

Multiple Choice Questions

Chapter 1

1. At what rate does the GFR typically decline in males after the age of 45 years?
 - (a) 0.1 ml/min/1.73 m²
 - (b) 0.5 ml/min/1.73 m²
 - (c) 0.8 ml/min/1.73 m²
 - (d) 1.2 ml/min/1.73 m²
 - (e) 2 ml/min/1.73 m²
2. Which of the following does not form part of the glomerular filtration barrier?
 - (a) Endothelial cell fenestration
 - (b) Sub-endothelial space
 - (c) Glomerular basement membrane
 - (d) Podocyte foot process slit diaphragm
 - (e) Sub-podocyte space
3. Which of the following cell types does not perform a phagocytic function?
 - (a) Glomerular endothelial cell
 - (b) Mesangial cell
 - (c) Macrophage
 - (d) Podocyte
 - (e) Proximal tubular epithelial cell
4. Which of the following statements about angiotensin II is false?
 - (a) It causes vasoconstriction of the efferent arteriole
 - (b) It increases the amount of albumin filtered by the glomeruli
 - (c) It is increased in renal acidosis
 - (d) It increases aldosterone production
 - (e) It is reduced in people with diabetes

Chapter 2

5. Which of the following does not affect the serum creatinine concentration in chronic kidney disease?
- (a) Glomerular filtration rate
 - (b) Tubular secretory function
 - (c) Fluid overload
 - (d) Skeletal muscle mass
 - (e) Ethnic origin
6. Which of the following is not required to estimate GFR using the MDRD equation?
- (a) Age
 - (b) Sex
 - (c) Race
 - (d) Creatinine
 - (e) Body weight
7. In which of the following circumstances is the urea-to-creatinine ratio most likely to increase?
- (a) A malnourished patient with small muscle mass
 - (b) A bodybuilder taking protein supplements
 - (c) High blood pressure treated with vasodilator drugs
 - (d) When the rate of flow of filtrate along the nephron is slowed
 - (e) Trimethoprim therapy

Chapter 3

8. Which of the following indicates that a series of data points is not stable?
- (a) The mean is decreasing slowly over time
 - (b) The control limits lie outside the data points
 - (c) Three consecutive points are below the mean
 - (d) Three consecutive points are in a decline
 - (e) The mean is greater than the median
9. After unilateral nephrectomy, how long does it take the serum creatinine concentration to reach a new equilibrium?
- (a) 6 h
 - (b) 12 h
 - (c) 24 h
 - (d) 48 h
 - (e) 72 h

10. An adult male who normally has a serum creatinine of 120 micromol/L (1.4 mg/dL) presents to hospital with a serum creatinine of 320 micromol/L (3.6 mg/dL). According to the Kidney Disease Improving Global Outcomes (KDIGO), what stage of acute kidney injury has been reached?
- (a) Stage 1
 - (b) Stage 2
 - (c) Stage 3
 - (d) Stage 4
 - (e) Stage 5

Chapter 4

11. At a routine checkup, a 42-year-old male with diabetes is found to have an eGFR of 32 ml/min/1.73 m². When repeated 3 months later, it is 35 ml/min/1.73 m². His albumin:creatinine ratio (ACR) is 35 mg/mmol (310 mg/g). Macroalbuminuria is defined as ACR >30 mg/mmol (>300 mg/g). What stage of CKD does he have?
- (a) Stage G4A2
 - (b) Stage G2A1
 - (c) Stage G4A3
 - (d) Stage G3A3
 - (e) Stage G3A2
12. Which of the following is not a typical symptom of kidney failure?
- (a) Insomnia
 - (b) Hallucinations
 - (c) Itching
 - (d) Restless legs
 - (e) Nausea

Chapter 5

13. In a patient with diabetic nephropathy and proteinuria, which of the following is not associated with the rate of decline in GFR?
- (a) Glycated haemoglobin (HbA1c) concentration
 - (b) Mean arterial pressure
 - (c) Serum bicarbonate
 - (d) Serum total CO₂
 - (e) Urinary angiotensinogen
14. Which of the following is an indication for renal artery angioplasty?
- (a) Systolic blood pressure >240 mmHg
 - (b) Flash pulmonary oedema
 - (c) eGFR <30 ml/min/1.73 m²
 - (d) Decline in eGFR of >10 ml/min/1.73 m²/year
 - (e) Blood pressure requiring >3 different antihypertensives

