Multiple-choice questions

1. **Which statement is false regarding physiological change of aging in older adults?** (tests physiologic changes with aging)
    a. Decreased hepatic blood flow
    b. Decreased lean mass
    c. Decreased intestinal motility
    d. Increased fat mass
    e. Increased total body water

2. **Which statement is true regarding physiological changes of aging in older adults?** (tests physiologic changes with aging, and pharmacokinetic effects)
    a. A water-soluble drug will have an increased distribution volume and therefore a decrease effect
    b. The absorption of drug by the gastro-intestinal system does not change significantly with age
    c. The liver metabolism is responsible for the main elimination of drugs
    d. The creatinine clearance has a direct variation with weight and is increased with women
    e. The metabolism rate decrease by 50% at the age of 50 years old.

3. **Which medication does not interfere with warfarin?** (tests drug interactions)
    a. Ceftriaxone
    b. Escitalopram
    c. Naproxen
    d. Cephalexin
    e. Lithium

4. **Which drug has the least impact on cognition and why?** (tests CNS meds)
    a. Dimenhydrinate
    b. Ranitidine
    c. Lorazepam
    d. Metronidazole
    e. Hydromorphone

5. **Which combination of drugs is not an antagonist choice?** (tests drug interactions)
    a. Ondansetron + Dimenhydrinate
    b. Amoxicillin-clavulanic acid + probiotic
    c. Donepezil + Diphenhydramine
    d. Salbutamol + Propranolol
    e. Levodopa + Haloperidol

6. **Which medication is NOT on the Beers Criteria potentially inappropriate medications?**
    a. Amitriptyline
    b. Dimenhydrinate
    c. Indomethacin
    d. Nitrofurantoin
    e. Cephalexin

7. **Which is false regarding pain management options in older adults?**
    a. Tramadol can cause somnolence or cognitive dysfunction
    b. In patients with poor renal function, hydromorphone is preferred over morphine
    c. Codeine is the least constipating opioid in older patients
    d. There are renal dosing considerations for gabapentin and pregabalin

8. **Mr. Leon is 79 years old and had a fall this morning after getting out of bed. He complains of dizziness while standing up. His vitals signs are 140/90 lying and 110/70 standing, with a steady HR around 55. Blood work and xrays are unremarkable, his living situation is appropriate; and he passed a walk test. He has stable CAD, HTN, and atrial fibrillation. You decide to evaluate his medication and make some changes:**
    a) ASA 80mg daily
    b) Amlodipine 10mg daily
    c) Ramipril 10mg daily
    d) Metoprolol 50mg daily
    e) Atorvastatin 40mg daily
    f) Warfarin 4mg daily
    g) Vitamin D 1000 UI daily

    Which approach is the most appropriate for this patient? (tests deprescribing, and the approach to med review in ED)
    a) D/C amlodipine, and decrease dose of metoprolol and ramipril
    b) Decrease dose of ramipril
    c) Decrease dose of metoprolol, leave a message to his family doctor to ensure a follow-up to re-evaluate current medication
    d) Decrease dose of metoprolol, decrease dose of ramipril and order a bone density scan and a vitamin D level to evaluate the appropriate dose of vitamin D and indication of bisphosphonate
    e) No changes are needed

9. **Which of the following pharmacokinetic changes in older adults is true?**
    a. Higher doses of Haldol are needed in older adults because older people have lower proportions of fat content
    b. Lower doses of morphine are suggested due to reduced hepatic blood flow and phase 1 metabolism
    c. Increased age, increased weight and female sex contribute to decreased creatinine clearance
    d. Hydrophilic drugs such as lithium will have lower effective concentrations in older adults

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