

WESTERN UNIVERSITY OF HEALTH SCIENCES  
COLLEGE OF OSTEOPATHIC MEDICINE OF THE PACIFIC

RENAL - FINAL EXAM

January 27, 1997

#1

Choose the **ONE BEST** answer and darken the appropriate box on the Scantron form. There are **44 questions** on this exam.

Dr. Foley

1. An increase in the excretion of  $H_2PO_4^-$  ions in the urine

- E
- a. is part of the renal compensation for respiratory alkalosis. ✓
  - b. follows an increase in the active secretion of  $HPO_4^{2-}$  ions by proximal tubular epithelial cells. ✗
  - c. follows a decrease in the secretion of  $H^+$  ions by renal tubular epithelial cells. ✗
  - d. decreases the amount of titratable acid in the urine. ✗
  - e. results in a net addition of new  $HCO_3^-$  ions to the plasma. ✗

2. All the following statements regarding renal acid-base mechanisms are correct EXCEPT:

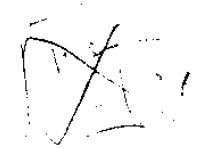
- a. Excretion of a  $HCO_3^-$  ion in the urine has the same effect on plasma pH as the loss of a  $H^+$  ion from the plasma. ✓
- b. Secretion of  $H^+$  ions by renal tubular cells is increased by increases in arterial  $P_{CO_2}$ . ✓
- c. During alkalosis,  $HCO_3^-$  ions can be secreted by certain cells of the cortical collecting ducts. ✓
- d. Secretion of  $NH_4^+$  ions by renal tubular cells is increased during chronic acidosis. ✓
- e. In the major mechanism for the reabsorption of filtered  $HCO_3^-$  ions, the  $H^+$  ions secreted by the renal tubules are not subsequently excreted in the urine. ✓

loss of  $H^+$  ions  
secreted  
Cortical  
CO<sub>2</sub>

3. Hypokalemia and an abnormally high plasma aldosterone level occurring at the same time would result in an initial

- a. abnormal increase in the urinary excretion of  $HCO_3^-$  ions.
- b. increase in the rate of secretion of  $H^+$  ions by renal tubular epithelial cells. ✓
- c. decrease in the amount of new  $HCO_3^-$  ions added to the plasma. ✗
- d. decrease in the rate of reabsorption of filtered  $HCO_3^-$  ions. ✗
- e. decrease in the amount of titratable acid excreted in the urine. ✗

low  $K^+$  Aldo - raises  $Na^+$



$\frac{K_2CO_3}{CO_2} \uparrow$        $HCO_3^-$

4. The renal compensation for a metabolic alkalosis, which was not of renal origin, would include

- a. an increase in the addition of new  $HCO_3^-$  ions to the plasma. ✓
- b. a decrease in the rate of excretion of  $HCO_3^-$  ions in the urine. ✓
- c. complete reabsorption of filtered  $HCO_3^-$  ions. ✓
- d. little or no excretion of  $NH_4^+$  ions in the urine. ✓
- e. an increase in the rate of  $H^+$  ion secretion by renal tubular epithelial cells.

Dr. Saperstein

5. Renal cysts are best described as

- a. well defined, decreased density in relation to renal tissue, may calcify. ✓
- b. poorly defined, decreased density in relation to renal tissue, peripheral or central.
- c. poorly defined, of greater density than renal parenchyma, peripheral.
- d. well defined, greater than renal density, vascularly invasive.
- e. decreased density in relation to renal tissue, peripheral or central, poorly defined.