15. Which of the following is not a typical feature of cholesterol crystal embolisation?

- (a) Elevated CRP
- (b) Eosinophilia
- (c) Peripheral vascular atherosclerosis
- (d) Positive ANA
- (e) Decline in eGFR over weeks

Chapter 6

16. Which of the following is not associated with an increased risk of pre-eclampsia?

- (a) Fourth pregnancy
- (b) New paternity
- (c) Multiple pregnancy
- (d) Obesity
- (e) Chronic kidney disease

17. Which of the following is not associated with chronic kidney disease?

- (a) Polyhydramnios
- (b) Intrauterine growth retardation
- (c) Premature delivery
- (d) Down's syndrome
- (e) Spontaneous abortion

Chapter 7

18. Which of the following is not a feature of Alport syndrome?

- (a) Deafness
- (b) Visual impairment
- (c) Proteinuria
- (d) Microscopic haematuria
- (e) Renal failure

19. Polycystic kidney disease is thought to be primarily due to a genetic abnormality of:

- (a) Sodium transport
- (b) Cell division
- (c) Tubular membrane structure
- (d) Epithelial permeability
- (e) Cilial function

20. Which of the following is not an inherited disease affecting nephron function?

- (a) Von Hippel Lindau syndrome
- (b) Gitelman syndrome
- (c) Liddle syndrome
- (d) Bartter syndrome
- (e) Dent disease

21. Furosemide acts on which part of the nephron?

- (a) Proximal tubule
- (b) Descending limb of the loop of Henle
- (c) Ascending limb of the loop of Henle
- (d) Distal tubule
- (e) Collecting duct

Chapter 8

22. An 80-year-old lady was prescribed ramipril 10 mg daily. Which of the following suggests this drug was adversely affecting her kidney function?

- (a) High urea-to-creatinine ratio
- (b) eGFR <15 ml/min/1.73 m²
- (c) Systolic blood pressure <110 mmHg
- (d) An irritating dry cough
- (e) Hypokalaemia

23. Which of the following drugs is a common cause of interstitial nephritis?

- (a) Metformin
- (b) Ranitidine
- (c) Lithium
- (d) Omeprazole
- (e) Ondansetron

24. Which of the following is not nephrotoxic?

- (a) Gentamicin
- (b) Cadmium
- (c) Metformin
- (d) Lithium
- (e) Orellanine

Chapter 9

25. Which of the following is not associated with impaired growth in children?

- (a) Congenital nephrotic syndrome
- (b) Vesico-ureteric reflux
- (c) Autosomal recessive polycystic kidney disease
- (d) Steroid therapy
- (e) Social deprivation

26. Which of the following statements about obesity is false?

- (a) It is associated with proteinuria
- (b) Weight loss reduces the risk of kidney disease in people with diabetes
- (c) It increases the risk of complications after transplant surgery
- (d) It increases the risk of mortality in dialysis patients
- (e) It is associated with hypertension

Chapter 10

27. Which of the following statements about hypertension is false?
- (a) Antihypertensive medication is better taken before bed
 - (b) Nocturnal hypertension is more common in CKD
 - (c) The arm with the lower blood pressure is used
 - (d) Patient self-management improves control of blood pressure
 - (e) High blood pressure increases the risk of end-stage kidney disease

Chapter 11

28. In IgA nephropathy, which of the following does not indicate an increased risk of renal failure?
- (a) Proteinuria
 - (b) High blood pressure
 - (c) Reduced glomerular filtration rate
 - (d) Interstitial fibrosis on kidney biopsy
 - (e) Macroscopic haematuria
29. Which of the following statements about myoglobin is false?
- (a) It is freely filtered by glomeruli
 - (b) It is glomerulotoxic
 - (c) It is reabsorbed by the proximal tubule
 - (d) It colours urine dark red
 - (e) It is detected by the urine dipstick test for blood
30. Which of the following is not a feature of the nephrotic syndrome?
- (a) Proteinuria greater than 5 g/ day
 - (b) Hypercholesterolaemia
 - (c) Microscopic haematuria
 - (d) Peripheral oedema
 - (e) Hypoalbuminaemia
31. Who of the following should be treated with antibiotics?
- (a) A man with a urinary catheter and a positive urine culture
 - (b) A woman with diabetes and a positive urine culture from a mid-stream urine specimen
 - (c) A man with a culture of 104 CFU/ml from a mid-stream urine specimen
 - (d) A woman with frequency, dysuria, fever and a negative urine culture
 - (e) A man with a positive dipstick test for nitrites and leucocytes

