Age-Related Changes in Health for Older Adults

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Age-Related Changes in Health.

Objectives:
- Describe age-related sensory changes and changes in numerous systems
- Identify clinical significance of age-related changes
- Discuss the nursing assessment components of normal age-related changes
- Identify care strategies that help with age-related changes and promote communication.
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- Normal aging produces changes in structure and function or organs
- These are most pronounced in 85 years and older
- Normal changes varying widely among older adults and must be differentiated from pathological processes to develop appropriate interventions
- Genetics and lifestyle factors such as physical activity, diet, alcohol and tobacco use all have a strong impact on age related changes.
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The clinical Significance of Age-Related Changes is critical in assessment and care of older adults:

- These changes reduce functional reserve of organ systems and an older adult's ability to respond to stresses such as illness, hospitalization, and loss of function.
- Can also predispose older adults to selected diseases and conditions such as delirium with acute disorders and sleep disorders during hospitalization.
- Atypical disease presentation.
- Altered response to treatment for example: Older adults may metabolize and excrete medications less efficiently than younger adults.
- Can lead to varying patient outcomes.
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Atypical Disease presentation:

**Pneumonia:**

- Older Adults typically present with chills, fever, productive cough, fatigue.
- Older Adults can also present with a decline in functional status, change in mental status, little to no cough likely related to (Dehydration) and a slight temperature.
- It is important to ask the family or the patient if this has happened in the past or similar symptoms to help in your assessment.
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Atypical Disease Presentation:

Dehydration:
- With Dehydration the primary adult symptom is thirst.
- In older adults dehydration is often marked by acute changes in mental status, memory, reason and attention.

Urinary Tract Infection:
- With a UTI Adults typically present with Pain, Burning, Frequency and Hematuria
- With Older Adults they often present with Incontinence, Anorexia, Confusion, Nocturia and Enuresis.
Atypical Disease Presentation:

Hyperthyroidism:

- Hyperthyroidism in younger adults is often marked by weakness, weight loss, fatigue, tremors, diaphoresis, red and hot skin, hair loss, and frequent stools.
- Older adults may present with those same symptoms and also tachycardia and atrial fibrillation.
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Atypical Disease Presentation:

Hypothyroidism:

- In younger adults Hypothyroidism has the classic symptoms of Fatigue, Irritability, Muscle aches, weight gain, dry hair and hair loss, intolerance to the cold, constipation, depression, memory loss, abnormal menstruation.

- In older adults with Hypothyroidism they will often present with other symptoms that are similar in nature with other diagnosis and become difficult to identify. Such as CHF, elevated Cholesterol, ataxia and balance difficulties, hearing loss, Neurological signs such as cognitive deficits, headache, vertigo, psychiatric disorders and visual disturbances. Musculoskeletal problems such as muscle fatigue, cramps and myalgia's joint effusions, osteoporosis and pseudo gout.
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Sensory Changes:

Vision:
- More than 90% of older adults wear glasses
- 19% over the age of 70 have impaired vision

Hearing:
- 50% of those over the age of 75 have a hearing disorder
- 50% of those over the age of 80 have a smell disorder
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Sensory changes:

- Have a significant impact on the lives of older adults.
- Present barriers to care while they are in the hospital and a negative impact with their interaction with their environment.
- This can decrease older adults ability to communicate and increase their social isolation.
- Sensory changes in hearing, vision and smell increases their risk of functional decline and reduces their ability to carry out their ADL’S and subsequently independence.
- Sensory changes can also cause significant safety hazards. Difficulty smelling smoke or gas, seeing hazards or hearing warnings are risk factors for falls and other accidents.
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Etiology and Implications:

- Healthcare workers must understand normal age related changes in vision, hearing, smell and taste as well as;
- Oropharyngeal and GI
- Cardiovascular
- Pulmonary
- Endocrine
- Musculoskeletal
- Nervous System
- Renal and genitourinary
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Vision Changes:

Common Problems:

- Presbyopia which is a decrease focus on near objects and light adaptation
- Also common is a decrease to adapt to the dark, upward gaze and change in pupil size and visual field.

