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QUESTION 1

A 39-year-old pregnant woman with chronic hypertension and one prior pregnancy is now at 38 weeks\\' gestation. She comes to labor and delivery with profuse vaginal bleeding and abdominal pain of sudden onset.

Which of the following is the most likely diagnosis?

A. bloody show

B. vaginal laceration from coitus

C. cervicitis

D. placenta previa

E. placental abruption

Correct Answer: E

Painful vaginal bleeding is most likely the result of placental abruption, premature separation of the placenta. Bloody show is a normal sign of impending or early labor. The bleeding is scant and intermingled with clear mucus. Bleeding from a vaginal laceration following coitus is not associated with abdominal pain. A history of coitus followed immediately by bleeding suggests this diagnosis. Bleeding from cervicitis is most often spotting and not associated with abdominal pain. Classically, bleeding with a placenta previa is painless.

QUESTION 2

A 35-year-old woman presents to the clinic for a discussion on breast cancer risk. Her family history is pertinent for a grandmother who died of breast cancer at age 53, a mother who died of premenopausal breast cancer, and one of three sisters with breast cancer diagnosed at age 42. The sister with breast cancer underwent genetic testing and was found to have a BRCA1 mutation. Subsequently, the 35- year-old woman underwent genetic testing and was found to be a carrier of the same deleterious BRCA1 mutation. For this patient, which of the following strategies represent an accepted management option for her high-risk status?

A. yearly self-breast examinations

B. semiannual mammography

C. bilateral breast irradiation

D. prophylactic unilateral mastectomy

E. chemoprevention with tamoxifen

Correct Answer: E

Deleterious mutations in the BRCA1 and BRCA2 genes are associated with markedly elevated lifetime risks of breast cancer. The risk initially quoted was determined from families with high penetrance or expression of the disease, in the 8090% range. Asubsequent study, based on a larger population of gene mutation carriers, demonstrated a lower risk of 56%. Therefore, the risk generally quoted for mutation carriers is in the range of 5080%. Management options for known mutation carriers, or other high-risk women, include intensive surveillance with monthly self-breast examinations, annual or semiannual clinical breast examinations, annual mammography starting 10 years prior to the earliest age of onset of breast cancer in a family member, chemoprevention with tamoxifen, and prophylactic mastectomy. The data supporting

these options in BRCA-mutation carriers, however, are limited to small series. Evidence for imaging of these high-risk women using MRI as a screening modality is promising.

QUESTION 3

A 46-year-old woman presents with a 4-hour history of left flank pain with fever and chills. On examination, her temperature is 103°F, pulse rate is 120/min, re spiratory rate is 40/min, and supine BP is 80/40 mmHg. She has marked tenderness over the left flank and left upper quadrant of the abdomen without rebound. Urinalysis shows multiple red blood cells (RBCs), multiple WBCs, and WBC casts.

Which of the following is the most likely diagnosis?

A. appendicitis

B. pyelonephritis

C. cholelithiasis

D. diverticulitis

E. pelvic inflammatory disease

Correct Answer: B

Detection of leukocyte casts is pathognomonic for pyelonephritis. Common symptoms include fever, shaking chills, nausea, vomiting, and diarrhea. Flank tenderness over the affected kidney is very common

QUESTION 4

Identify the defense mechanisms of a person accusing another of being angry and jealous when the feelings belong to oneself

A. acting out

B. altruism

C. displacement

D. intellectualization

E. passive-aggressive behavior

F. projection

G. rationalization

H. reaction formation

I. sublimation

J. suppression

Correct Answer: F

Defense mechanisms provide a means for dealing with anxiety and affect. The mechanisms chosen range from the very narcissistic and immature to mature. In suppression, a person makes a conscious decision to put the conflict aside until it can be dealt with more appropriately. On the other hand, in acting out, there is little or no attempt to contain the affect, and it is directly expressed, as in name calling. Sublimation provides a channel for the indirect expression of a need or affect. Its use is positive and socially acceptable. In reaction formation, the person acts as if the strong need or affect did not exist and acts out the opposing feeling. In projection, unacceptable feelings and thoughts are denied as part of the self and instead are "put on" the other person.

