Geriatric Emergencies

Malta & McConnelsville Fire Department
Division of Emergency Medical Services
Demographic Imperative

- Persons >65 = Fasting growing age group
- By 2030, geriatric patients will:
  - Comprise 30% of population
  - Account for 70% of ambulance transports
Effects of Aging
Cardiovascular System

- Speed, force of myocardial contraction decreases
- Cardiac conducting system deteriorates
- Resistance to peripheral blood flow rises, elevating systolic blood pressure
- Blood vessels lose ability to constrict, dilate efficiently

What effects will these changes have on ability to compensate for shock? For heat and cold exposure?
Respiratory System

- Respiratory muscles lose strength; rib cage calcifies, becomes more rigid
- Respiratory capacity decreases
- Gas exchange across alveolar membrane slows
- Cough, gag reflexes diminish increasing risk of aspiration, lower airway infection
- *The resting oxygen saturation may diminish with age*

What will be the consequences of these changes during chest trauma?

How will they affect the patient with acute respiratory disease such as pneumonia?
Musculoskeletal System

- Osteoporosis develops, especially in females
- Spinal disks narrow, resulting in kyphosis
- Joints lose flexibility, become more susceptible to repetitive stress injury
- Skeletal muscle mass decreases

What effect do these changes have on incidence and severity of orthopedic trauma?
Nervous System

- Brain weight decreases 6 to 7%
- Brain size decreases
- Cerebral blood flow declines 15 to 20%
- Nerve conduction slows up to 15%

What effect will decreased nerve conduction have on pain sensation and reaction time?
Gastrointestinal System

- Senses of taste, smell decline
- Gums, teeth deteriorate
- Saliva flow decreases
- Cardiac sphincter loses tone, esophageal reflux becomes more common
- Peristalsis slows
- Absorption from GI tract slows
- Liver also slows in terms of metabolizing drugs

What effects can these changes have on the nutrition of older persons?
Renal System

- Renal blood flow decreases 50%
- Functioning nephrons decrease 30 to 40%

What effect will these changes have on ability to eliminate drugs from the body?
Integumentary System

- Dermis thins by 20%
- Sweat glands decrease; sweating decreases

What effect will this have on:

- Severity of burn injuries?
- Wound healing?
- Cold and heat tolerance?
Geriatric Assessment
Factors Complicating Assessment

- **Variability**
  - Older people differ from one another more than younger people do
  - Physiological age is more important than chronological age
Factors Complicating Assessment

- **Response to illness**
  - Seek help for only small part of symptoms
  - Perceive symptoms as “just getting old”
  - Delay seeking treatment
  - Trivialize chief complaints
Factors Complicating Assessment

- **Presence of multiple pathologies**
  - 85% have one chronic disease; 30% have three or more
  - One system’s acute illness stresses other’s reserve capacity
  - One disease’s symptoms may mask another’s
  - One disease’s treatment may mask another’s symptoms
Factors Complicating Assessment

- **Altered presentations**
  - Diminished, absent pain
  - Depressed temperature regulation
  - Depressed thirst mechanisms
  - Confusion, restlessness, hallucinations
  - Generalized deterioration
  - Vague, poorly-defined complaints
Factors Complicating Assessment

The Organs of the Aged Do Not Cry!
Factors Complicating Assessment

Communication problems

- Diminished sight
- Diminished hearing
- Diminished mental faculties
- Depression
- Poor cooperation, limited mobility
- However, you should not ASSUME that sight or hearing is diminished just because the patient is older!
Factors Complicating Assessment

- Polypharmacy
  - Too many drugs!
  - 30% of geriatric hospitalizations drug induced
History Taking

- Probe for significant complaints
  - Chief complaint may be trivial, non-specific
  - Patient may not volunteer information
History Taking

- Dealing with communication difficulties
  - Talk to patient first
  - If possible, talk to patient alone
  - Formal, respectful approach
  - Position self near middle of visual field
  - Do not assume deafness or shout
  - Speak slowly, enunciate clearly
History Taking

Do NOT assume confused or disoriented patient is “just senile!”
History Taking

- Obtain thorough medication history
  - More than one doctor
  - More than one pharmacy
  - Multiple medications
  - Old vs. current medications
  - Shared medications
  - Over-the-counter medications
Physical Exam

- Examine in warm area
- May fatigue easily
- May have difficulty with positioning
- Consider modesty
- Decreased pain sensation requires thorough exam
Physical Exam

If they say it hurts, it probably REALLY hurts!

