

When You're ~~64!~~ 104!

“Sure I'm for helping the elderly. I'm going to be old myself some day.”

Lillian Carter *in her 80s*

Geriatric Emergencies

Case Study

You are called to the home of an elderly woman with a fever. Upon arrival you are greeted by a woman in her early 70s, who invites you into the kitchen, asking if you'd like some cookies. You ask her why she called for the ambulance and she proceeds to list numerous complaints, including a sore hip from her fall two weeks ago and pain from her "rheumatism" that her medicine no longer helps.

Objectives

- Identify the physiologic changes associated with aging
- Discuss assessment differentials in geriatric patients.
- Identify some common illnesses in the elderly
- Discuss Adult maltreatment
- Explain Advance Directives and DNR

The Aging Society

- Advances in medicine, sanitation, hygiene and control of infectious disease have led to the increase in life expectancy in the U.S. to more than 75 years.
- Changing concepts of “old age”
- Characteristic changes as we age leave us susceptible to particular disease processes

Geriatrics

- Geriatrics is the study of the diseases of elderly adults (those over 65)
- 85 and older fastest growing age group in US
- Chronological age does not determine a person's state of health.
- Utilize EMS three to four times more frequently and require more ALS.



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
- Reduced postural Reflexes

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

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

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



Why is Assessment Important?

- Disability and dependence often increase with Age
- 40% lifetime risk of nursing home placement
- Many elders spend some time dependent prior to death
- But...majority of elderly live independently

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
 - Alcohol Abuse
 - Suicide attempts
 - Poor cooperation, limited mobility

Factors Complicating Assessment

- Polypharmacy
 - Too many drugs!
 - 30% of geriatric hospitalizations drug induced
 - Inadequate knowledge of proper use and interactions

Scene Size-up:

- Assure scene safety.
 - Overall general condition of the home
 - Kitchens tell tales
- Medical or Trauma.





Primary Assessment:

- Assess mental status.
- Assess airway.
- Assess pulse.
- Assess skin color & temp.
 - Dehydration check for furrowed tongue or sunken eyes.
 - Lower total body water/skin may be dry.
 - Depressed temp. regulating mechanism.
 - Patient may not have fever even with infection.



Focused History and Physical Exam:

- Determine MOI (trauma).
- Chief complaint/NOI (medical).
 - Obtaining a history maybe be challenging
 - Communications difficulties
 - Utilized family and friends/caregivers
 - Crucial that any information obtained is well documented and relayed to receiving staff

History Taking

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

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

- 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

If they say it hurts, it probably
REALLY hurts!

EXAMINE CAREFULLY

Physical Exam

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

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

Sentinel Events

Adverse occurrence which signals more serious underlying issues

Syncope
Falls
Sudden pain
Acute
Respiratory



Positioning & Packaging



May have to be modified to
accommodate physical deformities

Transport

- Protect the patient from further harm
- Fragile skin and bones
- Protect from excessive heat or cold
 - Prevent hyperthermia or hypothermia
- Ongoing assessments are key

Cardiovascular Disease

You are called to the home of a 76 y/o man having difficulty breathing. Upon arrival you are met by his frantic wife who states “he is having a heart attack.”

The patient lying supine on the floor gasping, eyes open, diaphoretic and extremely cyanotic

He is unable to speak due to shortness of breath but nods yes that he is having chest pain.



Cardiovascular

- Hypertension common.
- Changes in heart rate and rhythm.
 - Calcium deposits around heart valves.
 - Cardiac Hypertrophy
 - Thickening of walls of the heart.
 - Decreased cardiac output.
- Affects of CAD.
 - Weak heart trying to pump against constricted vessels.

