

पुस्तिका में पृष्ठों की संख्या : 40
Number of Pages in Booklet : 40
पुस्तिका में प्रश्नों की संख्या : 180
No. of Questions in Booklet : 180

प्रश्न-पत्र पुस्तिका संख्या /
Question Paper Booklet No.

5203209

SSAPNp-02

Paper Code : 26

SUBJECT : Nephrology

समय : 3.00 घण्टे
Time : 3.00 Hours

परीक्षा दिनांक : 13/08/2020
परीक्षा समय : 2:00 To 5:00

अधिकतम अंक : 180
Maximum Marks : 180

प्रश्न-पत्र पुस्तिका एवं उत्तर पत्रक के पेपर सील/पॉलिथीन बैग को खोलने के बाद परीक्षार्थी प्रश्न-पत्र पुस्तिका संख्या को उत्तर पत्रक पर सावधानीपूर्वक अंकित करें। इसमें किसी भी प्रकार की त्रुटि होने पर जिम्मेदारी अभ्यर्थी की होगी।

The candidate fill the Question Paper Booklet No. on Answer Sheet carefully after opening the Paper Seal / Polythene bag. Candidate himself shall be responsible for any error.

परीक्षार्थियों के लिए निर्देश

1. सभी प्रश्नों के उत्तर दीजिए।
2. सभी प्रश्नों के अंक समान हैं।
3. प्रत्येक प्रश्न का केवल एक ही उत्तर दीजिए।
4. एक से अधिक उत्तर देने की दशा में प्रश्न के उत्तर को गलत माना जाएगा।
5. प्रत्येक प्रश्न के चार वैकल्पिक उत्तर दिये गये हैं, जिन्हें क्रमशः 1, 2, 3, 4 अंकित किया गया है। अभ्यर्थी को सही उत्तर निर्दिष्ट करते हुए उनमें से केवल एक गोले अथवा बबल को उत्तर पत्रक पर नीले बॉल प्वाइंट पेन से गहरा करना है।
6. OMR उत्तर पत्रक इस परीक्षा पुस्तिका के अन्दर रखा है। जब आपको परीक्षा पुस्तिका खोलने को कहा जाए, तो उत्तर-पत्र निकाल कर ध्यान से केवल नीले बॉल प्वाइंट पेन से विवरण भरें।
7. प्रत्येक गलत उत्तर के लिए प्रश्न अंक का 1/3 भाग काटा जायेगा। गलत उत्तर से तात्पर्य अशुद्ध उत्तर अथवा किसी भी प्रश्न के एक से अधिक उत्तर से है। किसी भी प्रश्न से संबंधित गोले या बबल को खाली छोड़ना गलत उत्तर नहीं माना जायेगा।
8. मोबाइल फोन अथवा इलेक्ट्रॉनिक यंत्र का परीक्षा हॉल में प्रयोग पूर्णतया वर्जित है। यदि किसी अभ्यर्थी के पास ऐसी कोई वर्जित सामग्री मिलती है तो उसके विरुद्ध आयोग द्वारा नियमानुसार कार्यवाही की जायेगी।
9. कृपया अपना रोल नम्बर ओ.एम.आर. पत्रक पर सावधानीपूर्वक सही भरें। गलत अथवा अपूर्ण रोल नम्बर भरने पर 5 अंक कुल प्राप्तांकों में से काटे जा सकते हैं।

चेतावनी: अगर कोई अभ्यर्थी नकल करते पकड़ा जाता है या उसके पास से कोई अनधिकृत सामग्री पाई जाती है, तो उस अभ्यर्थी के विरुद्ध पुलिस में प्राथमिकी दर्ज कराते हुए विविध नियमों-प्रावधानों के तहत कार्यवाही की जाएगी। साथ ही विभाग ऐसे अभ्यर्थी को भविष्य में होने वाली विभाग की समस्त परीक्षाओं से विवर्जित कर सकता है।

INSTRUCTIONS FOR CANDIDATES

1. Answer all questions.
2. All questions carry equal marks.
3. Only one answer is to be given for each question.
4. If more than one answers are marked, it would be treated as wrong answer.
5. Each question has four alternative responses marked serially as 1, 2, 3, 4. You have to darken only one circle or bubble indicating the correct answer on the Answer Sheet using BLUE BALL POINT PEN.
6. The OMR Answer Sheet is inside this Test Booklet. When you are directed to open the Test Booklet, take out the Answer Sheet and fill in the particulars carefully with blue ball point pen only.
7. 1/3 part of the mark(s) of each question will be deducted for each wrong answer. A wrong answer means an incorrect answer or more than one answers for any question. Leaving all the relevant circles or bubbles of any question blank will not be considered as wrong answer.
8. Mobile Phone or any other electronic gadget in the examination hall is strictly prohibited. A candidate found with any of such objectionable material with him/her will be strictly dealt as per rules.
9. Please correctly fill your Roll Number in O.M.R. Sheet. 5 Marks can be deducted for filling wrong or incomplete Roll Number.

