

The Aging Population of MDC



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Learning Objectives

At the end of the presentation, attendees will be able to identify:

1. Physiological changes that occur by body system in the aging adult.
2. Important factors to consider when providing patient care for the aging residents at MDC.
3. How IDD further complicates the aging process.

Integumentary System¹

1. Decreased water, sweat glands and elasticity
2. Increased collagen stiffness
3. Thinning of basement membrane, subcutaneous layer and epidermis
4. Disorganization of small vessels

Considerations for Patient Care^{1, 2}

- Increased chance of developing skin tears, bruises & pressure ulcers
- Extra caution with transfers, clothing management/other ADLs, manual techniques
- Wounds:
 - ◆ Regularly reposition those who can't independently reposition themselves
 - ◆ Nutrition
 - 1.25-1.5g protein/kg BW & 30-35kcal/kg BW for those at risk or with an existing pressure wound
 - ◆ Incontinence
 - Too much moisture coming into contact w skin for a prolonged period → skin breakdown

Genitourinary System¹

1. Kidney changes
 - a. Slower blood filtration + decreased filtration
2. Bladder changes
 - a. Increased residual volume, decreased void volume + bladder capacity
3. Pelvic floor musculature dysfunction

Considerations for Patient Care

- Increased prevalence of incontinence, UTIs & constipation
- Incontinence
 - ◆ Need for ultra absorbent pads increases, more frequent diaper changes and skin checks in vulnerable areas
- Increased retention = susceptible to UTIs
 - ◆ Knowing your patient's "normal" is important

Immune System^{1, 3}

1. Reduced production of T & B cells
2. Macrophage function slows
3. Cells have more difficult time differentiating b/w self & foreign cells → autoimmune diseases
4. Decreased WBCs
5. Lower core body temperature

Considerations for Patient Care⁴

→ Recognize s/s of infection

- ◆ Change in personality/mental state, fever, chills/sweats, shortness of breath, redness/swelling/warmth in any area, changes in bowel/bladder

→ Regular temperature checks

Musculoskeletal System¹

1. Decreased lean muscle mass (sarcopenia)
2. Increase in intra/intermuscular adipose tissue
 - a. Lose muscle strength before muscle mass
3. Decreased bone mineral density
4. Thinning + stiffening of cartilage
5. Decreased flexibility/ROM

Considerations for Patient Care

- For those that are able, exercise is very important!!
 - ◆ Flexibility, strength, endurance, balance
 - ◆ Decrease falls & fracture risk
 - ◆ Increased independence
- Contracture prevention/management
- Rotator cuff tear risk increases significantly >50 y/o

Cardiopulmonary System^{1, 5, 6}

1. Heart

- a. Increased vessel stiffness
- b. Left ventricle wall thickens

2. Lungs

- a. Bronchial epithelium + mucous glands degenerate
- b. Calcification of costal cartilage

Considerations for Patient Care

- Monitoring vital signs
- Chest expansion = key
 - ◆ Posture, bed positioning to provide optimal chest expansion
 - ◆ Deep breathing techniques

Neurological System¹

1. Decreased brain size, weight and blood perfusion
2. Increased reaction times
3. All senses diminished
 - a. Vision, hearing, smell, taste, touch

Considerations for Patient Care

- Speak more loudly, clearly and slowly
- Demonstrate patience with response times
- Sensation checks
- Night lights, clearing pathways, taping surfaces w elevation changes with brightly colored tape

Multi-Systems¹

1. Less sensitive to pain
2. Gait changes
 - a. Decreased speed, cadence, step length
 - b. Increased variability

Considerations for Patient Care⁷

→ Pain assessment

- ◆ Visual aid (FACES, Pain Thermometer Scale)

→ Gait variability

- ◆ Ask older resident to walk faster or asking questions while they're walking (dual-task) → gait deviations become more apparent
- ◆ Practice patience w/ residents + decrease distractions



Aging w Intellectual & Developmental Disabilities⁸⁻¹⁰

- Aging process begins earlier in those with IDD compared to healthy adults
 - ◆ Early onset dementia
- Aging in adults w/ IDD associated with: osteoporosis, diabetes, MSK disorders, dementia, HTN & PAD
- Major risk factors for falls in adults w IDD:
 - ◆ Arthritis, seizure disorder, taking >4 medications, use of walking aid, difficulty lifting/carrying >10 lbs and being female

Any questions??

References

1. Wetzel, N. Age-Related Changes and Geriatric Health Conditions. Lecture presented: University of North Carolina-CH DPT program; January 13, 2023; Chapel Hill, NC.
2. National Pressure Ulcer Advisory Panel, European Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance. Prevention and Treatment of Pressure Ulcers: Clinical Practice Guideline. Emily Haesler (Ed.). Cambridge Media: Osborne Park, Western Australia; 2014.
3. T cells, B cells and the Immune System. The University Of Texas MD Anderson Center website. <https://www.mdanderson.org/cancerwise/t-cells-b-cells-and-the-immune-system.h00-159465579.html#:~:text=T%20cells%20can%20wipe%20out.of%20protein%20called%20an%20antibody>. Updated November 10, 2021. Accessed April 14, 2023.
4. Knowing the Signs and Symptoms of Infection. Centers for Disease Control and Prevention website. <https://www.cdc.gov/cancer/preventinfections/symptoms.htm>. Updated November 2, 2022. Accessed April 14, 2023.
5. Cardiovascular Considerations in the Older Patient. Physiopedia website. https://www.physio-pedia.com/Cardiovascular_Considerations_in_the_Older_Patient. Updated June 4, 2022. Accessed April 14, 2023.
6. Ageing and the Cardiorespiratory System. Physiopedia website. https://www.physio-pedia.com/Ageing_and_the_Cardiorespiratory_System. Accessed April 14, 2023.
7. Pain in Individuals with an Intellectual Disability: Scope of the Problem and Assessment Challenges. International Association for the Study of Pain website. <https://www.iasp-pain.org/resources/fact-sheets/pain-in-individuals-with-an-intellectual-disability-scope-of-the-problem-and-assessment-challenges/>. Updated July 9, 2021. Accessed April 14, 2023.
8. Oviedo G, Javierre C, Font-Farre M, et al., Intellectual disability, exercise and aging: the IDEA study: study protocol for a randomized controlled trial. BMC Public Health. 2020. <https://www.ncbi.nlm.nih.gov/libproxy.lib.unc.edu/pmc/articles/PMC7439526/>. Accessed April 14, 2023.
9. Kelly Hsieh, James Rimmer, Tamar Heller; Prevalence of Falls and Risk Factors in Adults with Intellectual Disability. *Am J Intellect Dev Disabil* 117 (6): 442–454. doi: <https://doi-org.libproxy.lib.unc.edu/10.1352/1944-7558-117.6.442> November 2012;
10. Van Heumen L. Aging of Individuals with Intellectual and Developmental Disabilities (IDD). The University of Illinois at Chicago College of Applied Health Sciences. Accessed April 14, 2023.