Acute Myocardial Infarction

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

Acute Myocardial Infarction

- “Silent” MI more common
- Commonly presents with dyspnea only
- Diabetes-no pain
- Women are atypical
- May present with signs, symptoms of acute abdomen--including tenderness, rigidity

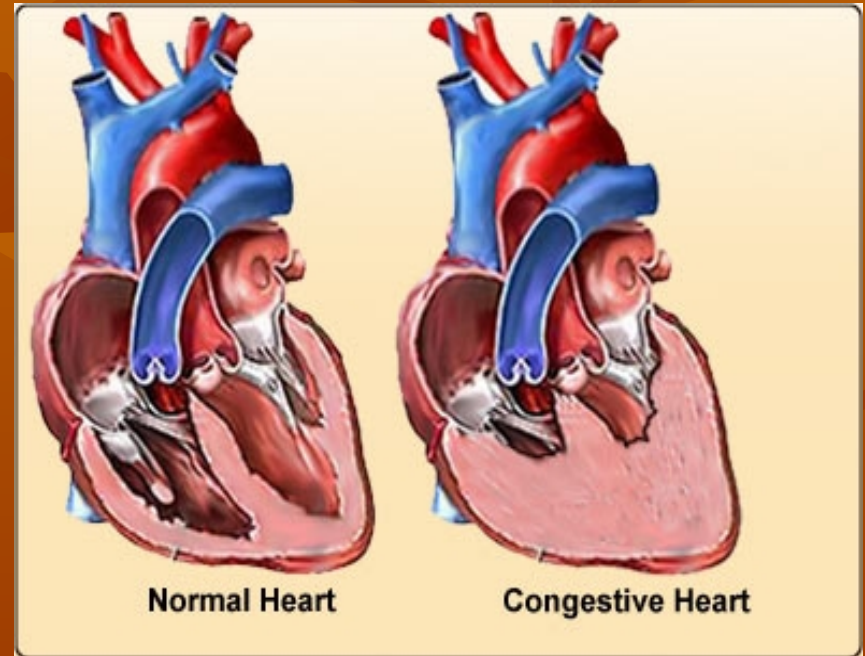
Acute Myocardial Infarction

- Possibly just vague symptoms
 - Weakness
 - Fatigue
 - Syncope
 - Incontinence
 - Confusion
 - TIA/CVA



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



Case Scenario revisited

Vital Signs

Pulse-160

Respiration-40

BP-80/palp

Skin-pale, wet
ashen, cyanosis

Physical Exam

Heart: Rapid regular Tachycardia with pauses

Lung sounds: Diffuse rales throughout with
expiratory wheezing

Neck: JVD present

Extremities: Cyanotic, cold, edema noted to legs,
fingers with clubbing, nicotine stains on first three
digits.

Pt's wife states history of heart attack last year and hypertension he takes medication for each day. Pt still smokes three packs a day and has been weak and short of breath for two or three days. Wife states he has been spending most of his time in his recliner, barely eating past day.

She denies he has any other health problems and says he never complained of any chest pain.

You advise the wife the patient is critically ill, needing immediate treatment and transport to the hospital. She says "he never wanted to be a vegetable and wouldn't want to be kept him alive."

You ask if he has a living will or DNR and she states no.

Case Progression

Treatment:

Assist ventilation--O2 titrated to 94%>

Monitor -- sinus tachycardia at 166 with frequent PVCs
IV-NS

As the IV is being established the patient become
unresponsive and the monitor shows
Ventricular fibrillation

You initiate resuscitative measures and defibrillation

Case Conclusion

Pt arrives in the ED in a sinus tachycardia. EKG shows an inferior wall MI. Patient remains unresponsive.

Pt's wife begins threatening to sue the ambulance service and hospital because she "knows my husband wouldn't have wanted all of this done to him."

Three days later, the patient is extubated and ultimately recovers with moderately altered functioning.

You hear through the hospital grapevine that he later divorced his wife for trying to "pull the plug".

Respiratory Disease

Mr. Hathaway called 911 because he could not breathe. Upon your arrival you find him panting as he attempts to speak and can only get out one word at a time. He is sweating profusely and his lips and fingers are blue.



Respiratory

- Cough power diminished.
- Increased tendency for infection.
 - Alveoli and cilia clearing the lungs are less efficient
- Less air and gas exchange due to general decline.
 - Lung tissue loses elasticity.
 - Muscles used to breath lose strength and coordination.