Common Causes of impaired Vision:

- Cataracts, Macular degeneration and glaucoma
- Other causes include: Diabetic and hypertensive retinopathies, temporal arteritis and detached retina.
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Hearing changes:

- The eardrum thickens in normal age-related changes in hearing.
- Presbycusis occurs which is a loss of high-frequency hearing acuity.
- Decrease in the ability to process sound after 50.
- Hair fibers in the ear canal become less able to help with earwax removal and protect the canal.
- Hearing loss is more frequent in older men.
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Common causes of hearing loss in older adults:

- Conductive hearing loss affects the outer or middle ear
- Sensorineural hearing loss results in damage to the inner ear, cochlea or 8th cranial nerve.
- Central auditory processing disorder which is the inability to process sound
- Meniere’s disease which results in fluctuating hearing loss, dizziness, vertigo and tinnitus.
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Speech loss

- Is not a normal part of aging
- When it is impaired or absent during hospitalization the impact on the patient and family is significant.
- Some older adults may not speak as a result of medical procedures
- A majority of adults with a speech impairment have suffered a stroke or Transient ischemic attacks
- A smaller percentage of adults have a speech impaired due to Alzheimer’s or Parkinson’s.
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Sensory changes in smell and taste:

- Fewer taste buds
- Less saliva
- Dry Mouth
- Oral conditions
- Decreased sense of smell
- Medications
- Diseases
- Tobacco use
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Oropharyngeal and Gastrointestinal Changes:

- Age specific changes in the oral cavity can affect nutritional status. These include loss of teeth and poorly fitting dentures.
- Decreased muscle strength for mastication
- Reduced thirst sensation
- Delayed esophageal emptying
- Decreased sphincter muscles, relaxation and peristalsis

Implications:

- These changes may affect chewing impairment, fluid and electrolyte balance, dehydration, malnutrition, weight loss, affects taste and decreases appetite and food intake.
- May also contribute to dysphagia and aspiration.
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Oropharyngeal and Gastrointestinal Changes:
- Absorption of Vitamin B12, Folic acid and carbohydrates declines
- In addition, malabsorption of calcium and Vitamin D increases osteoporosis risk.
- Weakening of the large Intestinal wall
- Impaired sensation to defecate, loss of rectal elasticity and thicker anal sphincter.

Implications and Risks:
- Reduced Gastric motility and delayed emptying alters drug absorption and elevated risk of Gerd.
- Decrease in post prandial hunger
- Reduced food intake possibly leading to malnutrition.
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Oropharyngeal and Gastrointestinal Changes:
- Decreased immune response of the GI tract increases the risk of infection and inflammatory disease of this system
- Decreased gall bladder function
- Reduced Hepatic Reserve

Implications and Risk:
- Decrease in Gall Bladder function increases the risk of Gallstone formation.
- Liver is more susceptible to damage by stressors including alcohol, tobacco and clearance of a range of medications including benzodiazepines declines. This increases the possibility of dose dependent adverse reactions to these drugs.
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Cardiovascular changes:
- Thickening and stiffening of tissue
- Loss of cells responsible for conduction
- Impaired homeostatic responses
- Hypertrophy of the cardiac muscle

Implications and Risks:
- Resting Heart rate ejection fraction and cardiac output remains unchanged cardiac reserve declines. This results in reduced exercise tolerance, fatigue and SOB.
- A heart rate of more than 90 beats per minute in older adults indicates significant physiological stress and increase wall thickness.
- Loss of pacemaker and conduction cells contributes to changes in the ECG.
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Pulmonary Changes:

- Respiratory Function slowly and progressively deteriorates
- Decreased muscle strength and stiffer chest wall with reduced compliance
- Less ciliary and macrophage activity which causes dry mucus membranes and reduced cough reflex.
- Less response to hypoxia and hypercapnia
- Decrease in alveolar surface and production of surfactant

Implications and Risk:

- Decreased Cough reflex effectiveness and deep breathing capacity restricts mucus and foreign matter clearance which increases the risk of aspiration, infection and bronchospasm.
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Endocrine Changes:
- Several changes occur with normal aging notably in the Pancreas and Thyroid Glands
- The pancreas produces less insulin and with this decrease in insulin secretion there is less effective maintenance of blood glucose.
- Peripheral tissues can become insulin-resistant especially in the obese.
- The Thyroid gland can develop nodules and atrophies

