Urinalysis Competition 2017

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Question 1. (PGY-1)

An appropriate collection technique must be used in order to interpret urinalysis correctly. Which of the following statements is TRUE regarding appropriate collection of a urine sample?

A. External genital cleansing is required prior to mid-stream clean catch sampling in women.
B. A urine sample must be refrigerated if it cannot be analyzed within 2 hours of collection.
C. An accurate urine sample in a patient with a foley always requires a new catheter to be placed under sterile conditions with a sample obtained directly from the new catheter.
D. All of the above statements are true.

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C. An accurate urine sample in a patient with a foley always requires a new catheter to be placed under sterile conditions with a sample obtained directly from the new catheter.

D. All of the above statements are true.

Question 2. (PGY-2)

A 30 year-old diabetic woman is seen for follow up care in your office. She has missed 2 periods and thinks she might be pregnant. She has no symptoms suggestive of a UTI. You order a urine pregnancy test, which is negative.

Your new medical assistant dips the urine in the office by mistake, and she reports that the dip is positive for nitrites and negative for leukocyte esterase.

Which is the most likely cause for this finding?

A. The patient has a simple UTI
B. The patient has a vaginal yeast infection
C. The urine dip sticks have been exposed to air

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C. The urine dip sticks have been exposed to air

Question 3. (PGY-3)

A 40 year old woman presents to the ED with renal colic and is found to have a 5 mm right ureteral stone. She has a history of Sjogren's disease. A basic metabolic panel reveals a sodium of 140 meq/dL, potassium of 2.5 meq/dL, chloride of 115 meq/dL, and bicarbonate of 15 meq/dL. Urine pH is 7.0.

This is the most likely cause of the patient's clinical and laboratory findings.

A. Type I renal tubular acidosis
B. Type II renal tubular acidosis
C. Type III renal tubular acidosis
D. Type IV renal tubular acidosis

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Question 4. (PGY-1)

A 31 year old IV drug user is found down outside in Phoenix in July. In the ED, his blood pressure is 85/45 mm Hg and pulse is 125. Mucous membranes are dry. Serum creatinine is 4.5 mg/dL. Urinalysis reveals SG 1.030, 4+ blood, 0-1 RBC, and hyaline casts.

This is the next step you order to make the diagnosis of rhabdomyolysis.

A. Serum creatine kinase
B. Urine myoglobin
C. Urine free hemoglobin
D. Fluid challenge

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Question 5. (PGY-2)

A 69 year-old man with a history of hypertension, hyperlipidemia and and osteoarthritis presents as a new patient visit. He is a current smoker with a history of 50 pk/years. His medications include hydrochlorothiazide, atenolol, simvastatin, and acetaminophen as needed.

One month ago, a urinalysis performed by his previous physician revealed 2+ blood without proteinuria. His previous urine tests were normal. His physical exam is unremarkable. Today, serum creatinine is 1.1 mg/dL, urinalysis reveals 2+ blood, 10-15 RBC/HPF, no casts.

This is the most appropriate test to order next in the evaluation of his hematuria.

A. CT scan of the abdomen and pelvis with and without IV contrast
B. Complete ultrasound of the kidneys and bladder
C. Urine cytology
D. Cystoscopy

Question 5. (PGY-2)

A 69 year-old man with a history of hypertension, hyperlipidemia and and osteoarthritis presents as a new patient to your clinic. He is a current smoker with a history of 50 pk/years. His medications include hydrochlorothiazide, atenolol, simvastatin, and acetaminophen as needed.

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Question 6. (PGY-3)

The patient in question 5 undergoes a CT scan of the abdomen and pelvis with and without IV contrast (CT urogram). The result reveals a 2 cm right simple renal cyst.

Which of the following is the most appropriate next step in the evaluation of his hematuria?

A. Repeat the urinalysis in 6 months
B. Treat with ciprofloxacin for 7 days and repeat the urinalysis
C. Order a renal biopsy
D. Cystoscopy
E. Nothing to do, the workup is complete

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Question 7. (PGY-1)

A 60 year-old woman with type 2 DM for 10 years is seen in your clinic as a new patient. She is on insulin and metformin for her diabetes and her last HgbA1c, 3 months ago, was 10.2%. Her urine dip reveals 2+ proteinuria. You order a urine protein and creatinine to quantify her proteinuria and it comes back at 0.75.

Which of the following is the estimated value of her 24-hour urinary protein excretion?

A. 75 mg
B. 750 mg
C. 7500 mg
D. 7.5 mg

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Question 8. (PGY-2)

A 28 year old African American woman presents to your office for a complaint of swelling of both legs and her face for the past 2 months which is worsening. She has no past medical history. Blood pressure is 120/75 mm Hg, pulse is 80/min, and she is afebrile. Exam is significant for 2+pitting edema to the hips and periorbital edema. Serum creatinine is 2.0 mg/dL, and urinalysis reveals 4+ protein, 0 WBC, 0 RBC, and no casts. Serum fasting glucose is 85 mg/dL. Which of the following is the most likely cause of her nephrotic syndrome?