Pulmonary Edema

Causes

CHF

Myocardial
infarction

Heart valve
disease

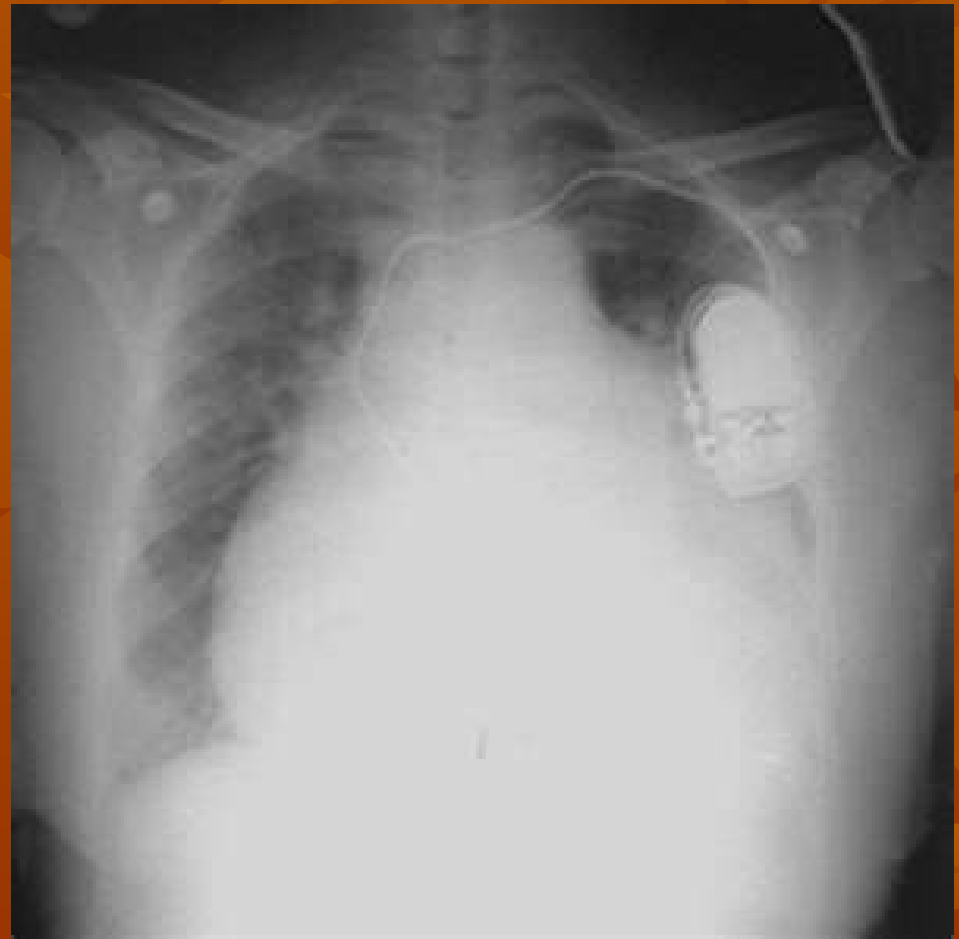
Signs/Symptoms

Orthopnea

Coughing

Pink, frothy
sputum

Rales, wheezing

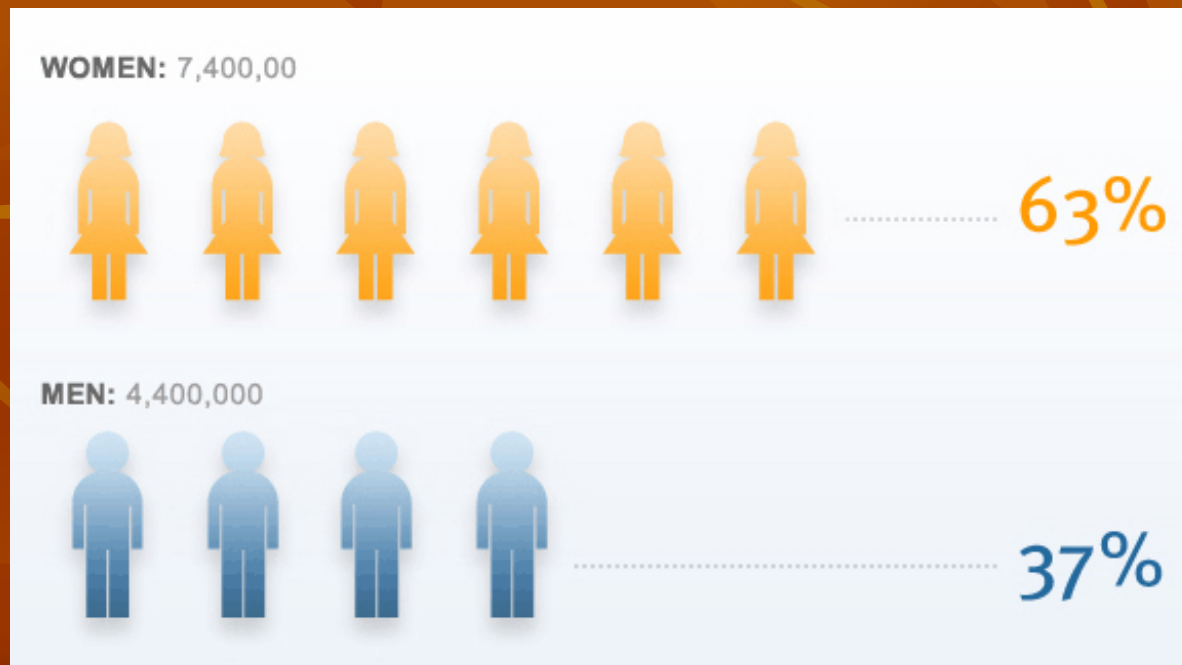


Pulmonary Embolism

- 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

Chronic Obstructive Pulmonary Disease

Common day-to-day symptoms include cough, coughing up phlegm, difficulty breathing, shortness of breath, wheezing and chest tightness



COPD

Causes: 75% --smoking, occupation exposures, indoor and outdoor air pollution, family history

Effects: Develops slowly-lung function is lost at time of diagnosis, home O2 use

Exacerbations: Can be caused by exposure to pollutants. Last days, require antibiotics, oral steroids, lead to lung infections

COPD

Impacts: Daily management based on severity

- Airflow limitations
- Symptoms and frequent exacerbations
- Therapy: medication, pulmonary rehab, O₂, Stop smoking

