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QUESTION 1

A45-year-old male presents to the hospital for acute abdominal pain and is found to have acute pancreatitis. He has no past medical history but recently has noticed urinary frequency and muscle weakness. He takes no medications. He denies alcohol use. His liver function tests during the episode are normal and magnetic resonance cholangiopancreatography study (MRCP) demonstrates an absence of stones in the biliary tree as well as a normal pancreatic duct. His serum calcium is found to be markedly elevated during this episode. The patient recovers clinically, and repeat serum calcium is also found to be elevated 1 month after hospital discharge.

What is the most likely cause of his hypercalcemia?

A. metastatic bone disease

B. sarcoidosis

C. vitamin D overdose

D. hyperparathyroidism

E. laboratory error

Correct Answer: D Section: (none)

Explanation:

The patient likely has hyperparathyroidism. Hyperparathyroidism can lead to chronic hypercalcemia, a known cause of acute pancreatitis. Aserum calcium level can be elevated in many patients during acute pancreatitis due to dehydration and should be checked after the event has resolved. Hyperparathyroidism would also explain his urinary frequency and muscle weakness. Laboratory error is unlikely given that the level is elevated on two occasions. Metastatic bone disease and sarcoidosis can also cause hypercalcemia but hyperparathyroidism is more commonly associated with pancreatitis. Vitamin D overdose is unlikely given his lack of medication use.

QUESTION 2

A 45-year-old male comes to your office for his first annual checkup in the last 10 years. On first impression, he appears overweight but is otherwise healthy and has no specific complaints. He has a brother with diabetes and a sister with high blood pressure. Both of his parents are deceased and his father died of a stroke at age 73. He is a long-standing heavy smoker and only drinks alcohol on special occasions. On physical examination, his blood pressure is 166/90 in the left arm and 164/88 in the right arm. The rest of the examination is unremarkable. He is concerned about his health and does not want to end up on medication, like his siblings. Regarding your initial recommendations, which of the following would be most appropriate?

A. You should take no action and ask him to return to the clinic in 1 year for a repeat blood pressure check.

B. You should immediately start him on an oral antihypertensive medication and ask him to return to the clinic in 1 week.

C. You should advise him to stop smoking, start a strict diet and exercise routine with the goal of losing weight, and return to the clinic in 6 months.

D. You should consider starting a workup for potential causes of secondary hypertension.

E. You should screen him for diabetes and evaluate him for other cardiovascular risk factors before proceeding any further.

Correct Answer: E Section: (none)

Explanation:

Although this is the first time that your patient has been noted to have an elevated blood pressure reading, given his family history and obesity, it is important to consider the coexistence of other cardiovascular risk factors. His evaluation should include, among other things, screening for DM and dyslipidemia along with an ECG. It is reasonable to ask the patient to submit himself to a strict diet (low in fat and salt) and to increase his exercise and activity, since these lifestyle modifications will likely result in weight loss, decreased blood pressure, and improve his risk profile for cardiovascular disease. Nonetheless, it is rarely enough to normalize blood pressure in all but the earliest stages of hypertension. Provided that no other comorbidities exist, the patient should return to clinic in no more than 2 months for a repeat blood pressure check. There is no need to consider secondary causes of hypertension, given his age and presentation.

You should not start antihypertensive medications until further evaluation is completed, and a second elevated reading confirms your diagnosis of hypertension. In the initial evaluation of hypertension (as per the Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure [JNC-7], 2003), it is important to evaluate the patient for end-organ damage. This should include the heart, kidneys, eyes, and nervous system. It is recommended to obtain a urinalysis to assess for proteinuria, glucosuria, or hematuria; to obtain an ECG to evaluate the heart for potential hypertrophy or early signs of cardiovascular disease; to obtain a fasting lipid profile, particularly after the age of 35, to assess the cardiovascular risk profile; and to check the patient\\'s renal function to assess for damage or dysfunction. Thyroid function tests are only indicated in the workup of secondary causes of hypertension. According to the JNC-7, this patient\\'s blood pressure falls into the stage 2 hypertension classification in which either systolic blood pressure (SBP) is at least 160 mmHg or diastolic blood pressure (DBP) is at least 100 mmHg.

Stage 1 hypertension is characterized by a SBP of 140159 mmHg and a DBP of 9099 mmHg. Prehypertension is characterized by a SBP of 120139 mmHg and a DBP of 8089 mmHg. Normal blood pressure is characterized by a SBP of less than 120 mmHg and a DBP of less than 80 mmHg. In classifying a patient\\'s blood pressure and determining appropriate therapy, the higher of the two categories corresponding to the SBP and DBP is the one that is used. Per JNC-7 guidelines, treatment of stage 2 hypertension should involve the consideration of a two-drug regimen initially. The goal blood pressure in patients with diabetes is a SBP less than 130 mmHg and a DBP less than 80 mmHg. An ACE inhibitor should be used as the drug class has been shown to slow the progression of diabetic nephropathy and reduce albuminuria. Thiazide diuretics, betablockers, and calcium channel blockers are appropriate choices to consider in this patient in addition to an ACE inhibitor.

QUESTION 3

A 50-year-old male presents to your office for a routine annual physical examination. He has no specific complaints for this visit other than wanting to be checked for all the usual stuff. His last visit with you was a year ago for a physical examination. At that time his examination was normal. You performed blood work that was within normal limits and included a total cholesterol of 172 with a high-density lipoprotein (HDL) of 45 and low-density lipoprotein (LDL) of 100. He reports that he had a tetanus shot 5 years ago.

Past medical history: Unremarkable Past surgical history: 1. Appendectomy at age 17

2. Vasectomy at age 43 Medications: Daily multivitamin Allergies: NKDA (no known drug allergies) Family history: Father died at age 78 of a heart attack Mother is alive at age 76. She has hypertension and osteoarthritis Brother aged 48 without known chronic medical condition Children aged 16, 14, and 8--no known chronic medical illness Social history: Married, employed as an accountant; college graduate Denies tobacco or recreational drug use Drinks one alcoholic drink (either beer or wine) a day Does not exercise on a regular basis

Which of the following interventions would be recommended for this patient?

A. pneumococcal vaccine

B. tetanus toxoid vaccine

C. complete cessation of all alcohol intake

D. beta-carotene supplementation to prevent cancer and heart disease

E. screening for depression with a patientcompleted questionnaire

Correct Answer: E Section: (none)

Explanation:

Explanations:

The United States Preventative Services Task Force (USPSTF) is an independent panel of experts in

primary care and prevention that systematically reviews the evidence of effectiveness and develops

recommendations for clinical preventative services. By carefully and systematically reviewing the available

literature, the USPSTF makes recommendations on the effectiveness of screening, counseling,

immunization, and chemoprevention using the following rating system:

A. The USPSTF strongly recommends that clinicians provide the service to eligible patients. B. The USPSTF recommends that clinicians provide this service to eligible patients. C. The USPSTF makes no recommendation for or against routine provision of the service. D. The USPSTF recommends against routinely providing the service to asymptomatic patients. I. The USPSTF concludes that the evidence is insufficient to recommend for or against routinely providing the service. All of the recommendations of the USPSTF are available free of charge at their web site www.preventiveservices.ahrq.gov. In a 50-year-old male who is generally healthy and does not present any apparent high-risk personal or family history, the USPSTF gives a level A recommendation to blood pressure measurement as a screening tool for hypertension in adults over the age of 18, as there is good evidence that screening for, and treating, hypertension can reduce the incidence of cardiovascular disease. There is insufficient evidence to recommend for or against screening for abdominal aortic aneurysm by abdominal palpation or for screening for skin cancer by a whole body skin examination (level I recommendation).

This suggests that the evidence is lacking that performing these interventions will reduce the morbidity or mortality associated with these conditions. The USPSTF gives level D recommendations to screening for thyroid cancer by palpation and for screening for testicular cancer by palpation. Fecal occult blood testing using three selfcollected stool cards as a screening test for colon cancer has been given a level A recommendation, with good data to support reduction in colon cancer mortality from periodic screening. There is also evidence to support screening for colon cancer by flexible sigmoidoscopy or colonoscopy, with double-contrast barium enema as a possible alternative as well. Screening for lipid disorders in men over the age of 35 and women over the age of 45 also receives a level A recommendation. In general, the interval for repeat screening for an otherwise low-risk patient with lipid levels within the goal range, based on the National Cholesterol Education Project\\'s Consensus opinion statement, would be 5 years. As this patient had lipid levels within the goal range 1 year ago, it would not be necessary to repeatthis blood test at this visit. Screening for cardiovascular disease by the routine use of electrocardiography in asymptomatic, lowrisk patients has been given a D recommendation, as there is an absence of evidence of improved health outcomes from this intervention. Screening for lung cancer by chest x-ray and for glaucoma by measurement of intraocular pressure are level I recommendations, with insufficient evidence to recommend for or against these interventions.

QUESTION 4

A 5-year-old male is admitted to the hospital following a 3-week history of spiking fevers and fatigue. Your examination reveals pale mucous membranes and skin. You also find splenomegaly.

The best course of care for this young man would be which of the following?

A. initiate high-dose aspirin therapy (100 mg/kg/day)

B. initiate "renal sparing" course of oral prednisone

C. a repeat bone marrow evaluation with AFB (acid fast bacilli) staining and mycobacterial cultures

D. obtain serum for Lyme enzyme immunoassay(EIA) testing and begin an empiric course of doxycycline

E. obtain EBV serologies (IgM and IgG) and treat symptomatically with comfort measures

Correct Answer: E Section: (none)

Explanation:

The most common malignancy in childhood is leukemia/lymphoma. The most common solid tumors of childhood are CNS tumors, followed by neuroblastoma and Wilms tumors. The mildly elevated WBC with lymphocyte predominance with the presence of "atypical" lymphocytes would indicate that his child most likely has acute EBV infection (infectious mononucleosis). This acute EBV infection is usually subclinical in younger children, but can be manifested by acute hemolytic anemia and splenomegaly. Testing for the diagnosis of EBV includes EBV DNA PCR and heterophile antibody response testing (monospot test). Diagnosis usually is made based upon serology testing for anti-EBV IgG and IgM levels. There is no specific therapy indicated for the acute EBV infections. Acute Lyme disease is very uncommon in children. The early stage of acute Lyme disease is characterized by a distinctive rash (erythema migrans). This is then followed by a multiple annular rash of disseminated Lyme disease. Often seen in this stage is cranial nerve palsies, specifically facial nerve (CN VII) palsy. Late Lyme disease is characterized by recurrent arthritis and arthralgia. Serologic testing is only recommended if there is a very high clinical index of suspicion, unlike this child. Acute systemic-onset JRA (Still disease) can present in a child of this age in a nonspecific manner (i.e., fever of unknown origin). Children with Still disease will typically have dramatic elevations in acute-phase reactants (i.e., ESR). This child\\'s ESR being 5 would go against JRA.

QUESTION 5

The patient is a 9-year-old girl brought into the urgent care clinic by both of her parents. Over the past 18 months, they have noticed emerging "habits" including repetitive squinting and grimacing, along with associated clearing of her throat and grunting noises. These behaviors occur almost every day and frequently occur together. She has gotten increasingly teased because of her peculiarities and her anxiety has only worsened her symptoms. She has no major illnesses and is not taking any medications. Her physical examination is within normal limits with the exception of the above stereotypes.

Which of the following would be the most effective pharmacotherapy for her presenting illness?

A. clonidine

B. haloperidol (Haldol)

C. lorazepam (Ativan)

D. methylphenidate (Ritalin)

E. paroxetine (Paxil)

Correct Answer: B Section: (none)

Explanation: This patient has Tourette disorder, characterized by the existence of both motor and vocal tics which have been present for 1 year. There is not a significantly increased comorbidity for autistic disorder, major depressive disorder, panic disorder, or conduct disorder. There is a very high comorbidity, however, for both ADHD and OCD in individuals with Tourette\\'s disorder. Lorazepam, a benzodiazepine, may be useful in the short-term management of the anxiety associated with Tourette\\'s disorder, but it is not indicated for the treatment of the tics themselves. Methylphenidate, a stimulant, may be used if there is associated ADHD along with the tic disorder, but it may increase the frequency of tics. Paroxetine, a SSRI, is used in treating both depressive disorders and OCD, but it is not indicated for treatment of Tourette disorder. Clonidine, an alpha-2 adrenergic agonist, can be somewhat helpful in reducing some symptoms of Tourette\\'s disorder. The most efficacious, and first-line, treatment for Tourette\\'s disorder is the use of dopamine antagonists such as antipsychotics (e.g., haloperidol). The etiology of several disorders, among them Tourette\\'s and OCD, may be related to an autoimmune process. It is believed that infection with certain microorganisms, specifically streptococcal infections, may act synergistically with a genetic vulnerability to cause those mental illnesses. The full significance of this in terms of diagnosis, prevention, and treatment of these conditions has yet to be determined.