate antidiuretic hormone
- SSRI, selective serotonin reuptake inhibitor
- SNRI, serotonin-norepinephrine reuptake inhibitor

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**Quality of Evidence (QE) & Strength of Recommendation (SR):**
- QE = High
- QE = Moderate
- QE = Weak
- SR = Strong
- SR = Moderate
- SR = Weak

Exacerbation of incontinence.
- Avoid in women.
- Avoid unless other alternatives are not effective.
- Use with caution.
- Greater risk of bleeding in older adults; risk may be offset by benefit in highest dosages.
- Use with caution in adults > 75 years old.
- Lack of evidence of benefit versus risk in individuals.
- Moderate/Low QE (Others)
- Moderate QE (Triamterene)
- Strong QE (NSAIDs), (All retnes, with or without diuretics)
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