QUESTION 5

A 5-year-old boy has a history of bed-wetting about four to five times a week. He has recently begun to attend kindergarten. He was toilet trained (dry during the day) by age 3 but has never been consistently dry at night. He denies any dysuria or frequency. There is no history of increased thirst or frequent urination. The urinalysis is negative for blood, protein, glucose, or ketones; there are no white cells or bacteria; the specific gravity is 1.020. Which of the following is the most likely diagnosis?

A. a urinary tract infection (UTI)

B. primary nocturnal enuresis

C. secondary enuresis caused by stress of the new school

D. diabetes mellitus

E. diabetes insipidus

Correct Answer: B

Enuresis may be primary (75%) where nocturnal control was never achieved; secondary enuresis (25%) is when the child was dry at night for at least a few months. Nocturnal enuresis is more common in boys, and family history is positive in at least 50%. This may affect as much as 20% of children at age 5 years, and it spontaneously stops in at least 15% of affected children every year. Psychological factors are often involved in secondary enuresis. A careful history should be obtained to rule out such organic factors as UTI (dysuria, frequency, urgency). Children with diabetes insipidus or diabetes mellitus have polydipsia and polyuria. Urinalysis should be considered to rule out an organic cause. In diabetes mellitus, urinalysis may reveal glycosuria and ketonuria. Aurinespecific gravity of >1.015 makes diabetes insipidus unlikely.

QUESTION 6

Otitis media occurring during the first 8 weeks of life deserves special consideration, because the bacteria responsible for infections during this time may be different from those that affect older infants and children. Which of the following organisms is the most likely to cause otitis media in these infants?

A. Chlamydia trachomatis

B. E. coli

C. Neisseria gonorrhoeae

D. Treponema pallidum

E. Toxoplasma gondii

Correct Answer: B

C. trachomatis is considered an unusual cause of otitis media at any age. N. gonorrhoeae causes conjunctivitis in the newborn. Syphilis and toxoplasmosis cause congenital infections. E. coli is one of the neonatal pathogens that also cause otitis media in neonates. The symptoms of otitis media in newborns are often similar to those of sepsis; they are subtle and nonspecific and may include poor feeding, lethargy, vomiting, or diarrhea. Once the diagnosis is established, the initial therapy should be similar to that for neonatal sepsis, such as parenteral ampicillin and cefotaxime. Under ideal circumstances, the results of cultures obtained by tympanocentesis may then allow further treatment with a more specific antibiotic of low toxicity. Older infants may respond well to oral therapy but require frequent observation.

QUESTION 7

Several groups of organic compounds are associated with serious toxic effects when used in the production of resins, plasticizers, and solvents

A. nitrosamines

B. epoxy compounds

C. PCBs

D. formaldehydes

E. organophosphorus compounds

Correct Answer: B

Epoxy compounds are used in the production of resins. They cause irritation of the skin and mucosa and have caused acute pulmonary edema

QUESTION 8

For each clinical setting described below, select the set of ABG determinations with which it is most likely to be associated. A 60-year-old man with morbid obesity

pH PaO2 PaCO2

A. 7.23 64 80

B. 7.39 88 40

C. 7.22 74 33

D. 7.54 75 24

E. 7.37 67 52

Correct Answer: E

ABG determinations are essential in the diagnosis of respiratory and acid-based disturbances. Extremely obese patients suffer from increased work of breathing, as well as elevation of the diaphragm with decrease in lung volume. The resultant hypoventilation is characterized by carbon dioxide retention leading to chronic respiratory acidosis with metabolic compensation (ABG set E in the question). When associated with somnolence, excessive appetite, and

polycythemia, this is known as the pickwickian syndrome. Modest weight loss can lead to dramatic improvement in respiratory functioning. The earliest derangement in salicylate poisoning is hyperventilation, resulting in decreased PaCO2 and increased arterial pH (ABG set D). Eventually, there is CNS depression with somnolence and hypoventilation resulting in respiratory acidosis. Diabetic ketoacidosis may cause acute metabolic acidosis. In a healthy young adult with no lung disease, appropriate respiratory compensation occurs (ABG set C). Without insulin to reverse this process, the patient may go on to develop worsening acidosis and an inability to compensate adequately. ABG set A reflects acute respiratory acidosis (hypoventilation) without metabolic compensation. ABG set B is normal.

