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Exam : **NAPLEX**

Title : North American Pharmacist
Licensure Examination

Version : DEMO

1. Which of the following represents the major route of metabolism for acetaminophen?

- A. Glucuronidation
- B. Sulfation
- C. Cytochrome P-450 oxidation
- D. Direct renal excretion
- E. Plasma breakdown

Answer: A

Explanation:

Acetaminophen is metabolized by choices A through D. The major route is glucuronidation catalyzed by UDP-glucuronyl transferase in the liver. Sulfation is the next most common route and is the target mechanism for NAC therapy. Oxidation by cytochrome P-450 results in the formation of N-acetyl-p-benzoquinone imine, which is responsible for the hepatic necrosis caused by acetaminophen overdose. Direct renal excretion represents approximately 5% of the metabolism of acetaminophen. Plasma metabolism of acetaminophen does not generally occur.

2. A 15-year-old presents with 6 days of nasal congestion with thin, clear rhinorrhea. She notes mild facial pain but has had no fevers. She feels her symptoms are improving.

What is the most likely cause of her symptoms?

- A. *Streptococcus pneumoniae*
- B. Viral
- C. *Moraxella catarrhalis*
- D. *Haemophilus influenzae*
- E. *Staphylococcus aureus*

Answer: B

Explanation:

This patient shows symptoms of acute sinusitis. The most common etiology of which is viruses. Indications that an infection is viral as opposed to bacterial included a shorter infection time (less than 10 days) and no purulent discharge (hers is watery). She does not show any evidence of a complication developing and even notes that her symptoms are improving. If her symptoms were attributed to a bacterium, then the most common cause of acute sinusitis is *Streptococcus pneumoniae* followed by *Haemophilus influenzae*, then *Moraxella catarrhalis*. Anaerobic species such as *Bacteroides fragilis* and *Staphylococcus aureus* are more commonly found in patients with chronic sinusitis (sinusitis lasting longer than 12 weeks). This is important to realize before indiscriminately providing antibiotics for these patients.

3. A 72-year-old woman suffers from a major depressive episode. She has a history of coronary artery disease, atrial fibrillation on anticoagulation therapy, sick sinus syndrome, glaucoma, and chronic obstructive pulmonary disease.

Which of the following medications is most appropriate for the treatment of her depression?

- A. Amitriptyline
- B. Nortriptyline
- C. Doxepin
- D. Fluvoxamine
- E. Escitalopram

Answer: E

Explanation:

In older adults, selection of antidepressant medication should be done with various considerations in mind, most notably side effects and risk of drug-drug interactions. The tricyclic antidepressants (TCAs), as discussed on question 50, have various side effects including cardiac conduction abnormalities and drug-drug interactions that make them undesirable for the treatment of depression in older adults. A selective serotonin reuptake inhibitor is more favorable than a TCA in this patient. Fluvoxamine has a high risk for drug-drug interactions, whereas escitalopram does not. Fluvoxamine also has high protein binding, and can therefore interact with anticoagulant medications, such as warfarin. Therefore, of the medications listed, escitalopram is the most appropriate in this patient. In older adults, psychotropic medications should be started at a low dose and titrated up slowly to the lowest effective dose.

4. A 20-year-old student came to the emergency department with primary complaints of palpitations, low-grade fever, and anxiety for 2 months. She reports that she is irritable and suffers severe mood swings that is interfering with her sleep and relationships (she admits to crying spells and frequent fights with friends and family). She has also lost 12 pounds in the past 2 months with no apparent alteration in her diet or physical activity (though she is happy with her weight loss). She denies any past medical problems, though her friends have always been worried that she eats too little. Her temperature is 38.0 C (100.4 F), blood pressure is 148/62 mm Hg, pulse is 122/min and regular, and respiratory rate is 28/min. Examination reveals a bruit heard over the anterior neck, fine tremor of the hands, and warm, moist skin. Her eyes and eyelids do not move together during finger following test (with steady head). Laboratory work is sent, including a thyroid panel, but will not be available until tomorrow morning.

Which of the following is the most appropriate initial management at this time?

- A. Diltiazem therapy
- B. Iodine therapy
- C. Methimazole therapy
- D. Propranolol therapy
- E. Referral to a surgeon

Answer: D

Explanation:

This patient had hyperthyroidism, though the exact cause of her condition is not currently clear. The immediate treatment should focus on controlling the patient's symptoms for which a non-specific beta-blocker is seemingly an ideal choice. Propranolol therapy can be initiated without any adverse effects while the patient undergoes further workup of her condition. As the treatment for hyperthyroidism varies depending upon the cause of the condition, more definitive therapy should be avoided. Diltiazem (choice A) helps control heart rate but does not have the same antiadrenergic properties as beta-blockers. The initial treatment for symptomatic hyperthyroidism is propranolol. Iodine (choice B) can be used in high doses to inhibit thyroid production of T3 and T4. Until it's clear that this patient does not have an exogenous source of thyroid hormone (and until it is clear she is not pregnant), this agent should not be considered. Propylthiouracil (PTU) and Methimazole (choice C) inhibit the organification of iodine to tyrosine residues. If this patient has Graves disease, this would be an appropriate treatment. Until a diagnosis is made, however, initial therapy should consist of a beta-blocker. Surgical treatment (choice E) of hyperthyroidism is often a reasonable treatment for patients who cannot tolerate medical therapy of

radioactive iodine ablation.

5.What is the best anti-thyroid regimen in a pregnant woman who has clinically significant hyperthyroidism?

- A. Stop treatment and resume post-partum
- B. Propylthiouracil
- C. Methimazole
- D. Propylthiouracil first trimester followed by methimazole for the remainder of pregnancy
- E. Methimazole first trimester followed by propylthiouracil for the remainder of pregnancy

Answer: D

Explanation:

Propylthiouracil (PTU) is recommended for treatment of hyperthyroidism in women who are in their first trimester of pregnancy by the American Thyroid Association (ATA). Methimazole has been associated with congenital malformations including aplasia cutis in rare cases and thus it is not recommended in the first trimester. The ATA recommends switching to methimazole once in the second trimester as there is a risk of liver injury associated with the use of PTU.