USMLE-STEP-1 Q&As

United States Medical Licensing Step 1

Pass USMLE USMLE-STEP-1 Exam with 100% Guarantee

Free Download Real Questions & Answers **PDF** and **VCE** file from:

https://www.passapply.com/usmle-step-1.html

100% Passing Guarantee
100% Money Back Assurance

Following Questions and Answers are all new published by USMLE Official Exam Center

- **Instant Download** After Purchase
- **100% Money Back** Guarantee
- **365 Days** Free Update
- **800,000+** Satisfied Customers

QUESTION 1

Small, "fried-egg" colonies are produced in agar medium by which of the following pairs of agents?

A. Acinetobacter and Legionella species

B. Legionella and Mycoplasma species

C. Mycoplasma and Acinetobacter species

D. Mycoplasma and Gardnerella species

E. Mycoplasma and L-form bacteria

Correct Answer: E

Section: Microbiology/Immunology Mycoplasma are cell-wall-free bacteria, as are L-form (L=Lister Institute) bacteria who temporarily lose their cell wall due to antibiotic treatment. Mycoplasma never possesses a cell wall but L-form bacteria will regain their cell walls when the antimicrobial affecting cell wall synthesis is removed. L- form bacteria have been a suggested mechanism for maintenance of some chronic infections, a controversial concept. All other genera (Acinetobacter, Legionella-- choice A, Gardnerella--choice D) form regular colonies on agar medium. Mycoplasma and Lform bacteria have very small colonies on the agar surface and substantial growth down into the agar medium in the colony center, giving the perception of "fried-egg" morphology to the colony.

QUESTION 2

A 28-year-old man has the following symptoms: diffuse grayish corneal opacities, anemia, proteinuria, and hyperlipemia. Renal function is normal and serum albumin level is only slightly elevated. Plasma triglycerides and unesterified cholesterol levels are elevated, as are levels of phosphatidylcholine. These symptoms are indicative of which lipoproteinassociated disorder?

A. Bassen-Kornzweig syndrome

B. familial hypercholesterolemia (FH)

C. familial hypertriacylglycerolemia

D. familial lecithin-cholesterol acyltransferase (LCAT) deficiency

E. Wolman disease

Correct Answer: D

Section: Biochemistry Two familial syndromes directly involve defects in LCAT. Familial LCAT deficiency is characterized by near complete absence of the enzyme activity from the plasma. Fish eye disease is characterized by an absence of LCAT activity toward high-density lipoproteins (HDLs) but presence of activity toward LDLs. Clinical features of familial LCAT deficiency include corneal opacities, anemia, and proteinuria. Due to the lack of LCAT activity, the plasma level of esterified cholesterol is lower than normal and phosphatidylcholine (the principal source of fatty acid for esterification to cholesterol) levels are higher than normal. The profile of all classes of plasma lipoproteins in patients with familial LCAT deficiency is abnormal. Bassen-Kornzweig syndrome (choice A), also identified as abetalipoproteinemia, is due to a defect in apo B expression. Clinical symptoms include retinitis pigmentosa, ataxic neuropathy, and erythrocytes that appear thorny (acanthocytosis). FH (choice B) is characterized by reduced LDL clearance, which leads to severe hypercholesterolemia. Major clinical symptoms are arterial deposition of LDL-

cholesterol, which leads to atherosclerosis and coronary artery disease. Deposition of LDL-cholesterol is also seen in tendons and skin resulting in xanthomas. Familial hypertriacylglycerolemia (choice C), also identified as hyperlipoproteinemia type IV, is a form of LPL deficiency. The defect leads to increased levels of circulating VLDLs and is associated with glucose intolerance and hyperinsulinemia. This disorder is frequently associated with Type II diabetes. Wolman disease (choice E) is cholesterol ester storage disease that leads to massive accumulation of cholesteryl esters and triglycerides in most tissues. This disease is almost always fatal within the first year of life and thus would not be present in a 28-year- old.

QUESTION 3

A 46-year-old obese woman has had symptoms of vulvovaginitis for the past 9 months that is found to be caused by Candida. Laboratory tests reveal proteinuria and glucosuria, and increased serum glucose, BUN and creatinine. If a renal biopsy were performed, which of the following would be the most likely light and electron microscopic findings, respectively, in the glomeruli?

A. hypercellularity with thickened basement membranes (GBM); duplication of GBM

B. hypercellularity with PMNs; subepithelial deposits

C. normocellularity with thickened GBM; subepithelial deposits

D. normal morphology; loss of epithelial foot processes

E. thickened GBM; no deposits

Correct Answer: E

Section: Pathology and Path physiology An obese woman presenting with chronic candidal vulvovaginitis should certainly be suspected of having diabetes, and the laboratory results confirm this diagnosis. A renal biopsy of this patient would be expected to show glomerular basement membrane thickening and focal and diffuse glomerulosclerosis by light microscopy, but electron microscopy would not show any electron-dense deposits since antigen-antibody complexes are not formed in diabetes. Hypercellular glomeruli with thickened and duplicated basement membranes (tram tracks; train tracks) (choice A) is found in membranoproliferative glomerulonephritis type

1. Hypercellular glomeruli with PMNs and subepithelial deposits (humps) (choice B) are an indication for postinfectious (poststreptococcal) glomerulonephritis. Normocellular glomeruli with thickened basement membranes and subepithelial deposits (spikes) (choice C) are found in membranous glomerulopathy. Normal morphology by light microscopy with loss of epithelial foot processes by electron microscopy is a classic finding of nil disease.

QUESTION 4

A patient suffering from Charcot-Marie-Tooth disease displays progressive degeneration of peripheral nerves, distal muscle weakness and atrophy, and defects in deep tendon reflexes. This condition is associated with an abnormal mutation in the gene encoding connexin-32. Connexins are normally found in which type of cell junctions?

A. communicating (gap) junction

B. hemidesmosome

C. macula adherens (spot desmosome)

D. occluding (tight) junction

E. zonula adherens (belt desmosome)

Correct Answer: A

Section: Anatomy Communicating (gap) junctions are formed by connexins, which associate together in groups of six to form connexons. The alignment of connexions between two cells allows for direct channels of communication between their cytoplasms, facilitating the transfer of molecules such as calcium or cyclic adenosine monophosphate (cAMP). Hemidesmosome (choice B), macula adherens (spot desmosome; choice C), and zonula adherens (belt desmosome; choice E) are classified as anchoring junctions. They are associated with intermediate filaments (hemidesmosome and macula adherens) or with actin microfilaments (zonula adherens), but not connexins. Occluding (tight) junctions (choice D) contain the proteins occludin and claudin but not connexin.

QUESTION 5

Which of the following adverse effects of chronic high-dose prednisone administration represents a mineralocorticoid effect?

A. buffalo hump

B. easy bruising

C. edema

D. moon facies

E. psychosis

Correct Answer: C

Section: Pharmacology Edema and hypertension will occur with any corticosteroid that has mineralocoid properties if given in high dosage over a long period. Prednisone, though much less potent than cortisol as a mineralocorticoid, retains some salt-retaining potency. Newer glucocorticoids, such as dexamethasone and triamcinolone, are much less likely to retain salt and water. Buffalo hump (choice A) and moon facies (choice D) reflect the fat metabolism effects of glucocorticoid activity. Easy bruising (choice B) and striae reflect the catabolic action of glucocorticoids on proteins. The mechanism of central nervous system dysfunction (choice E) is not understood, but it is associated with glucocorticoid, not mineralocorticoid, activity.