EXAMINE CAREFULLY
Physical Exam

- Misleading findings
  - Inelastic skin mimics decreased turgor
  - Mouth breathing gives impression of dehydration
  - Inactivity, dependent position of feet may cause pedal edema
  - Rales in lung bases may be non-pathologic
  - Peripheral pulses may be difficult to feel
Cardiovascular Disease
Acute Myocardial Infarction

- “Silent” MI more common
- Commonly presents with dyspnea only
- May present with signs, symptoms of acute abdomen—including tenderness, rigidity
Acute Myocardial Infarction

- Possibly just vague symptoms
  - Weakness
  - Fatigue
  - Syncope
  - Incontinence
  - Confusion
  - TIA/CVA
  - Nausea/vomiting
Acute Myocardial Infarction

If adding “chest pain” to their list of symptoms would make you think MI,
IT’S AN MI!
Congestive Heart Failure

- May present as nocturnal confusion
- Large fluid-filled blisters may develop on legs, especially if patient sleeps sitting up
- Bed-ridden patients may have fluid over sacral areas rather than feet, legs
Respiratory Disease
Pulmonary Edema

- Fluid in lungs

Causes include:
- CHF
- Myocardial infarction
- Heart valve disease
- Arrhythmia

Signs/Symptoms:
- *Orthopnea
- Coughing
- Pink, frothy sputum
- Rales, wheezing

*Inability to breathe comfortably except when standing or sitting erect
Pulmonary Embolism

- Blockage of pulmonary blood vessels
- Most common cause is blood clots from lower extremities
- Suspect in any patient with sudden onset of dyspnea when cause cannot be quickly identified
Pneumonia

- Lung infection
- Common in elderly due to aspiration, decreased immune function
- Possibly atypical presentations
  - Absence of cough, fever
  - Abdominal rather than chest pain
  - Altered mental status
Chronic Obstructive Pulmonary Disease

- 5th leading cause of death in males 55 to 75
- Consider possible spontaneous pneumo in COPD patient who **suddenly** decompensates

What would you assess to determine if spontaneous pneumothorax is present?
Neuropsychiatric Disease
Dementia/Altered Mental Status

- Distinguish between acute, chronic onset
- **Never** assume acute dementia or altered mental status is due to “senility”
- Ask relatives, other caregivers what baseline mental status is
Dementia/Altered Mental Status

Possible Causes

- Head injury with subdural hematoma
- Alcohol, drug intoxication, withdrawal
- Tumor
- CNS Infections
- Electrolyte imbalances
- Cardiac failure
- Hypoglycemia
- Hypoxia
- Drug interactions
Cerebrovascular Accident

- Emboli, thrombi more common
- CVA/TIA signs often subtle—dizziness, behavioral change, altered affect
- Headache, especially if localized, is significant
- TIAs common; 1/3 progress to CVA
- Stroke-like symptoms may be delayed effect of head trauma

*Discuss how subdural hematomas can result from remote falls but become clinically evident days to weeks later*
Seizures

- All first time seizures in elderly are dangerous
- Possible causes
  - CVA
  - Arrhythmias
  - Infection
  - Alcohol, drug withdrawal
  - Tumors
  - Head trauma
  - Hypoglycemia
  - Electrolyte imbalance
  - Hyperthermia
Syncope

- Morbidity, mortality higher
- Consider
  - Cardiogenic causes (MI, arrhythmias)
  - Transient ischemic attack
  - Drug effects (beta blockers, vasodilators)
  - Volume depletion
Depression

- Common problem
- May account for symptoms of “senility”
- Persons >65 account for 25% of all suicides
- Treat as immediate life threat!
Trauma
Head Injury