Chapter 12

32. Which of the following statements is correct?
- (a) Raised jugular venous pressure is a reliable marker of fluid overload
 - (b) High blood pressure indicates increased total body sodium
 - (c) Increased total body sodium usually causes high blood pressure
 - (d) Lymphoedema is incompressible
 - (e) Sleeping in a chair worsens leg oedema
33. Which of the following statements about a vasculitic rash is false?
- (a) It is found on the legs in Henoch-Schönlein purpura
 - (b) It blanches when compressed
 - (c) It may cause necrotic ulcers
 - (d) IgA is deposited in the skin in Henoch-Schönlein purpura
 - (e) Blood and protein in the urine means urgent referral is required

Chapter 13

34. Which of the following statements about erythropoietin production in an adult is true?
- (a) It is divided between the liver and the kidneys
 - (b) It is inhibited by NSAIDs
 - (c) It is stimulated by muscle hypoxia
 - (d) It is located in the interstitial cells
 - (e) It is down-regulated in chronic kidney disease
35. Which of the following statements about treatment of renal acidosis is false?
- (a) Fruit and vegetable diet is effective
 - (b) Sodium bicarbonate lowers angiotensin production in the kidney
 - (c) Sodium bicarbonate reduces the rate of decline in GFR
 - (d) Sodium bicarbonate increases muscle mass
 - (e) Sodium bicarbonate causes high blood pressure
36. Which of the following statements about parathyroid hormone synthesis is true?
- (a) It is stimulated by hypocalcaemia
 - (b) It is stimulated by activated vitamin D3
 - (c) It is inhibited by hyperphosphataemia
 - (d) It is stimulated by FGF-23
 - (e) It is autonomous in secondary hyperparathyroidism
37. Which of the following statements about hypercalcaemia is false?
- (a) It reduces GFR due to vasoconstriction
 - (b) It impairs urinary concentration
 - (c) It can be caused by loop diuretics
 - (d) It is associated with raised alkaline phosphatase with metastatic carcinoma
 - (e) It is associated with normal alkaline phosphatase in multiple myeloma

Chapter 14

38. Which of the following statements about myeloma is false?
- (a) Free light chains are filtered by glomeruli
 - (b) Free light chains form casts with uromodulin
 - (c) Bence Jones proteinuria is not detected by urine protein dipsticks
 - (d) Renal function can recover with chemotherapy treatment
 - (e) A significantly raised concentration of serum free light chains is diagnostic
39. Which of the following statements about amyloid is false?
- (a) It develops in the skeleton of some patients in the first 5 years of dialysis
 - (b) When deposited in the kidney, it causes proteinuria
 - (c) It is shown by Congo red staining on histology
 - (d) It is composed of proteins arranged in a beta-pleated sheet
 - (e) Chronic inflammation causes AA type amyloid
40. Which of the following antibody is found in post-streptococcal glomerulonephritis?
- (a) anti-streptolysin B
 - (b) anti-DNAse B
 - (c) anti-hyaluronic acid
 - (d) anti-staphylokinase
 - (e) anti-adenine dinucleotidase
41. Which of the following statements about ANCA-associated vasculitis is true?
- (a) C-ANCA is associated with microscopic polyangiitis
 - (b) MPO-ANCA is usually C-ANCA
 - (c) PR3-ANCA is usually C-ANCA
 - (d) A rising titre of MPO-ANCA indicates a need to increase immunosuppression
 - (e) ANCA-associated vasculitis is usually cured by a prolonged course of cyclophosphamide