Warning : If a candidate is found copying or if any unauthorized material is found in his/her possession, F.I.R. would be lodged against him/her in the Police Station and he/she would liable to be prosecuted. Department may also debar him/her permanently from all future examinations.

इस परीक्षा पुस्तिका को तब तक न खोलें जब तक कहा न जाए।
Do not open this Test Booklet until you are asked to do so.



1. Anti-GBM disease is an autoimmune condition of known pathogenesis but unclear etiology. All of the following statements are true regarding its pathogenesis, except :

- (1) It is an autoimmune disease against alpha 3 chain of type III collagen.
- (2) Shock wave lithotripsy may rarely lead to GBM antibodies and clinical disease in susceptible individuals.
- (3) Approximately 50% of kidney recipients with Alport syndrome after receiving kidney from healthy donor develop anti-GBM antibodies; only a few of these patients have graft failure because of anti-GBM disease.
- (4) Anti-GBM antibody disease has a strong positive association with the HLA-DR15 haplotype, which is found in more than 80% of patients with anti-GBM antibody disease.

2. In Renal biopsy with immunofluorescence staining looking for immune deposits, all are true findings of the suggested disease, except :

- (1) Membranous nephropathy - granular subendothelial IgG
- (2) Focal segmental glomerulosclerosis - non-specific trapping in focal scars
- (3) Minimal change disease - non-immune deposits.
- (4) IgA nephropathy - mesangial IgA deposition.

3. In IgA nephropathy, all of the following indicate a bad prognosis, except :

- (1) Male gender
- (2) Presence of diastolic hypertension.
- (3) Elevated serum levels of immunoglobulin A
- (4) Presence of persistent microscopic hematuria.

4. In case of patients with IgAN; which of the following renal biopsy parameters is strongly predictive of favourable outcome to immune-suppression ?

- (1) Mesangial hypercellularity
- (2) Endocapillary hypercellularity .
- (3) Segmental glomerulosclerosis
- (4) Tubular atrophy/interstitial fibrosis.

5. A 23 year old male patient underwent renal biopsy for evaluation of nephritic syndrome. The light microscopy tissue specimen revealed 13 glomeruli. 3 glomeruli were globally sclerosed. The remaining glomeruli showed mild increase in mesangial cellularity and matrix, few glomeruli showed segmental endocapillary cellularity with intracapillary neutrophil margination. 3 (23%) glomeruli showed segmental tuft sclerosis and 9 (67%) showed cellular crescent formation. Tubular atrophy and interstitial fibrosis was observed in 15% of sampled cortex. On Immunofluorescence staining strong (3+) staining was observed for IgA. Please calculate the Oxford-MEST-C score for this patient.

- (1) M1E1S1T0C2 (2) M1E1S1T0C1
- (3) M1E1S1T0C0 (4) M0E1S1T1C1

6. In acute interstitial nephritis; all are true, except :

- (1) The commonest cause is drug induced.
- (2) Blood eosinophila is seen only in 30 % of cases, yet eosinophiluria is seen up to 70% of cases.
- (3) Should be suspected in any non-oliguric acute renal failure.
- (4) Predominant infiltration of the tubulo-interstitium with eosinophils on renal biopsy is more suggestive of a viral etiology.

7. Chronic interstitial nephritis may be caused by all of the followings, except :

- (1) Chronic exposure to aristolochic acid
- (2) Wilson's disease
- (3) Hanta virus infection
- (4) Chronic ingestion of phenacetin

8. Which of the following is the least likely cause of rapidly progressive Glomerulonephritis ?

- (1) Membranous nephropathy
- (2) AntiGBM disease
- (3) Post-infectious glomerulonephritis
- (4) SLE

9. Recurrent UTI is common in postmenopausal females. Which of the following intervention is least likely to be effective in reducing frequency of recurrent infections ?

- (1) Fluid intake of at least 3 liters per day
- (2) Regular intake of cranberry juice
- (3) Topical estrogen cream application
- (4) Avoidance of spermicidal jelly

10. A 77-year-old man presents to the emergency department complaining that for the past 24 hours, he has been unable to void. The patient reports that he has had this problem intermittently and that he has been diagnosed with benign prostatic hyperplasia. He has an upper respiratory infection and has been taking over-the-counter pseudoephedrine. The patient also reports that a year ago, he was admitted to the hospital for unstable angina. At that time, his creatinine level was 1.1 mg/dl. In the emergency department, the patient's serum creatinine level is determined to be 4.2 mg/dl. Regarding this patient's renal failure, which of the following statements is false ?