6. Malignant neoplasms:

- a. hypervascular, well defined, increased density in relation to renal parenchyma. ✓
- b. distort renal outline, increased density in relation to renal parenchyma, do not calcify. ✓
- c. often obscure renal outline, invade vessels, associated with calcification of renal parenchyma. ✓
- d. poorly defined, invade vessels, hypovascular. ✓
- e. increased density in relation to renal parenchyma, hypovascular, distort renal outline. ✓

Dr. Cundari

7. Which of the following relationships is INCORRECT?

- a. Chief complaint (CC): "My urine is red" ✓
- b. Social History: Denies tobacco or etoh use ✓
- c. Review of systems (ROS)-Gen: Health good ✓
- d. Physical exam (PE)-Chest: Lungs clear to ascultation ✓
- e. Review of systems (ROS)-GI: 1+/4 suprapubic tenderness

8. A 65-year-old white male presents with a three-day history of dark urine. Denies nausea, vomiting, diarrhea, constipation, frequency, urgency or hesitancy. He was recently released from the hospital for thrombophlebitis of his left leg. Vital signs are within normal limits. He appears his stated age and in no apparent distress. The physical examination is within normal limits. The most likely cause of his dark urine is which of the following?
- benign prostatic hypertrophy
  - mesothelioma
  - pyelonephritis
  - trauma
  - Coumadin therapy
9. A 22-year-old black female presents with a three-day history of frequency, hesitancy, urgency and blood urine. She was treated empirically with ampicillin for a suspected cystitis two weeks prior to the onset of the current symptoms. Family history is negative and there is no history of congenital disorders, drug abuse or current medications. She is afebrile and vital signs are within normal limits. The physical examination is normal except for slight suprapubic tenderness. Which of the following orders is most appropriate to assess the suspected diagnosis?
- order an acid phosphatase
  - order a calcium, bun, creatinine
  - order a complete blood count
  - order an IVP
  - order a culture and sensitivity of the urine
10. Which of the following is least likely to be a differential diagnosis for proteinuria in a 19-year-old Caucasian male athlete?
- benign proteinuria: fever, heat, or cold exposure
  - Sickle cell disease
  - orthostatic (postural) proteinuria
  - diabetes mellitus
  - functional (after heavy exercise)
11. In obstructive uropathy, all of the following would be expected EXCEPT
- bacteriuria and leukocytes in the urine signify accompanying infection
  - urine pH 6.0
  - no urine production for 24 hours
  - bun/creatinine ratio greater than 20
  - urine osmolality equal to plasma osmolality
12. A postrenal <sup>or</sup> azotemia would most likely be due to which of the following?
- congestive heart failure - Pw
  - prostatic hypertrophy ✓
  - malignant hypertension - (renal)
  - chronic use of ibuprofen (Motrin)
  - a hypovolemic state - P.

Dr. Packer

13. Kidney functions include all of the following EXCEPT:

- C
- a. Body water regulation ✓
  - b. Erythropoiesis ✓
  - c. Scalenogenesis ✓
  - d. Gluconeogenesis ✓

14. Part of the evaluation of the oliguric patient may include:

- a. Catheterize the Ureter ✓
- b. Urea / Hydrea ratio
- c. Review the medications ✓
- d. Thiazide challenge

15. Potential pathophysiologic models for acute renal failure include all of the following EXCEPT

- B
- a. Vascular pathogenesis ✓
  - b. Lock back pathogenesis ✓
  - c. Tubular obstructive pathogenesis ✓
  - d. Glomerular K<sub>f</sub> pathogenesis ✓

16. The leading cause of death in acute renal failure is considered to be:

- A
- a. Sepsis ✓
  - b. Bleeding
  - c. Cardiac tamponade
  - d. Acidosis

17. Possible causes of "pseudohyperkalemia" include all of the following EXCEPT:

- C B
- a. Prolonged tourniquet time ✓
  - b. Thrombocytosis ✓
  - c. Alkali infusion ✓
  - d. Hemolysis ✓
- inject low*

18. The first treatment for life-threatening hyperkalemia is:

- C
- a. Kayexalate
  - b. Glucose Amp 1/2 followed by 10 U Regular Insulin IV Push
  - c. Calcium infusion IV ✓
  - d. Epinephrine

19. The presence of edema effectively means:

- B
- a. There is an increase in total body sodium ✓
  - b. There is an increase in total body water ✓
  - c. There is an increase in Aldosterone
  - d. There is a decrease in total body sodium

20. The cause of hyponatremia in the presence of edema may include all of the following EXCEPT:

- a. Congestive Heart Failure ✓
- b. Cirrhosis ✓
- c. Primary Hyperaldosteronism
- d. Nephrosis ✓

21. A child with Glomerulonephritis has a totally normal looking glomerulus under light microscopy. Which of the following is most likely the diagnosis?