Implications and Risks:
- Older adults have higher rates of Diabetes
- Variable Blood Glucose levels
- Elevated Thyroid antibody decreases T3 and Higher TSH levels
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Musculoskeletal Changes:

- Age related changes have a negative impact on function
- Sarcopenia is a loss of muscle mass and strength from declines of skeletal muscle fibers. Sarcopenia increases the risk of falls, disability and causes unstable gait and need of assistive devices.
- Lean body mass is replaced by fat and fibrous tissue
- Weight loss, protein deficiency and physical inactivity can accelerate declines in muscle mass and strength
- Bone loss occurs in both sexes
- Accelerated in women for 5-7 years after menopause
- Susceptible to vertebral compression fractures and osteoporosis
Musculoskeletal Changes:

Implications and Risk:

- Alterations contribute to increased weakness and fatigue and reduced exercise tolerance
- Injury and limited range of motion and joint instability
- Less able to withstand mechanical stress of obesity, activity, osteoarthritis and gait changes
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Nervous System Changes:
- Fewer peripheral cerebral neurons
- Fewer neurotransmitters
- Compromised thermoregulation.

Implications and Risk:
- Slow coordinated movements and increase in response time can affect balance, gait, agility and can lead to functional status decline.
- They are less temperature sensitive and this increase the risk of hyperthermia and hypothermia.
- There is also an increased risk of sleep disorders and delirium during hospitalization.
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Peripheral Nerve Changes;

Common peripheral nerve changes include:

- Peripheral neuropathy - nerve pain in the distal extremities
- Diabetic neuropathy - Loss of sensation in the feet
- Phantom limb pain - occurs when a limb has been amputated and they can have a dull ache to crushing pain.
- Acute sensory loss which can often occur with a stroke or trauma.
- Decreased proprioceptors which is an inability to recognize position. This can lead to falls, burns, lacerations, calluses and pressure ulcers.
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Renal and Genitourinary Changes:

- Decreased Kidney mass, blood flow and glomerular filtration rate. There is a 10% drop each decade after the age of 30.
- Reduced Bladder elasticity, muscle tone and capacity.
- Increased post-void residual and nocturnal urine.
- Older men can also have prostate enlargement and an increased risk of prostatic hyperplasia (BPH)

Implications and Risk:

- Reduced renal functional reserve,
- Decreased drug clearance
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Renal and Genitourinary Changes:

Implications and Risk:

- Risk of illness
- Increased bladder contractions, urgency, urinary tract infection, and nocturnal polyuria
- BPH can cause urgency, hesitancy and frequency.
- Incontinence is not normal and in the aging process the above factors can contribute to incontinence.
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Sexual Changes:
In older adults sexual changes occur however sexual identity and the need for intimacy remains.

After Menopause for Women:
- Experience thinning of the vaginal walls
- Decrease or delay in lubrication
- Structural changes occur and vaginal contractions and fewer and weaker

For Men:
- Need for more direct stimulation is needed
- Fewer and weaker orgasms
- Decreased ejaculation
- Some medical conditions are related to poor sexual health.
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Summary:

- Chronic conditions in the older adult influence the perioperative experience from the preoperative assessment to intraoperative care to postoperative recovery.
- Overall decline in cardiac, pulmonary and renal function decreases an older adult's ability to maintain homeostasis during time of stress (e.g. surgery).
- Decreased cardiac reserve may decrease cardiac output during physiological stress (e.g. infection, physical activity) resulting in fatigue, sob and slow recovery time.
- Dehydration and fluid imbalance necessitate individual considerations for hydration status while the patient is NPO.
- Changes in cognitive processes may make it necessary to include designated support persons in preoperative and postoperative settings.
- Independence and performance of ADL’S may be affected during the postoperative recovery, requiring short or long term assistance from designated support persons.
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Summary:

Advances in Geriatric care and minimally invasive techniques have led to increased opportunities for older adults to safely undergo operative and other invasive procedures. As the number of older adults increases, the percentage of older adults requiring surgery will also increase.

RNS in the perioperative and operative settings should be knowledgeable and competent in the care of the older adult population.