



Information only. This outline material is mostly above EMT expectations of knowledge. The EMT should have knowledge of the highlighted material.

- 34 Million Americans over 65 year of age.
- Gerontology is the study of problems related to aging.

Respiratory Function

- Reduced pulmonary capacity.
- Chest wall becomes stiffer.
- Lung elastic recoil decreases.
- Increase of residual volume and decrease in vital capacity (up to 50%).
- O₂ sats (ABG = Pao₂ is 70, normal is 80 to 100) drop but CO₂ sats stay unchanged.
- Loss of cilia in airway.
- Impaired cough and gag reflex.
- Decrease lung compliance and surface area that results in decreased oxygen uptake.

Cardiovascular Function

- Coronary artery disease is the most common cause of changes.
- Hard to raise heart rate when needed.
- Cardiac output declines 30%.

Renal Function

- Renal blood flow falls 50%.
- Renal size decreased by 20%.
- Problems metabolizing drugs.

Nervous Function

- Intellectual functioning deteriorates.
- Decrease in the total number of neurons.
- 10% reduction in brain weight. Brain shrinks leading to stretched out vessels within the cranium leading to subdural bleeds.
- Nerve conduction slows.
- Pain response diminishes.
- Toxins that are unable to be metabolized by liver and kidneys affect the brain.

Musculoskeletal System Changes

- Muscle shrinks, ligaments calcify, vertebral disks thin.
- 68% have kyphosis (humpback posture).
- 2 to 3 inches of height loss.
- Falls are associated with significant morbidity and mortality.

Other Changes

- Immune system decreases.
- Nutritional disorders.
- Hearing and vision loss. (sensation deterioration of all).
- Fat tissue increases while lean mass decreases
- Harder to maintain normal body temperature. Increased risk of thermoregulatory disorders. Slow to sense changes to ambient temperatures.
- Decreased sympathetic nervous system.
- One in 8 deaths is related to cancer.

Assessment:

- Typical to have more than one illness at a time.
- Chronic problems make it hard to diagnose acute symptoms.
- Nerves may not be reliable.

- Patient fears losing autonomy (independence).

Communication:

- Identify yourself.
- Speak at eye level.
- Locate hearing aids, eyeglasses, dentures if needed.
- Turn on lights.
- Speak slowly.
- Give time for response.
- Preserve dignity
- Be gentle (sometimes EMS forgets).

Examination:

- Explain actions clearly and prior to conducting.
- Protect patient modesty
- Denial due to fear of unknown.
- Look for elderly abuse.

Medical Problems

- Bacterial Pneumonia (with or without fever). Leading cause of death.
- COPD is a major health problem.
- Pulmonary Embolism - associated with venous stasis, heart failure, immobilizations.
- MI - Chest pain may not be present due to nerves deterioration (silent MI) and denial. Most common symptom is dyspnea.
- Heart failure - First symptoms of left sided CHF is fatigue. Not pumping blood to the body. Other signs are orthopnea, dry hacking cough, ascites.
- Dysrhythmias - A-fib is the most common. Hypertensive heart disease is the most common cause.
- Abdominal aneurysm - 2 to 4% of population over 50 years affected. Acute dissecting aortic aneurism is more common than abdominal aneurysm.
- Hypertension - atherosclerosis. Diabetes, obesity. Goal BP is less than 140/90. As people get older the systolic typically will rise and diastolic will remain unchanged. Also epistaxis is common.
- CVA - 3 leading cause of death. Goal time for treatment is 3 hours.
- Delirium - as described in the behavioral emergency lecture. Abrupt disorientation versus dementia being a slow onset of forgetfulness.
- Alzheimer's disease - nerve cells die and the brain shrinks. 4 stages of disease and end result stop feeding and moving.
- Parkinson's disease - Brain disorder causing muscle tremor, stiffness. 1 in 200 pts affected.

- Diabetes - Type 2 most common. Kidneys fail, pancreases fails, etc...
- GI Hemorrhage - most likely taking aspirin.
- Bowel obstruction - Prior abdominal surgeries and hernias.
- Incontinence - urine and bowel is abnormal.
- Fecal impaction.
- Skin - Dry, transparent, wrinkled. Lesions/tears. Slow healing.
- Osteoarthritis - arthritis, cartilage loss, wear and tear.
- Pressure ulcers on skin. Skin wounds/pressure wounds.
- Osteoporosis - Is a normal age-related phenomenon. Bones weaken as we get older.
- Vision - Glaucoma intraocular pressure increases causing damage to optic nerve. Cataract is loss of transparency of lens.
- Tinnitus - ringing in ears. Almost always associated with hearing loss.
- Depression is a serious illness of the elderly. Very successful suicide rate.
- Trauma - Falls account form ore than 50% of trauma deaths of geriatrics. MVC injuries are also common.

Fall from a standing position may cause major injuries. Not 2 to 3 times their height like younger patients.

Watch how we give drugs to geriatrics. Age related factors in body composition and distribution place elderly patients at risk for drug reactions.