- a. Membranoproliferative GN
- b. Minimal Change Disease
- c. Rapidly Progressive GN
- d. Membranous GN

22. A patient has a 24 hour urinary protein excretion of 24 grams. He likely has:

- a. Tubulointerstitial Nephritis
- b. Hypermagnesemia
- c. Polydipsia
- d. Glomerulonephritis

23. All of the following constitute part of the Nephrotic Syndrome EXCEPT:

- a. Proteinuria ✓
- b. Edema ✓
- c. Hyperproteinemia
- d. Hyperlipidemia ✓

24. A patient with Nephrotic Syndrome presents with shortness of breath. You must be concerned about:

- a. Pulmonary embolism ✓
- b. Fluid overload ✓
- c. Infection ✓
- d. All of the above

25. Treatment for hypercalcemia can include all of the following EXCEPT:

- a. Vitamin D
- b. Corticosteroids ✓
- c. Mithromycin ✓
- d. Diphosphonates ✓

26. All of the following could cause hypercalcemia EXCEPT:

- a. Metastatic disease ✓
- b. Immobilization ✓
- c. Sarcoidosis ✓
- d. Hypoparathyroidism

27. A pH of 7.20 most closely approximates a hydrogen ion concentration of :

B

- a. 40
- b. 60
- c. 20
- d. 30

7.40 - 40  
7.30 50  
7.20 - 60  
7.1 80

Acid.

Prognosis

28. A patient presents with shortness of breath. His ABG reveals a pH of 7.16 with a pCO<sub>2</sub> of 24. Electrolytes reveal Sodium 142, Potassium 5.6, Chloride of 89 and tCO<sub>2</sub> of 9. Possible causes of this metabolic acidosis include:

D

- a. Diabetic Ketoacidosis ✓
- b. Renal Tubular Acidosis
- c. Methanol poisoning ✓
- d. A and C above

FLPACR

29. Patients with chronic renal failure may have a variety of accompanying problems. These may include:

D

- a. Anemia ✓
- b. GI bleeding ✓
- c. Bone disease ✓
- d. All of the above

CAF

30. Osteitis Fibrosa Cystica is associated with:

D

- a. Secondary hyperparathyroidism ✓
- b. Vitamin D deficiency ✓
- c. Hyperphosphatemia ✓
- d. All of the above

31. Patients with End Stage Renal Disease may opt for Renal Transplantation. Patients with transplanted organs must cope with :

E

- a. Infection
- b. Rejection ✓
- c. Depression ✓
- d. Malignancy
- e. All of the above

32. Patients on dialysis can lead relatively productive and healthy lives. When treating an illness in this population, a physician must take into account the:

E

- a. Altered pharmacokinetics of medications ✓
- b. Increased risks of some side effects of medications in this population
- c. Costs of the treatment
- d. Need to alter dialysis schedule depending upon that disease process
- e. All of the above

Dr. Weiss

33. Which of the following is TRUE of cryptorchidism?

- a. It is more common in full-term infants.
- b. "Retractile testis" is another name for cryptorchidism. ✓
- c. If left in the abdomen, a testis can degenerate into cancer.
- d. Cryptorchidism is usually associated with other congenital anomalies. ✓
- e. If not descended by 15 years of age, surgery is indicated.

34. A newborn male infant has a weak urinary stream, and had hydronephrosis on prenatal ultrasound. The most likely diagnosis is

- a. penile chordae.
- b. webbed penis.
- c. buried penis.
- d. posterior urethral valves. ✓
- e. hypospadias.

