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Questions and Answers

1. Which of the following is an example of the “drug prescribing cascade?”
 - (a) 70-Year-old hypertensive patient, recently started on nonsteroidal anti-inflammatory drugs (NSAIDs) for osteoarthritis now comes in with worsening hypertension
 - (b) 68-Year old with a recent diagnosis of hypertension on a thiazide diuretic, presents with complaints of gout, warranting treatment
 - (c) 75-Year old diabetic with gastroparesis on metoclopramide complains of tremor of hands and slow gait
 - (d) 67-Year-old male with depression on amitriptyline, asks for laxatives for new onset constipation
 - (e) All of the above
2. Which one of the following factors does not increase the risk of GI complications from NSAIDs?
 - (a) Age over 65
 - (b) BMI > 30
 - (c) Polypharmacy
 - (d) Previous history of ulcer or an ulcer-related complication
 - (e) Concomitant use of anticoagulants or corticosteroids

Answer: (b)

NSAIDs have been identified as a risk factor for GI bleeding in several studies. Older patients often require analgesics in larger doses, further increasing the risk. A history of an ulcer or an ulcer complication has been identified as a risk factor for complications with aspirin or NSAID use. Patients on NSAIDs who are on prescription corticosteroids (prednisone in doses over 10 mg) have a sevenfold increased risk of GI bleeding. Similarly, patients on NSAIDs who are concomitantly on oral anticoagulants such as warfarin have a 12-fold increased risk of bleeding. A high BMI by itself is not a risk.

Answer: (e)

The “prescribing cascade” begins when an adverse drug reaction (ADR) is misinterpreted as a new medical condition. Another drug is now prescribed, and the patient is placed at risk of developing additional adverse effects relating to the new potentially unnecessary treatment. Anti-inflammatory properties of NSAIDs result from their ability to inhibit cyclooxygenase, a requirement for biosynthesis of prostaglandins. Prostaglandins modulate blood pressure control through effects on arteriolar smooth muscle and extracellular fluid volume. The effects of NSAIDs are deleterious on existing hypertension. Some degree of hyperuricaemia is a known side effect of treatment with thiazides. Metoclopramide hydrochloride used for treatment of gastroparesis and as an antiemetic after chemotherapy has antidopaminergic adverse effects, manifesting as extrapyramidal signs and symptoms. Amitriptyline, which has anticholinergic and antihistaminic properties, causes constipation, which is common in the elderly, leading to dependence on laxatives.

3. Which of the following is not true regarding gastro esophageal reflux disease (GERD) and its management in the elderly?
 - (a) Atypical presentation is uncommon in the old
 - (b) Symptom severity and disease severity do not necessarily correlate
 - (c) Antacids used for GERD are free of adverse effects (diarrhea or constipation)
 - (d) Endoscopy is an important diagnostic tool
 - (e) Proton pump inhibitor (PPI) trial may be the initial intervention

Answer: (c)

Often, older patients with GERD do not present with heartburn, which is usually the most common symptom in younger patients; the majority (over 75%) does not

initially experience acid regurgitation. More frequently, elderly patients with GERD report dysphagia, vomiting, and breathing difficulties at presentation. Studies do not demonstrate a relationship between symptom severity and disease severity on endoscopy. Elderly patients require endoscopy as the initial diagnostic test, irrespective of the severity or duration of symptoms. Early endoscopy may identify the presence and severity of esophagitis and hiatus hernia which are prognostic indicators and may also reveal complications of the disease. A trial of PPI is the treatment of choice and has a favorable efficacy and safety profile.

4. Which one of the following patient factors is most associated with an increased risk for severe *Clostridium difficile*-associated diarrhea (CDAD)?
- (a) Advanced age
 - (b) Chemotherapy medications
 - (c) Antimicrobial use
 - (d) Previous hospital stay

Answer: (a)

The odds of severe CDAD and death attributable to CDAD increase with age, especially for patients >70 years of age. In the 2002 Quebec outbreak, frequency of CDAD among persons ≥ 65 years was tenfold higher than observed in younger adults. This association was also noted as early as the 1980s, prior to the epidemic emergence of hyper-virulent *C. difficile*. The reasons for this association are uncertain and may be multifactorial. Host factors such as diminished immune response to *C. difficile* infection may play a role. Alternatively, older individuals may suffer several comorbid processes that render them at a cumulative increased risk for *C. difficile*, and the likelihood for hospitalization or treatment with antibiotics.