A. Focal segmental glomerulosclerosis
B. Membranous nephropathy
C. Diabetic nephropathy
D. Primary AL Amyloidosis

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Question 9. (PGY-3)

A 75 year-old African American woman is admitted to the hospital with presumed acute on chronic kidney injury. Her creatinine is 7.5 mg/dL and she has no comparison labs more recently than 2 years ago, when her creatinine was 1.5 mg/dL. Her urine output is minimal. Blood pressure is 140/90 and she is afebrile. She has a low back pain which she has complained of for 6 months, and a calcium level of 11.2 when corrected for albumin. You order a multiple myeloma work up. Because she is not making urine, which of the following tests will take the place of the urine protein electropheresis and immunofixation?

A. Serum protein electrophoresis
B. Serum immunofixation
C. Serum free light chains
D. Serum B-2 microglobulin

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Question 10. (PGY-1)

A 25 year old woman with a history of previous UTI presents to the clinic with complaints of urinary frequency, urgency, and burning with urination for 2 days. Her last UTI was 6 months ago. A urine dip in the office reveals + leukocyte esterase and + nitrites. Serum creatinine is 0.8 mg/dL. She has no allergies to medications. This is the next step in the management of this patient.

A. Send the urine for culture and sensitivity

B. Send the urine for GC and chlamydia

C. Treat empirically with nitrofurantoin 1 po BID x 5 days

D. Treat empirically with ciprofloxacin 500 mg BID x 3 days

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Question 11. (PGY-2)

A 75 year old woman was diagnosed with non-cardiac chest pain 4 weeks ago and started on omeprazole BID empirically. Two weeks ago she was seen by her PCP with improvement of her heartburn but complaints of fatigue. A urine dip showed leukocytes and leukocyte esterase. She was treated with ciprofloxacin for a presumed UTI, and urine culture was negative. On follow up visit today, she is still complaining of fatigue. Laboratory tests reveal a creatinine of 3.5 mg/dL (previously normal) and urinalysis reveals 30 WBC/HPF and white cell casts. This is the most likely diagnosis.

A. Pyelonephritis
B. Acute interstitial nephritis
C. Glomerulonephritis
D. Renal abscess

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Question 12. (PGY-3)

A 28 year old woman with no past medical history is admitted with left flank pain, nausea and vomiting for 3 days. She is febrile to 102 F. Her urinalysis shows 3+ leukocyte esterase, nitrite positive, and WBC clumping. A urine culture is sent and she is started on IV rocephin and fluids. Urine culture reveals E. coli, susceptible to cephalosporins, but she continues to spike fevers to 102 F, 72 hours after antibiotics have started. Creatinine is 0.8 mg/dL. This is the next step in the management of this patient.

A. Broaden antibiotics to imipenum
B. Ultrasound of kidneys and bladder
C. No change in treatment
D. CT scan of the abdomen and pelvis with contrast
E. Infectious disease consultation

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Question 13. (PGY-1)

A 42 year old homeless man is found by police, stuporous. In the ED, his BP is 105/80, HR 110, RR 20, and afebrile. He is responsive to verbal stimulous but appears intoxicated and dirty. Physical exam is unrevealing. Laboratories reveal an anion gap metabolic acidosis and creatinine of 2.0 mg/dL. Urinalysis reveals the following crystals. This is the likely diagnosis.

A. Methanol poisoning
B. Ethylene glycol poisoning
C. Isopropyl alcohol poisoning
D. Ethyl alcohol poisoning

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Question 14. (PGY-2)

A 50 year-old man with a history of insulin resistance, fatty liver disease, hypertension and obesity presents with left flank pain. He is found to have a 3 mm left ureteral kidney stone on CT scan. He has no family history of nephrolithiasis. His primary care has referred him to rheumatology for what appears to be rheumatoid arthritis, as he has longstanding arthritis of the feet and hands with has several nodules. Urinalysis reveals the following. This the most likely cause of his nephrolithiasis.