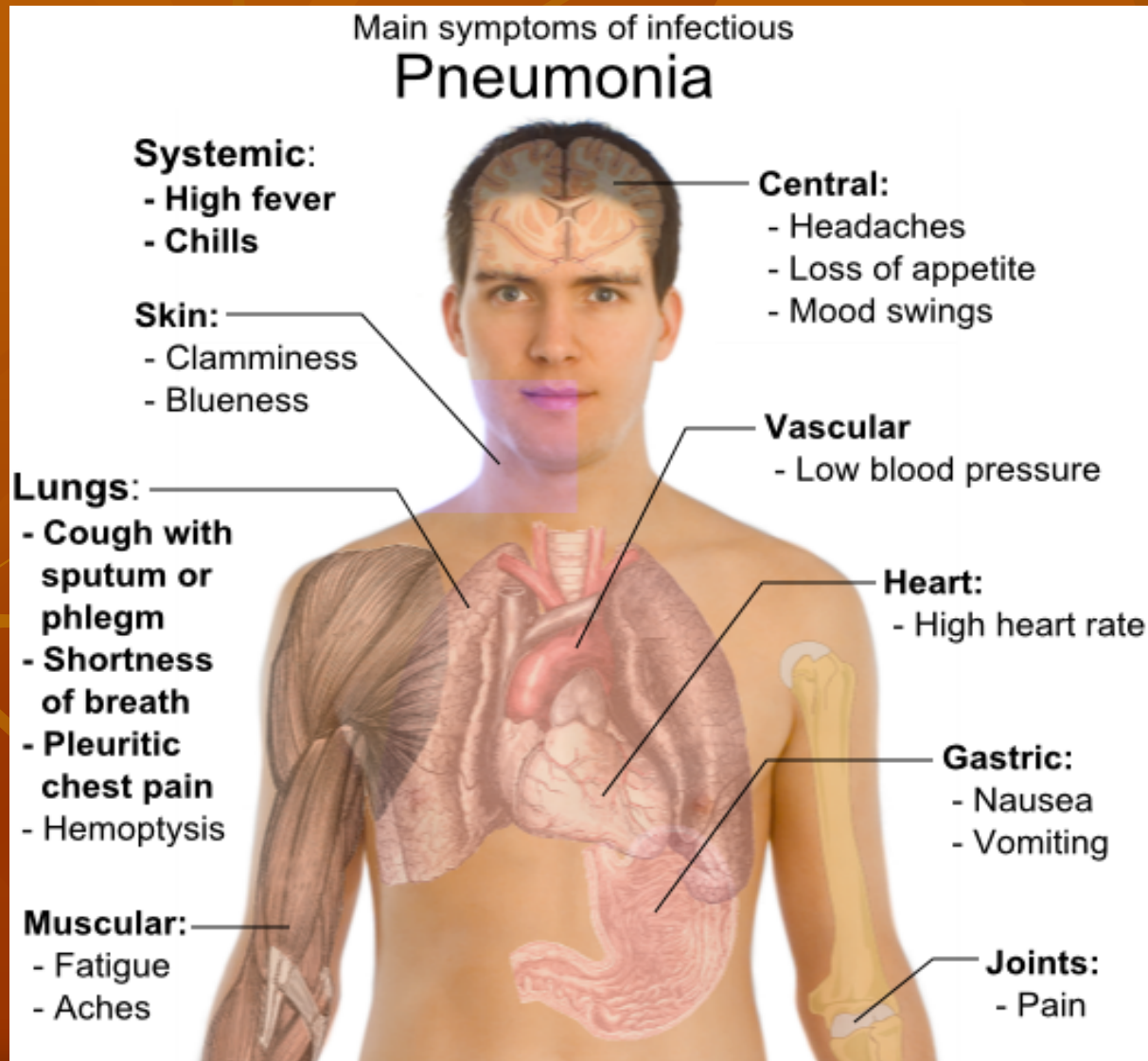
Physical effects: barrel chest, chronic cyanosis, altered mental status (chronically high CO₂)

“Pink Puffers----Blue Bloaters”

Pneumonia

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

Infectious Pneumonia





Case Scenario Revisited

History—72 y/o male---**Signs & Symptoms**-cough with yellow to greenish thick sputum and fever—**Allergies**—none—**Medications**—Denies—**PPMHx**-Denies heart or lung problems, denies smoking, denies any other medical history.

Onset: Last week—**Provocation/Palliation**—sharp pain in lower right ribs lasting only a second at onset. **Quality**-sharp pain/difficult to take a breath. **Severity**-Never had pain like this before. **Time**—constant now

Vital Signs:

- Pulse—130
- Respirations: 40 labored with rales/rhonchi in the right lower lung
- BP: 130/80
- Skin: Hot, blue and wet
- SpO2—86% on room air

Case Conclusion

Patient is transported with O2 titrated to 94%> in position of comfort. ALS crew initiates a breathing treatment with minimal results. Pt is admitted to the hospital with a diagnosis of pneumonia.

Altered Mental Status

You are called for 80 y/o male with altered mental status. Upon arrival you are greeted by a woman who states her friend is dramatically different than when she saw him 3 days ago. She states at that time he had a cold but was otherwise okay. Today he is angry, restless, confused and tried to strike her when she tried to help him out of bed. The house is in complete disarray, he is unshaven and wearing the same clothes he had on 3 days ago.