QUESTION 9

During a well-child visit, the grandmother of an 18-month-old patient is concerned because the child\\'s feet turn inward. She first noticed this when her grandson began to walk. It does not seem to bother the child. On examining his gait, his knees point forward and his feet turn inward. Which of the following is the most likely cause of this condition?

A. adducted great toe

B. femoral anteversion

C. Legg-Calv?Perthes disease

D. medial tibial torsion

E. metatarsus adductus

Correct Answer: D

Adducted great toe, metatarsus adductus, medial tibial torsion, and femoral anteversion can result in intoeing. In most cases, this is a benign condition that requires only observation. In this child, because the child\\'s knees are straight, the rotational deformity is below this joint. In metatarsus adductus, the forefoot is adducted as compared to the hindfoot. Idiopathic avascular juvenile necrosis of the femoral head, or LeggCalv?Perthes disease, most commonly is seen in 4- to 8-year-old boys. Loss of hip medial rotation is an early sign.

QUESTION 10

Schedules for the routine immunization of young children are developed jointly by the Advisory Commission on Immunization Practices (a federal commission) and the American Academy of Pediatrics. Which of the following vaccines is recommended for routine vaccination for all children in the United States?

A. anthrax vaccine

B. rabies vaccine

C. Haemophilus influenzae b (Hib) vaccine

D. hepatitis A vaccine

E. typhoid vaccine

Correct Answer: C

Hib vaccine is recommended for routine immunization of children. Introduction of the Hib conjugate vaccine in the late 1980s was followed by a spectacular decrease in the incidence of H. influenzae meningitis. Anthrax vaccine is used to vaccinate military troops in selected overseas deployment. Rabies vaccine is used for postexposure prophylaxis when

children are bitten by potentially rabid mammals. Hepatitis Avaccine is used for children at special risk of such infection. Typhoid vaccine is not routinely recommended for use in the United States but may be indicated for travelers to areas in the developing world where typhoid fever is endemic.

QUESTION 11

A54-year-old man presents to the emergency department on transfer from another hospital at the request of the family. He was admitted to the outside hospital 2 weeks ago with abdominal pain, nausea, vomiting, and fever. He was treated with antibiotics, NG tube decompression, and TPN without significant improvement. He developed jaundice 2 days ago. His past history is pertinent for a 40 pack- year smoking history, chronic alcohol abuse, and diabetes. Examination reveals a mildly jaundiced patient with vital signs of temperature 100°F, pulse rate 95/min, and BP 110 /60 mmHg. Cardiac examination is unremarkable, lung examination reveals decreased breath sounds at the bases bilaterally, and abdominal examination reveals fullness in the epigastrium with tenderness and voluntary guarding. For above patient with jaundice, select the one most likely diagnosis.

A. hepatitis A

B. hemolysis

C. choledocholithiasis

D. biliary stricture

E. choledochal cyst

F. pancreatic carcinoma

G. liver metastases

H. cirrhosis

I. pancreatitis

Correct Answer: I

Pancreatitis may be the cause of jaundice by different mechanisms, resulting in compression of the common bile duct (CBD). Acute pancreatitis may cause edema of the head with resultant compression of the CBD; pancreatitis may lead to a pseudocyst in the head with compression of the duct; and chronic pancreatitis may lead to dense scarring around the duct with a resultant stricture. The clinical scenario of an alcohol abuser with acute abdominal pain; nausea; vomiting; jaundice; and a tender, palpable epigastric mass is most consistent with acute pancreatitis with CBD obstruction attributable to a pseudocyst.