A. Uric acid stones
B. Cysteine stones
C. Calcium oxalate stones
D. Calcium phosphate stones

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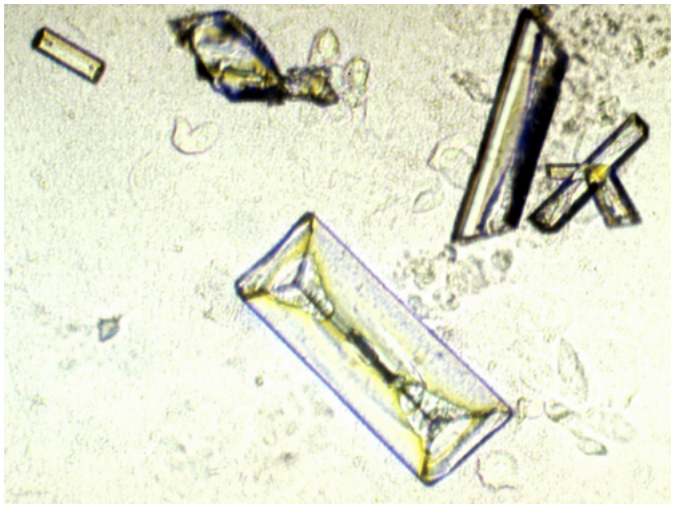
Question 15. (PGY-3)

A 46 year old man presents to the ED with end stage renal failure requiring dialysis. He is from Mexico and has not had medical care previously. His creatinine is 10.5 mg/dL, hemoglobin is 7.5 g/dL, and his bicarbonate is 12 meq/dL. Urinalysis is significant for a pH of 8 and triple phosphate “coffin lid” shaped crystals as seen. This is the most likely cause of his renal failure.

A. Chronic phosphorus overdose
B. Heavy metal poisoning
C. Staghorn calculi
D. Medullary sponge kidney



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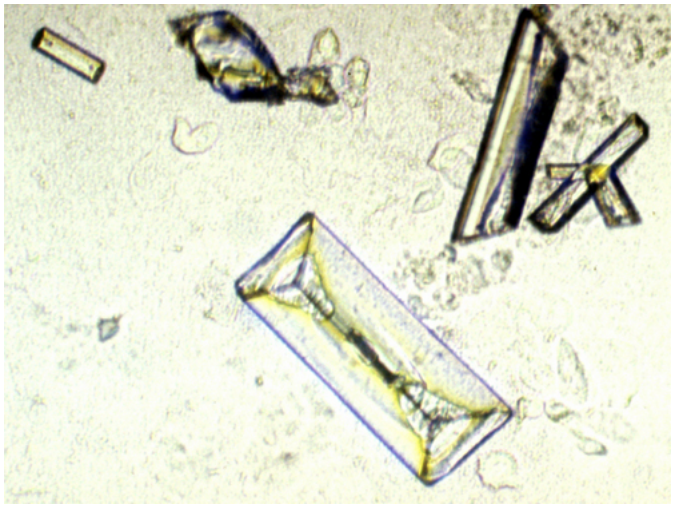

Question 16. (PGY-1)

A 35 year-old man overdoses on several drugs to spite his girlfriend who just broke up with him. He is found hypotensive and unresponsive. In the ED his blood pressure is 75/45 mm Hg, HR is 48, and RR is 8. He is intubated and given a 2 liter fluid bolus with a short requirement of pressors. On admission his creatinine is 1.9 mg/dL, but increases to 3.5 and then 5.0 mg/dL over the next two days. His urinalysis is significant for a SG of 1.015 and coarse granular casts. This is the most likely explanation of his acute renal failure.

A. Rhabdomyolysis
B. Acute tubular necrosis
C. Prerenal azotemia
D. Acute glomerulonephritis

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Question 17. (PGY-2)

A 31-year-old woman comes to your clinic complaining of dark urine for several days. She is found to have 2+ blood and 2+ protein on a urine dipstick. Blood pressure is 140/90 mm Hg. Physical examination is unremarkable. Urine microscopic examination shows 25 to 30 erythrocytes per high-power field with a few RBC casts. The serum creatinine level is 1.5 mg/dL (1 year ago creatinine was 0.8 mg/dL). The patient recalls having had a sore throat 3 weeks ago. What test do you order next to evaluate her abnormal findings?

A. CT scan of the abdomen and pelvis with contrast
B. Urine cytology
C. Serum cryoglobulins
D. Serum CH50, C3, and C4
E. Serum creatine kinase

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Question 18. (PGY-3)

A 71-year-old woman with a history of osteoarthritis of the knees and hands is evaluated for a 2-week history of fatigue and edema. One month ago, she was started on naproxen for her symptoms of arthritis. Physical examination shows a blood pressure of 140/96 mm Hg and 2+ pedal edema. She has changes of osteoarthritis of her hands and crepitus of her knees bilaterally. She has no rash.

Laboratories reveal a serum creatinine of 3.2 mg/dL, (it was normal two months ago), serum albumin of 2.1 mg/dL, and a total cholesterol of 400 mg/dL. Urine dip reveals 4+ protein, + leukocyte esterase, negative nitrites, and no blood. Urine microscopy shows 15-20 WBC and leukocyte casts but no erythrocyte casts. Urine protein creatinine ratio is 4 mg/mg.

This is the most likely diagnosis.

A. Membranous glomerulonephritis
B. NSAID induced acute interstitial nephritis
C. Lupus glomerulonephritis
D. IgA nephropathy

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