35. A nine-year-old boy presents to your office with two hours of severe scrotal pain. You are not sure if this is testicular torsion or epididymitis. The BEST next step is

- a. observe for a few hours to see how the pain progresses. ✗
- b. refer immediately to a urologist for evaluation. ✓
- c. start antibiotics and warm compresses. ✗
- d. order a testicular blood flow study in two or three days.
- e. get a CBC

36. Which of the following is TRUE of vesicoureteral reflux?

- a. It is usually due to hypospadias.
- b. All children with a UTI have vesicoureteral reflux.
- c. Grade 5 vesicoureteral reflux should be treated with prophylactic antibiotics.
- d. With grade 1 reflux, urine refluxes into the kidney.
- e. Vesicoureteral reflux poses a risk for UTI, renal scarring and pyelonephritis.

Dr. Redding

37. Which of the following statements about the autonomic innervation to the urinary bladder is TRUE?

- a. Sympathetic innervation causes bladder wall contraction.
- b. Sympathetic innervation causes external sphincter relaxation. ✗
- c. Parasympathetic innervation causes bladder wall relaxation.
- d. Parasympathetic innervation causes internal sphincter relaxation. ✓
- e. Autonomic innervation remains relatively constant with bladder and sphincter control regulated primarily through local mechanisms.

38. Cystitis is a commonly seen infection in the primary care setting. Which of the following statements is NOT true?

- a. Cystitis is approximately 10 times more common in women than men.
- b. A sexually active female is slightly less likely to develop UTI's than one who is *Abstinent*
- c. The relatively shorter urethra of the female is conducive to the increased likelihood of developing cystitis.
- d. The amount of liquid intake is a factor in the development of cystitis.
- e. One of the most common organisms associated with cystitis is the E. coli bacteria.

Dr. Saul

39. Normal serum BUN value is

*10 - 20 mg/dl*

- a. 6 - 23 mg/dl. ✓
- b. 24 - 34 mmol/L.
- c. 98 - 109 meq/L.
- d. 6 - 23 mg/dl.

40. Normal serum sodium is

- a. 13.5 - 15.0 meq/L.
- b. 135 - 150 meq/L. ✓
- c. 135 - 150 mg/dl.
- d. 135 - 150 meq.

41. Normal <sup>serum</sup> sodium chloride is

- a. 98 - 109 meq/L.
- b. 3.5 - 5.1 meq/L. ✓
- c. 135 - 150 meq/L.
- d. 65 - 110 mg/dl. ←

42. Normal total CO<sub>2</sub> level is

- a. 24 - 34 mg/dl.
- b. 24 - 34 mmol/L.
- c. 24 - 34 mg/L.
- d. 2.4 - 3.4 mmol/dl.

*24 - 34 mmol/L*

43. Another name for paradoxical incontinence is

- a. reflex incontinence.
- b. overflow incontinence.
- c. nocturnal enuresis.
- d. diurnal enuresis

44. Azoospermia:

- a. a diminished number of sperm in the semen ✓
- b. inability to ejaculate
- c. inability to obtain an erection
- d. a complete absence of sperm in the ejaculate

RENAL  
FINAL EXAM  
JANUARY 27, 1997

Gupta; Atul I.D. #3795

- 1 <sup>E</sup> A\*, 2/A, 3/B, 4/D, 5/A, 6/C, 7/E, 8/E, 9/E, 10/B  
11 C, 12/B, 13/C, 14/C, 15/B, 16/A, 17/C, 18/C, 19/A, 20/C  
21 E, 22/D, 23/C, 24/D, 25/A, 26/D, 27/B, 28/D, 29/D, 30/D  
31 E, 32/E, 33/<sup>C</sup>D\*, 34/D, 35/B, 36/E, 37/D, 38/B, 39/A, 40/B  
41 <sup>A</sup> B\*, 42/B, 43/B, 44/D

SCANTRON SCORE = 41.0  
OTHER POINTS = 0.0  
TOTAL SCORE = 41.0/ 44