Chapter 15

42. Which of the following is the modality of choice for detecting renal stones?
- (a) Ultrasound
 - (b) Doppler ultrasound
 - (c) Isotope renography
 - (d) CT scanning
 - (e) MRI scanning
43. Which of the following statements about contrast-induced nephropathy is true?
- (a) It can be ameliorated by sodium chloride infusion before the procedure
 - (b) It often requires temporary dialysis
 - (c) It is commoner in women
 - (d) It is less likely with hyper-osmolar contrast medium
 - (e) Is it rare if the eGFR is $>30 \text{ ml/min/1.73 m}^2$

Chapter 16

44. Which of the following statements about kidney biopsy is true?

- (a) It is usually required to confirm a diagnosis of diabetic nephropathy
- (b) It causes bleeding in a minority of patients
- (c) It is essential to diagnose anti-glomerular basement membrane disease
- (d) It requires a general anaesthetic
- (e) It should only be performed if it will change patient management

Chapter 17

45. In someone aged 35 years with an eGFR of 65 ml/min/1.73 m², by how much does an albumin:creatinine ratio of 42 mg/mmol increase the risk of mortality compared to no albuminuria?

- (a) 1.5 times
- (b) 2 times
- (c) 4 times
- (d) 9 times
- (e) 12 times

46. When should a patient be transferred to the multidisciplinary team to prepare them for dialysis?

- (a) When the eGFR goes below 20 ml/min/1.73 m²
- (b) When the patient develops symptoms of uraemia
- (c) When the eGFR goes below 10 ml/min/1.73 m²
- (d) When the rate of decline in eGFR is greater than 10 ml/min/1.73 m²/year
- (e) When dialysis is likely to be needed within the next 12 months

47. Which of the following statements about renal replacement therapy is true?

- (a) It is unethical not to treat someone with dialysis with an eGFR less than 5 ml/min/1.73 m²
- (b) Mortality is less with a kidney transplant than dialysis
- (c) Mortality is less with peritoneal dialysis than haemodialysis
- (d) The minimum frequency of haemodialysis is three times per week
- (e) Peritoneal dialysis is done 5 days per week

Chapter 18

48. Which of the following statements about an arterio-venous fistula is true?

- (a) It is contraindicated if the left ventricular ejection fraction is less than 40 %
- (b) The blood flow is good if it remains full of blood when the arm is elevated
- (c) The thrill should only be felt in systole
- (d) The dialysis needle is inserted as near to the anastomosis as possible
- (e) The risk of infection is lower than with a dialysis catheter

49. Which of the following statements about a peritoneal dialysis catheter is true?

- (a) Fluid should take under 20 min to drain out
- (b) The tip should be located in the centre of the abdomen
- (c) Fluid should be slightly cloudy on draining out
- (d) Dried exudate ('crusting') at the exit site should be treated with antibiotics
- (e) It should be replaced once a year to reduce the risk of infection

50. Which of the following statements about a kidney transplant patient is false?

- (a) Infections after 12 months are usually due to conventional organisms
- (b) Post-transplant lymphoproliferative disease is due to T cell proliferation
- (c) Cotrimoxazole is used to prevent *Pneumocystis jiroveci* pneumonia (PJP)
- (d) The commonest site of malignancy is the skin
- (e) Post-transplant lymphoproliferative disease may regress if immunosuppressive drugs are stopped

Multiple Choice Question Answers

Question	Answer
1.	(d)
2.	(b)
3.	(a)
4.	(e)
5.	(c)
6.	(e)
7.	(d)
8.	(a)
9.	(b)
10.	(c)
11.	(d)
12.	(b)
13.	(a)
14.	(b)
15.	(d)
16.	(a)
17.	(d)
18.	(b)
19.	(e)
20.	(a)
21.	(c)
22.	(a)
23.	(d)
24.	(c)
25.	(b)
26.	(d)
27.	(c)
28.	(e)
29.	(b)
30.	(c)

Question	Answer
31.	(d)
32.	(e)
33.	(b)
34.	(d)
35.	(e)
36.	(a)
37.	(c)
38.	(e)
39.	(a)
40.	(b)
41.	(c)
42.	(d)
43.	(a)
44.	(e)
45.	(c)
46.	(e)
47.	(b)
48.	(e)
49.	(a)
50.	(b)

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