Atypical Presentations & Frailty Session: Short Answer Questions

1. **What are 10 physiologic changes with aging?**

Answer:

- Brain:
  - Dec brain mass
  - Dec nerve cells in brain
  - Dec NTs especially acetylcholine
  - Dec cerebral blood flow by 20%
  - Dec response to adrenergic stimulation
  - Inc permeability of blood brain barrier
- Heart:
  - Dec CO
  - Inc resting HR
  - Dec elasticity/inc vascular rigidity
  - Inc LV thickness
  - Inc LA size
- Liver
  - Loss of hepatocytes and dec size
  - Dec blood flow
  - Enzyme system activity is decreased
- Renal:
  - Dec renal cortical mass
  - Dec renal blood flow with less efficient clearance of medications
  - Increased susceptibility to nephrotoxicity
- GI:
  - Dec peristalsis, slowed gastric emptying and colonic transit
  - Dec gastric acid secretion and dec acid clearance with net effect = more acidic stomach
  - Dec small bowel surface area, less absorptive surface
- Metabolic System:
  - Dec body water

- Dec lean body mass
- Inc fat
- Dec basal metabolic rate
- Dec thirst response so often hypovolemia

2. **What are four differences in the abdominal assessment of older people?**

Answer:
- Decreased peripheral sensory nerve cells in the peritoneum
- Decreased abdominal muscles
- Smaller omentum
- Thinner gastric mucosa

3. **What differences in vital signs may you notice with older patients?**

Answer:
- May not see tachycardia in shock
  - Dec response to beta-adrenergic stimulation
  - Medications may mask tachycardia (beta-blockers)
- Fever may be later to develop or not develop in severe infection
  - Dec immune response (less cytokines, leukotrienes, inflammatory markers)
- May not see hypotension with shock
  - Baseline hypertension (look for relative hypotension)
  - Peripheral vasculature is less elastic

4. **What are 8 differential diagnoses for general weakness in the older adult?**

Answer:
- Stroke

- ICH
- SAH
- Brain mass
- SCI
- GBS
- Infection
- Delirium
- Anemia
- Electrolyte abnormality
- ACS
- Malignancy
- Medication side effect/interactions

5. **What is the definition of a urinary tract infection?**

Answer:
Presence of:

- Bacteriuria (isolation of urinary pathogen at $\geq 10^5$ CFU/mL in mid-stream urine)
  AND
- Genitourinary signs or symptoms

REF: Nicolle et al. 2019; Rowe & Juthani-Mehta, 2014

6. **What are 6 genitourinary signs and symptoms of UTI?**

Answer:
Urinary frequency
Urinary urgency
Dysuria
New or worsening urinary incontinence
Gross hematuria
Suprapubic tenderness
CVA pain or tenderness

REF: Blondel-Hill et al. 2018; Caterino et al. 2019; Mayne et al. 2019; Nicolle et al 2019

7. **What are 4 consequences of overdiagnosis of UTIs in older people?**

Answer:

- Missing the true cause and premature diagnostic closure
- C.difficle infections
- Medication burden/interactions
- Polymicrobial resistance

8. What is the definition of frailty?

Answer:

- "state of increased vulnerability to poor resolution of homeostasis after a stressor event, which increases the risk of adverse outcomes"
- "decreased mobility, energy, physical ability, and ability to respond to stressors"

Ref: Lancet 2013; 381: 752–62; Frailty in elderly people; Andrew Clegg, John Young, Steve Iliff e, Marcel Olde Rikkert, Kenneth Rockwood

9. What are five adverse healthcare outcomes associated with increased frailty?

Answer:

- **Increased mortality**
- **Institutionalization**
- **Increased surgical complications**
- **Increased healthcare utilization**
- **Increased hospital LOS**
- **Functional decline**
- **Visits to the ED**
- **Higher readmission rates**

REF:

Kaeppeli T, Rueegg M, Dreher-Hummel T, Brabrand M, Kabell-Nissen S, Carpenter CR, Bingisser R, Nickel CH. Validation of the Clinical Frailty Scale for Prediction of Thirty-

Day Mortality in the Emergency Department. Ann Emerg Med. 2020 Sep;76(3):291-300. doi: 10.1016/j.annemergmed.2020.03.028. Epub 2020 Apr 24. PMID: 32336486.

Rueegg M, Nissen SK, Brabrand M, Kaeppeli T, Dreher T, Carpenter CR, Bingisser R, Nickel CH. The clinical frailty scale predicts 1-year mortality in emergency department patients aged 65 years and older. Acad Emerg Med. 2022 May;29(5):572-580. doi: 10.1111/acem.14460. Epub 2022 Apr 23. PMID: 35138670; PMCID: PMC9320818.

Poulton A, Shaw JF, Nguyen F, Wong C, Lampron J, Tran A, Lalu MM, McIsaac DI. The Association of Frailty With Adverse Outcomes After Multisystem Trauma: A Systematic Review and Meta-analysis. Anesth Analg. 2020 Jun;130(6):1482-1492. doi: 10.1213/ANE.0000000000004687. PMID: 32384338.

10. Name one screening tool for frailty?

Answer:

- Clinical Frailty Scale (CFS)
- Study of Osteoporotic Fractures (SOF) Index
- Pictoral Fit Frail Scale (PFFS)
- FRAIL scale
- Others

11. What is the CTAS frailty modifier?

- Revision of the 2016 Canadian ED Triage and Acuity Scale (CTAS) in order to address concerns that frail patients are likely to be under triaged and at risk of deterioration while waiting.
- Allows triage to up-triage patients that may have normally been rated 4 or 5, to CTAS 3, if they are completely dependent for personal care (WC bound, cognitive impairment, terminal illness late in course, >80 yo, or showing signs of cachexia and general weakness)

Ref: Bullard, M. J., Musgrave, E., Warren, D., Unger, B., Skeldon, T., Grierson, R., ... & Swain, J. (2017). Revisions to the Canadian emergency department triage and acuity scale (CTAS) guidelines 2016. *Canadian Journal of Emergency Medicine*, *19*(S2), S18-S27.