QUESTION 12

A4-month-old child presents with a 2-day history of vomiting and intermittent irritability. On examination, "currant jelly" stool is noted in the diaper, and a sausage-shaped mass is palpated in the right upper quadrant of the abdomen. Which of the following conditions is most likely to cause this?

A. appendicitis

B. diaphragmatic hernia

C. giardiasis

D. intussusception

E. rotavirus gastroenteritis

Correct Answer: D

Intussusception, or telescoping of the bowel into a more distal section of bowel, is the most common cause of intestinal obstruction in infants aged 312 months. The case presented represents the classic presentation. Giardiasis presents less acutely and would not be associated with a mass. In gastroenteritis, frequent loose stools without blood would be the major symptom. Diaphragmatic hernia occurs in newborns, and the major symptom is respiratory distress. Although appendicitis can occur in infants, it is very unusual.

QUESTION 13

A study finds that the relative risk of stomach cancer after the consumption of a new sugar substitute is 3.5 with a 95% confidence interval of 1.15.3. Which of the following best describes the true relative risk?

A. If repeated samples are taken from the population, 95% of the time the relative risk will fall between 1.1 and 5.3.

B. If repeated samples are taken from the population and confidence intervals are found for each sample, 95% of the confidence intervals will include the true population relative risk.

C. If repeated samples are taken from the population and confidence intervals are found for each sample, 95% of the confidence intervals will fall somewhere between 1.1 and 5.3.

D. If repeated samples are taken from the population, 95% of the time the true relative risk for the population will fall between 1.1 and 5.3.

E. Ninety-five percent of individuals from a particular sample will have a relative risk between 1.1 and 5.3.

Correct Answer: B

A confidence interval gives an estimated range of values which is likely to include an unknown population parameter, in this case the relative risk of stomach cancer with consumption of the sugar substitute. The estimated range is calculated from a given set of sample data. If independent samples are taken repeatedly from the same population, and a confidence interval calculated for each sample, then a certain percentage of the intervals will include the unknown population parameter.

QUESTION 14

Doing a retrospective chart review of unmatched cases and controls, you calculate an OR to make an initial assessment of whether women who have had induced abortions are more likely to develop breast cancer. Twenty of 100 women with breast cancer reported a history of induced abortion. Ten of 200 women without breast cancer reported a history of induced abortion. What is the OR?

A. 0.053

B. 0.11

C. 2.00

D. 2.201

E. 4.716

Correct Answer: E

The OR for exposure is calculated by dividing the odds of exposure for cases by the odds of exposure for controls: OR = (20/80)/(10/190) = 4.716. (Note that an unmatched case-control study such as this example would be flawed by confounding [age] and bias [recall bias]. Patients with breast cancer are more likely to remember and report that they had certain exposures compared with those without breast cancer.)

QUESTION 15

From the below the clinical indications, choose an option for use of immune globulin (IG) in Hepatitis A prophylaxis

A. indicated

B. not proven effective

C. not routinely indicated

D. contraindicated

E. compulsory

Correct Answer: A

IG given before exposure or within 14 days of exposure is 7585% effective in preventing symptomatic illness from hepatitis A. IG is produced from the plasma of normal adults and does not contain sufficient antibody to prevent hepatitis B infection. Hepatitis B immune globulin (HBIG) is prepared from plasma known to contain high antibody titers for hepatitis B surface antigen (HBsAg) and is specific for hepatitis B. Given immediately postexposure, and again 1 month later, it has a combined efficacy of about 75% in the prevention of hepatitis B. Postexposure IG has not been found effective in the prevention of hepatitis C infection; on the other hand, treatment of early hepatitis C infection is possible, and thus it is important to monitor exposed individuals to determine whether infection occurs. IG administered to individuals exposed to measles infection who are susceptible to the disease has been shown to be effective if given within 6 days of exposure.

Recent use of IG is a contraindication to immunization with rubella vaccine. IG is not very effective at preventing in utero infection with rubella, and infants with congenital rubella syndrome have been born to women given IG shortly after exposure. IG is not routinely indicated, as it is indicated only if abortion is not elected.