PEDiATRICS

1. **Answer C:** *Palivizumab should not be administered, given that she is not at high risk of severe RSV infection because her heart defect has been completely repaired.*

   Patients with hemodynamically significant congenital heart defects such as an atrioventricular septal defect are at high risk of severe RSV infection. These patients should receive palivizumab for prophylaxis monthly during RSV season, regardless of their gestational age, until their defect is completely repaired. After the defect is completely repaired, palivizumab is no longer indicated. Palivizumab is not indicated for full-term neonates who do not have risk factors for severe RSV disease (e.g., congenital heart defect, airway anomalies).

   **References:**

2. **Answer B:** *Initiate ampicillin and gentamicin.*

   This patient’s clinical presentation, including his apnea, lethargy, and decreased white blood cell count, is most consistent with neonatal sepsis. The most common causative organisms of early neonatal sepsis include group B *Streptococcus* and *Escherichia coli*, making ampicillin and gentamicin appropriate empiric antibiotic choices. Vancomycin and gentamicin would be indicated for late neonatal sepsis because the most common causative organisms include group B *Streptococcus* and *E. coli*, as well as nosocomial pathogens such as coagulase-negative *Staphylococcus aureus* and additional gram-negative organisms such as *Klebsiella* spp., *Enterobacter* spp., and *Pseudomonas aeruginosa*. If the patient were asymptomatic, a limited sepsis evaluation (i.e., obtain blood culture and complete blood cell count, but initiate antibiotics only if the white blood cell count is abnormal) would be reasonable in light of the mother’s group B *Streptococcus* status. However, because of this patient’s symptoms, antibiotic therapy should not be withheld. Caffeine citrate is the drug of choice for the treatment of apnea of prematurity; however, the likelihood of this occurring in a full-term neonate is very low.

   **References:**

3. **Answer A:** *Give methylphenidate after meals, and encourage high-calorie snacks.*

   Appetite suppression and growth delay are known adverse effects of the medications used to treat ADHD. Both methylphenidate and atomoxetine have been associated with these adverse effects. Stimulant therapy is the treatment of choice for ADHD, with up to 80% of children responding to this treatment modality. Response to non-stimulants is generally lower, with about 50% of children responding. Because short-acting methylphenidate provided adequate control of the patient’s symptoms and atomoxetine has not been shown to have a significantly lower incidence of appetite suppression and weight loss, switching agents is not the best initial intervention. These adverse effects may be dose related, so reducing the methylphenidate dose is an option; however, the risk of loss of symptom control must be weighed against this potential benefit.

   Administering medication doses after meals has been shown to reduce appetite suppression without a loss in efficacy: thus, this approach is a better initial strategy for a patient with well-controlled ADHD symptoms. Clonidine has been added to stimulant regimens to counteract insomnia, but it would not be expected to affect appetite.

   **References:**
   2. American Academy of Pediatrics Subcommittee on attention-deficit/hyperactivity disorder. ADHD: clinical
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POSTTEST ANSWER EXPLANATIONS


4. Answer D: Administer inactivated influenza vaccine x 2 doses because he is younger than 2 years and previously unvaccinated against influenza.
   The influenza vaccine is recommended by the CDC as part of the routine childhood immunization schedule for children 6 months and older. Children from 6 months to 8 years of age who are receiving the influenza vaccine for the first time should receive two doses. Live, attenuated influenza vaccine is indicated only for children who are 2 years and older with the following exceptions: (1) those with asthma, (2) those 2–4 years of age who have had wheezing in the past 12 months, or (3) those who have any other underlying medical conditions that predispose them to influenza complications. These children should receive the inactivated product.
   References:

5. Answer A: No intervention is necessary beyond continued monitoring.
   Valproic acid is a drug of choice for managing absence seizures. Phenytoin and oxcarbazepine would likely have minimal effect on weight, whereas felbamate could cause weight loss; however, none of these agents is likely to be effective against absence seizures. Because of this patient’s age, her weight gain may be related to pubertal changes rather than her drug therapy. Continued monitoring of her weight and perhaps a referral to a diettian would be the best initial intervention because her seizures are well controlled on valproic acid, and her weight is still appropriate for her age.
   References:
   2. Sarco DP, Bourgeois BFD. The safety and tolerability of newer antiepileptic drugs in children and adolescents. CNS Drugs 2010;24:399-430.

Geriatrics

6. Answer B: Continue current therapy.
   Discontinuing warfarin in this patient with a CHADS2 score of three would not be the most appropriate intervention (Answer A is incorrect). A patient with a CHADS2 score of 3 would have a 5.9% risk of stroke. Many effective medications are often underused in older patients. Increasing the digoxin dose to 0.25 mg daily would only lower the patient’s heart rate (Answer C is incorrect). Data from the RACE-II trial did not reflect any benefit of strict rate control over lenient control (less than 110 beats/minute). Adding diltiazem 240 mg daily would lower the patient’s heart rate and blood pressure, which could potentially increase the likelihood of more falls. Continuing current therapy encouraging proper diet and exercise and emphasizing adherence to medication therapy. (Answer B is correct).
   References:

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7. **Answer A: Add memantine 5 mg twice daily.**

Unfortunately, this patient’s dementia has worsened during the past year to a classification of “moderate.” Current recommendations include the option of initiating memantine (Answer A is correct). Adding donepezil would be least favorable because of the patient’s poor appetite and heart rate of 58 beats/minute; cholinesterase inhibitors might cause GI symptoms and adversely affect the patient’s appetite, with the potential to cause bradycardia (Answer B is incorrect). In addition, cholinesterase inhibitors would negatively affect this patient’s heart rate, which is 58 beats/minute at presentation. Modifying the phenytoin dose would not modify the disease or improve the patient’s symptom course because symptoms have not acutely changed but have been worsening insidiously. Adjusted serum phenytoin levels are therapeutic. (Answer C and D are incorrect).

**References:**

8. **Answer A: Ramelteon 8 mg.**

Ramelteon improves sleep latency and total sleep time. Ramelteon’s safety profile is significantly more favorable compared with that of benzodiazepines, benzodiazepine agonists, and trazodone (Answer A is correct). Zolpidem improves increased total sleep time and decreases sleep latency but may cause significant adverse effects in older patients. In addition, an initial dose of 5 mg is recommended in older patients (Answer B is incorrect). Clinical data are limited on the effectiveness of trazodone for off-label use in the treatment of insomnia (Answer C is incorrect), though quetiapine is often used with clinical evidence for insomnia. In addition, using atypical antipsychotic agents in patients with dementia can have the unintended consequences of increased risk of death (Answer D is incorrect).

**References:**

**Gastrointestinal Disorders**

9. **Answer D: Initiate pantoprazole 40 mg once daily.**

This patient is experiencing moderate-severe reflux symptoms, given the frequency of his symptoms and the presence of nighttime symptoms more than 2 days per week. Nonpharmacologic interventions such as raising the head of the bed may be beneficial (Answer A); however, this patient is also having postprandial symptoms, which would not be helped by this intervention. Use of over-the-counter doses of as-needed histamine-2 antagonists (Answer B) is an option; however, this patient has moderate-severe symptoms and will probably need a more potent scheduled therapy. Use of a once-daily scheduled proton pump inhibitor (PPI) would be the best choice; however, given the patient’s concurrent use of clopidogrel, the FDA recommends avoiding omeprazole because of the potential reduction in clopidogrel efficacy (Answer C) and use of other agents such as pantoprazole that do not have this interaction with clopidogrel (Answer D). The 2013 American Gastroenterological Association guidelines on gastroesophageal reflux disease do state, however, that the PPI-clopidogrel interaction is not clinically significant.

**References:**


10. **Answer B**: *Initiate sofosbuvir and ribavirin.*
This patient has chronic hepatitis C virus (HCV) genotype 3 infection. Use of sofosbuvir and ribavirin is the preferred and most effective treatment of genotype 3 infection. Simeprevir (Answer A) is used in combination with pegylated interferon and ribavirin as an alternative therapy and should not be used alone. Simeprevir (Answer A) is recommended as alternative therapy for genotype 1 and 4 infections. Sofosbuvir in combination with pegylated interferon and ribavirin (Answer C) is indicated for genotype 1 or 4, 5, and 6 infections. Entecavir (Answer D) is indicated for hepatitis B virus infection and therefore has no role for this patient.

Reference:

11. **Answer B**: *Electrocardiogram*
Ondansetron is an effective antiemetic for the treatment of nausea and vomiting in both acutely ill medical patients and patients receiving chemotherapy. Overall, ondansetron is well tolerated; however, intravenous administration is associated with a prolonged QTc interval. Because this patient is also taking methadone—a drug associated with QTc-interval prolongation—and has a history of cardiovascular disease, the patient should receive a baseline electrocardiogram (Answer B) to assess his QTc interval. If it is significantly prolonged, ondansetron may need to be avoided. Other diagnostic tests such as an echocardiogram (Answer A), an abdominal ultrasound (Answer C), and a CT of the brain (Answer D) will not evaluate cardiac rhythm and thus are not indicated.

References:

12. **Answer C**: *Prednisolone 40 mg/day*
This patient presents with a history of acute alcoholic hepatitis. Prognosis of alcoholic hepatitis may be initially evaluated by the Maddrey discriminant function score, calculated as 4.6 x (patient’s PT − control PT) + total bilirubin (mg/dL), where PT is prothrombin time. Patients with a score greater than 32 are believed to have a poor prognosis. This patient’s score is 42.5, which would qualify her for treatment with prednisolone 40 mg/day (Answer C). Although NSAIDs (nonsteroidal anti-inflammatory drugs) have anti-inflammatory properties, they should be avoided in patients with alcoholic liver disease because of an increased risk of renal dysfunction and GI bleeding, making use of naproxen incorrect (Answer A). Octreotide is used in the setting of variceal bleeding and thus is not indicated for this patient (Answer B). Midodrine is used for treating hepatorenal syndrome, and because this patient does not have evidence of hepatorenal syndrome given her normal SCr, midodrine is not indicated at this time (Answer D).

References: