Which metabolite is linked with bony lesions?

A 75-year-old man comes to the physician because of nocturia, urinary urgency and a feeling that he cannot completely empty his bladder. He voids six times per day and four times per night. He has a strong desire to void, and when he reaches the toilet he can only void with a weakened stream with straining. Digital rectal examination shows a firm, enlarged prostate measuring approximately 30 grams. Post-void residual by ultrasound is 300 mL. Bone scan shows multiple osteoblastic lesions in the vertebral bodies. Elevation of which bone metabolites is most strongly associated with these lesions?
Man has increased urination frequency

A 45-year-old man comes to the physician because of increased frequency of urination. He voids approximately 12 times a day and three times each night. He describes the inability to maintain an erection but reports no decrease in libido. Physical examination shows that he is oriented to person and place, but not to time. Which blood laboratory finding in serum is most likely in this patient?

Woman has excessive thirst, urination

A 38-year-old woman comes to the physician because of excessive thirst and urination for the past four weeks. Her appetite is increased, but she has lost 6.8 kg (15 lbs.) in one month. Her temperature is 37.5 °C (99.5 °F), pulse is 87 beats per minute, respirations are 15 per minute, and blood pressure is 142/88 mm Hg. Physical examination shows erythematous necrotizing skin eruptions on her legs. Her fasting blood glucose is 170 mg/dL and a gastric acid test reveals normal gastric acid volume and a pH of 2.0. A CT scan shows a tumor in the tail of the pancreas. Which is the most likely cell from which the pancreatic tumor is derived?

What is causing teenager’s abdominal pain?

A 16-year-old girl is brought to the emergency department because of acute abdominal pain and diarrhea. She has had three similar episodes, but no cause has been found. She also complains of burning on urination. The patient appears diaphoretic and in pain. Her temperature is 102 °F (38.8 °C) and pulse is 95 beats per minute. Physical examination shows there is diffuse abdominal tenderness, especially around the suprapubic area. First percussion over the costovertebral angle elicits exquisite pain on the right. Which is the most likely condition?

For more prep questions on USMLE Steps 1, 2 and 3, view other posts in this series.