- More likely, even with minor trauma
- Signs of increased ICP develop slowly
- Patient may have forgotten injury, delayed presentation may be mistaken for CVA

What change in the elderly accounts for increased ICP's slower onset?
Cervical Injury

- Osteoporosis, narrow spinal canal increase injury risk from trivial forces
- Sudden neck movements may cause cord injury without fracture
- Decreased pain sensation may mask pain of fracture
- There is an injury called Central Cord Syndrome that may be due to hyperextension injury in the elderly. Upper extremity > lower extremity weakness
Hypovolemia & Shock

- Decreased ability to compensate
- Progress to irreversible shock rapidly
- Tolerate hypoperfusion poorly, even for short periods
Hypovolemia & Shock

- Hypoperfusion may occur at “normal” pressures
- Medications (beta blockers) may mask signs of shock

Why can older persons be hypoperfusing at a “normal” blood pressure?
Falls Among Older Adults

Each year, one in every three adults age 65 and older falls.

Falls can cause moderate to severe injuries:
- Hip fractures
- Head traumas
- Increase the risk of early death

Falls are largely preventable public health problem.
Falls Among Older Adults

How big is the problem?

Among older adults (those 65 or older), falls are the leading cause of injury death.

2008, over 19,700 older adults died from unintentional fall injuries.

2009, 2.2 million nonfatal fall injuries among older adults.

More than 581,000 of these patients were hospitalized.
Falls Among Older Adults

How big is the problem?

2000, direct medical costs of falls totaled a little over $19 billion

$179 million for fatal falls

$19 billion for nonfatal fall injuries

This equals $28.2 billion in 2010 dollars
Falls Among Older Adults

What outcomes are linked to falls?

- Injuries can make it hard to get around or live independently
- Increase the risk of early death
- Most common cause of traumatic brain injuries (TBI)
- TBI accounted for 46% of fatal falls
- Most fractures among older adults are caused by falls
Falls Among Older Adults

The most common are fractures of the
- spine
- hip
- forearm
- leg
- ankle
- Pelvis
- upper arm
- hand
Falls Among Older Adults

Fall-related Deaths

2008, 82% of fall deaths were among people 65 and older

Men are more likely to die from a fall

Older whites are 2.5 times more likely to die from falls as their black counterparts

Older non-Hispanics have higher fatal fall rates than Hispanics
Falls Among Older Adults

Fall Injuries

Chance of falling and of being seriously injured in a fall increase with age

2009, the rate of fall injuries for adults 85 and older was almost four times that for adults 65 to 74

Women are more likely than men to be injured in a fall

Over 90% of hip fractures are caused by falls
Falls Among Older Adults

How can older adults prevent falls?

• Exercise regularly  
• Review their medicines  
• Have their eyes checked  
• Make their homes safer  

To lower their hip fracture risk  
• Get adequate calcium and vitamin D  
• Do weight bearing exercise  
• Get screened and treated for osteoporosis
Positioning & Packaging

May have to be modified to accommodate physical deformities
Environmental Emergencies

- Tolerate temperature extremes poorly
- Contributing factors
  - Cardiovascular disease
  - Endocrine disease
  - Poor nutrition
  - Drug effects
  - Low, fixed incomes
Environmental Emergencies

HIGH INDEX OF SUSPICION

Any patient with altered LOC or vague presentation in hot or cool environment

Note that this does NOT have to be extremes in temperature
Geriatric Abuse & Neglect
Geriatric Abuse & Neglect

- Physical, psychological injury of older person by their children or care providers

- Knows no socioeconomic bounds
Geriatric Abuse & Neglect

- Contributing factors
  - Advanced age: average mid-80s
  - Multiple chronic diseases
  - Patient lacks total dependence
  - Sleep pattern disturbances leading to nocturnal wandering, shouting
  - Family has difficulty upholding commitments
Geriatric Abuse & Neglect

- Primary findings
  - Trauma inconsistent with history
  - History that changes with multiple tellings
Reference

Dr. Howard Werman, M.D., FACEP
Questions?