

## **USMLE-STEP-1**<sup>Q&As</sup>

United States Medical Licensing Step 1

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#### **QUESTION 1**

A 60-year-old man arrives at the emergency room with chills, high fever, headache, and muscle pain. He is a slaughterhouse worker. Believing he had a flu, the man had stayed at home for 9 days after the onset of the symptoms. You suspect a diagnosis of leptospirosis. What body fluid should the clinical laboratory check for the presence of L. interrogans?

A. blood

- B. saliva
- C. serum
- D. spinal
- E. urine

Correct Answer: E

Section: Microbiology/Immunology

Leptospirosis is a zoonosis of worldwide distribution and is caused by spirochetes of the genus Leptospira.

L. interrogans is the main pathogen. Leptospirae grow best under aerobic conditions at 28 30°C in seru m-containing semisolid media. After 12 weeks, the leptospirae produce a diffuse zone of growth near the top of the tube and later in a ring corresponding to the level of optimal oxygen tension for the organisms. Human infection results usually from ingestion of water or food contaminated with the bacteria. The organisms establish themselves in the liver and kidneys. Kidney involvement in many animal species is chronic and results in the shedding of many leptospirae in the urine (choice E). Other body fluid choices (A, B, C, and D) are not preferred specimens for leptospirae isolation.

#### **QUESTION 2**

Which of the following drugs is useful in treatment of gout with recurrent renal urate stones because it decreases the excretion of uric acid?

- A. allopurinol
- B. aspirin
- C. colchicines
- D. indomethacin
- E. sulfinpyrazone

Correct Answer: A

Section: Pharmacology Allopurinol and its metabolite alloxanthine inhibit xanthine oxidase, thus preventing conversion of xanthine and hypoxanthine to uric acid. Although xanthine and hypoxanthine then accumulate, these compounds are more soluble than uric acid and less likely to deposit in joints or precipitate in the urine. Most doses of aspirin (choice B) increase retention of uric acid, especially low doses. Colchicine (choice C) is an inhibitor of microtubule function that brings relief in an acute gout attack by inhibiting the motility of granulocytes and preventing the formation of mediators of inflammation by leukocytes. Because of its toxicity at higher doses, it is now used chiefly at low doses to prevent acute



attacks. Indomethacin (choice D) is an NSAID that inhibits COX and reduces formation of prostaglandins and eicosanoids involved in gouty arthritis. It has no effect on the formation of uric acid and very little on its excretion. Sulfinpyrazone (choice E) and probenecid are uricosuric agents--they increase the excretion of uric acid by the kidney. Renal uric acid excretion is determined by the balance between the amount filtered plus that actively secreted and the amount undergoing passive and active reabsorption. At very low doses, these agents inhibit active secretion and thus promote retention of uric acid. At higher (clinical) doses, both active secretion and active reabsorption are inhibited, with the result that excretion is enhanced.

#### **QUESTION 3**

Which of the following is the current drug of choice for treatment of roundworm (Ascaris) infections?

- A. diethylcarbamazine
- B. ivermectin
- C. mebendazole
- D. niclosamide
- E. praziquantel

Correct Answer: C

Section: Pharmacology Mebendazole is a broad-spectrum antihelmintic that is effective against a variety of nematodes including ascarids, hookworm (Necator, Ancylostoma), whipworm (Trichuris), threadworm (Strongyloides), and pinworm (Enterobius). Adverse effects are rare. Diethylcarbamazine (choice A) was developed as a treatment for filariasis. Because of adverse effects that include nausea, vomiting, headache, leukocytosis, and proteinuria, it has been largely supplanted by other antifilarial agents, except in the case of Loa loa, where it remains the drug of choice. Ivermectin (choice B) is used to treat Onchocerca volvulus, the agent responsible for river blindness in west and central Africa. Niclosamide (choice D) and praziquantel (choice E) are agents with primary efficacy against flukes and tapeworms. In the case of Fasciola hepatica (sheep liver fluke), however, bithionol or triclabendazole (a veterinary drug) are drugs of choice; in cysticercosis, albendazole is the drug of choice.

#### **QUESTION 4**

A 48-year-old woman comes to the doctor complaining of vague pains in the abdomen, legs, and thighs. On physical examination, the only positive findings are varicose veins of 20 years\\' duration. The patient, upon being told of this, insists on being operated on for the varicose veins immediately. Which of the following is most likely to underlie this wish for immediate surgery?

A. anxiety

- B. depression
- C. drug dependence
- D. psychosis

Correct Answer: A

Section: Behavioral Science and Biostatics Anxiety or concomitant stress is a common trigger for help-seeking behavior, especially if the symptom or sign is of long duration. Although depression (choice B) can cause vague discomfort and



precipitate help seeking, insisting on an operation immediately seems to indicate anxiety rather than depression, which is more likely to cause indecision or inaction. A drug-dependent person (choice C) is more likely to insist on drugs. There is no evidence of psychosis (choice D).

#### **QUESTION 5**

A 35-year-old lifeguard requests a consultation for a lesion on his upper back that his girlfriend first noticed about a year ago. He states that he is more concerned since it has increased in size. Your examination reveals a 15 ?16 mm raised nodule with irregular borders and variable areas of dark and light pigmentation. This most likely represents which of the following?

- A. actinic keratosis
- B. compound nevus
- C. Lentigo simplex
- D. malignant melanoma
- E. seborrheic keratosis
- Correct Answer: D

Section: Pathology and Path physiology Askin lesion that is >10 mm, increasing in size, has variable pigmentation, and irregular borders elicits extreme concern and is most probably a malignant melanoma. Actinic keratoses (choice A) are potentially premalignant skin lesions that, as the name suggests, are the result of chronic sun exposure; they are typically