Altered Mental Status

- The three “D’s”—Dementia, Depression, Delirium
- 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 vs. delirium

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

Seizures

All first time seizures in elderly are dangerous

- CVA
- Arrhythmias
- Infection
- Alcohol, drug withdrawal
- Tumors
- Head trauma
- Hypoglycemia
- Electrolyte imbalance

Syncope

Transient loss of consciousness and postural tone

- Rapid onset, short duration, spontaneous recovery—global cerebral hypoperfusion
 - Postural hypotension
 - Cardiogenic causes (MI, arrhythmias)
 - Transient ischemic attack
 - Drug effects (beta blockers, vasodilators)
 - Volume depletion

Syncope

Two age ranges: Teens and elderly

Results in trauma 39% in elderly (Am J Med)

Noncardiovascular diagnosis with syncope of unknown etiology: mortality and sudden death higher—hx of congestive heart failure, older age and male—prognostic factors

NOT SEIZURE!



Depression

- Common problem
- May account for symptoms of “senility”
- Often undiagnosed and untreated
 - Death of loved ones
 - Physical illness or disability
 - Major life changes
 - Loss of independence
 - Isolation
 - Increased use of alcohol

Treat as immediate life threat!

Suicide

Highest suicide rates of any age group

- Highest in divorced or widowed elderly

2006– 65+ account for 15.9% of all suicides

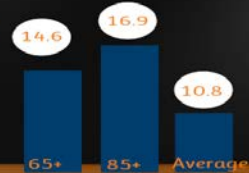
- Increase in age-groups— young-old, 65-85 and old-old, 85+
 - 85 y/o white males— 2.5 times higher—men of all ages
 - 6X that of general population
- 2010—6-10K committing suicide yearly (firearms)

Suicide in the Elderly

Rate Increases in Old Age

Suicides per 100,000

The average age-adjusted number of suicides per 100,000 was 10.8 in 2003, but it grew to 12.7 at ages 65-74, 16.4 for ages 75-84, and a high of 16.9 for those 85 and older.



Primary Care Providers

Most suicides sought help from primary care provider rather than psychiatrists or mental health professionals. 20% made a doctor visit within a day of their suicide, 41% within a week, and 75% within a month.

20%

Visited a physician within 24 hours

75%

Visited a physician within 1 month

Epidemiology

In 2009 suicide became the 10th leading cause of death in the general population in the U.S. with 11.9 suicides per 100,000. The numbers for adults 65+ were much higher, more than double the rate for those 10-24 years old. There were...

14.3

Per 100,000

1

Every 97 minutes

15

Per day

84.4% WERE MALE

1 COMPLETED/4 ATTEMPTS

71.9% INVOLVE FIREARMS

Sources:
suicide.org
Mehra, Gianakos, Driscoll 2012
suicidology.org

By: 64
Rhona Finnel



Case Scenario Revisited

History—HTN, OTC cold medications. Friend states she had to help with daily activities of living the last few months but otherwise he has managed well on his own.

Assessment: Agitated, swearing and hitting, easily distracted, confused and fidgety. Speech is confabulatory-unable to state who his friend is or the current year.

Physical exam: unshaven, unkempt, elderly male.

His lips are cracked and dry, lung clear. Abdomen is tender and distended. Stool is noted on the bed sheets. Moves all extremities with normal strength and purposeful movement.

VS: P-126, R-22, BP-128/60—flushed skin, dry



Case Conclusion

You find a bottle of Benadryl with 6 of 15 tablets gone and another antihistamine with 5 or 10 tablets missing.

Treatment includes soft restraints with kerlex per protocol and IV. Auxillary temp: 37.6C. BGL--146. His abdominal distention worsens with a fluid bolus and he become more uncomfortable.

The patient is diagnosed with new onset of delirium with a mild-preexisting dementia. The cause is multi-factorial.

How can the use antihistamines cause delirium?

Trauma





Falls

- 30-40% elderly in the community
 - 50% of nursing home residents
 - Leading cause of accidental death (US)
 - 7th leading cause of death in 65+ y/o
- Direct medical costs-2000-\$179 million for fatal falls-\$19 billion for nonfatal fall injuries
 - Projected 2020 costs--\$44 billion
- Cascade of individual and socioeconomic consequences
 - Reluctance to report a fall

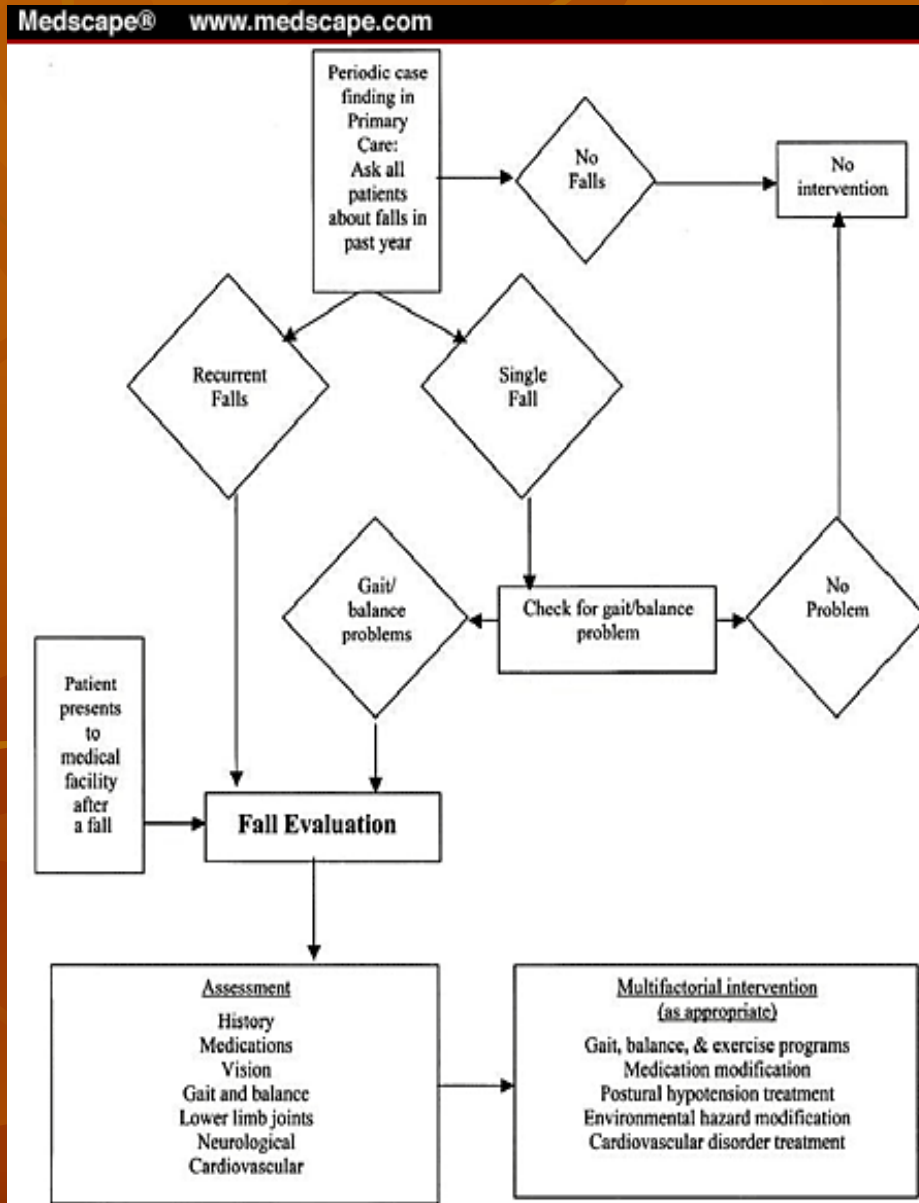


Falls

Etiology

- Previous fall
 - Rarely single case or risk factor-complex interaction:
 - Intrinsic factors---age-related decline in function, disorders and adverse drug effects
 - Extrinsic—environmental hazards
 - Situational factors—activity being done (rushing to the bathroom)

Falls Assessment





Head Injury

- TBI-7th leading cause of death-65+
 - 80K ED visits annually
- Leading cause of TBI-falls (28%), MVC (20%), struck (19%)
- 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 Spinal Injury

- Young-old (65-75)-MVC-61%
- Old-elderly (75+)—falls from standing or seated height— 40%
- 50% -fracture patterns risk-neurologic deterioration
- Patients over 75-higher incidence of upper cervical spinal injury
- Major cervical spine injury from minor trauma

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



Shock

- External bleeding—cuts or other injuries
- Internal bleeding—GI tract
- Burns
- Diarrhea
- Excessive perspiration
- Vomiting
- Complications:
 - Kidney damage, brain damage, Heart attack, gangrene/infections

Hypovolemia & Shock

- Decreased ability to compensate
- Progress to irreversible shock rapidly
- Tolerate hypoperfusion poorly, even for short periods
- Hypoperfusion may occur at “normal” pressures
- Medications (beta blockers) may mask signs of shock

Environmental Emergencies

- Heat emergencies
- Cold emergencies—frost bite, hypothermia
- Rodent
- Insects
- Environmental Factors—Icy sidewalks
 - Slower reaction times
 - Altitude adjustments may fail with temperature fluctuations
 - Poor muscle tone, fragile bones
 - Failing eyesight and hearing

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

Geriatric Abuse & Neglect



Elder abuse

- Tens of thousands—Half-million reports each year—millions unreported
- Occurs in their own homes as well as facilities
 - Adult children or grandchildren
 - Spouses or partners
 - Institutional caregivers
- Often not readily recognized—dementia
- Elderly will not report
- No social or economical bounds



Geriatric Abuse & Neglect

- Physical, psychological injury of older person by their children or care providers
- Physical force—hitting, inappropriate drugs, restraints or confinement
- Emotional-Verbal—intimidation (yelling and threats), humiliation and ridicule, habitual blaming. Non-verbal-ignoring, isolating, terrorizing or menacing
- Financial –Misuse of funds, stealing, forging, rackets, phony charities, investment fraud



Elder Abuse

- Sexual abuse-sexual contact without their consent including forcing sexual acts, showing pornographic material, forced watching of sex acts, forcing them to undress
- Neglect or abandonment—intentional or passive
- Healthcare fraud and abuse

Geriatric Abuse & Neglect

- Contributing factors
 - Advanced age: average mid-80s
 - Multiple chronic diseases
 - Patient lacks any form of independence
 - Sleep pattern disturbances leading to nocturnal wandering, shouting
 - Elder is demanding and unreasonable—history



Elderly Abuse

- Risk Factors—Caregivers
- Non-professional caregiver
- Inability to cope with stress
- Depression
- Lack of support
- Perception of being burdened and without reward
- Substance abuse



Geriatric Abuse & Neglect

- General signs of abuse include frequent arguments or tension with caregiver
 - Changes in personality or behavior of the elder
- Primary findings
 - Trauma inconsistent with history
 - History that changes with multiple telling
 - Signs of restraint and broken eyeglasses or frames
 - Report of drug OD or apparent failure to take medications regularly
 - Caregiver's refusal for you to talk to elder alone



A Natural Death

- Advanced Directives
 - Potential role conflict
 - “At what cost to that person’s quality of life?”
 - Every Patient has the right to control his own body
 - Common practice to begin resuscitation of an unconscious patient based on the principle of implied consent



Advanced Directives

- Do Not Resuscitate Orders
 - Written with consent of patient and patient's family
- Out of Hospital DNR
- Standard Comfort Measures
 - DNR does NOT mean EMS should not provide supportive care designated to ease suffering
 - Standard Comfort Measures:
 - Suctioning
 - Oxygen
 - Positioning
 - Consult local protocol

Hospice

- Provides supportive care to dying patients and their families
- May call EMS to help transfer patient to a hospice center from home
- Outlined, predetermined set of medical orders
 - May differ from EMS protocols
 - May lead to conflicts on scene
- Partner with Hospice and contact medical control for direction if in doubt

"A man cannot be made comfortable without his own approval."

Summary

The aging of society makes it vital for the EMS provider to become familiar with the normal changes associated with aging, common illnesses and safety concerns encountered by this special population group.

Rapid recognition of potential serious illness or injury can greatly improve outcomes for the elderly patient.

Questions?



Thank you!
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Resources

Clinical Geriatrics www.clinicalgeriatrics.com

The Merck Manual www.merckmanuals.com

PubMed Health www.ncbi.nlm.nih.gov