- (1) Renal ultrasound should show bilateral hydronephrosis, suggesting obstructive uropathy as the cause of acute renal failure.
- (2) The use of pseudoephedrine has contributed to the development of urinary obstruction.
- (3) Urinalysis is commonly abnormal in obstructive uropathy; an abnormal result supports the diagnosis of obstruction.
- (4) Obstruction impairs the ability of the kidneys to concentrate the urine and thus contributes to a polyuric state.

11. Which of the following statements is false regarding the characteristics of renal anemia ?
- (1) The red cells produced are usually normochromic and normocytic.
 - (2) There is usually no associated leukopenia or thrombocytopenia.
 - (3) The reticulocyte count is usually around 40,000 to 50,000 per microliter of blood.
 - (4) Red blood cell life span is normal.
12. Which drug has been shown to reduce mortality in CKD patients with dilated cardiomyopathy and systolic heart failure ?
- (1) Atorvastatin
 - (2) Digoxin
 - (3) Carvedilol
 - (4) Metoprolol
13. Many drugs are implicated in pathogenesis of kidney diseases. Which of the following combination is not true in regard to drug induced nephropathy ?
- (1) Cisplatin and renal loss of sodium
 - (2) Cyclosporin and chronic interstitial nephritis
 - (3) Lithium and nephrogenic diabetes insipidus
 - (4) NSAIDS and minimal change nephropathy.
14. Which of the below mentioned factors is not associated with increased urinary potassium excretion ?
- (1) Avid sodium re-absorption.
 - (2) High urinary flow rate.
 - (3) Metabolic acidosis
 - (4) Excess poorly absorbed anions like ketones and phosphate.
15. AKI has been described as a complication following the administration of oral sodium phosphate solution as a bowel cathartic in preparation for colonoscopy and bowel surgery. Which of the following fact is not true in this regard ?
- (1) The pathogenesis likely relates to a transient and significant rise in serum phosphate concentration leading to intratubular precipitation of calcium phosphate salts that obstruct the tubular lumen and cause direct tubular damage.
 - (2) Acute phosphate nephropathy is mainly seen in patients with pre-existing CKD with concomitant volume depletion.
 - (3) Renal biopsy in cases of acute phosphate nephropathy show diffuse tubular injury with abundant calcium phosphate deposits. .
 - (4) Most of patients present with oliguric AKI 3-5 days after administration of phosphate enema.

16. In a clinically stable patient, which of the following biochemical or hematologic abnormalities is suggestive of chronic kidney disease (CKD) rather than acute kidney injury (AKI)?
- (1) Calcium 3.5 mmol/l
 - (2) K 7.5 mmol/l
 - (3) Hemoglobin 10.7 g/dl
 - (4) Creatinine 13.5 mg/dl
17. Which of the following is not an established risk factor for cardiovascular disease in patients with advanced chronic kidney disease?
- (1) Inflammation
 - (2) Smoking
 - (3) Dyslipidemia
 - (4) Hyperhomocysteinemia
18. Which of the following variables is not needed to calculate eGFR from the CKD-EPI formula?
- (1) Age
 - (2) Weight
 - (3) Race
 - (4) Sex
19. On reviewing a recently completed 24-h ambulatory BP recording on a 52-year-old man with hypertension and stage 2 CKD (eGFR 76 ml/min per 1.73 m²), it is noted that the mean night time systolic BP (SBP) is about 5% less than the mean daytime SBP. Which one of the following is true regarding the relationship between diurnal BP variation assessed with ambulatory BP monitoring and CKD?
- (1) A nocturnal fall in mean SBP 10% occurs only in patients with elevated 24 h SBP levels
 - (2) Non-dipping does not appear in patients with CKD until the GFR has fallen below approximately 30 ml/min per 1.73 m²
 - (3) Non-dipping has been shown to be associated with the presence of CKD in patients with type 1 but not T2DM
 - (4) Patients with nocturnal fall in SBP of less than 10% have a more rapid decline in GFR compared with those who are.
20. Isolyte-P is commonly used intravenous fluid in paediatric population. Which is of the following parameters is true regarding its composition?
- (1) Sodium 23 meq/L
 - (2) Potassium 25 meq/L
 - (3) Calcium 2 meq/L
 - (4) Acetate 29 meq/L

21. Which statement is most accurate with regard to the correction of anemia in CKD patient ?

- (1) It is likely to be associated with an acceleration of renal disease progression.
- (2) It is likely to reduce the rate of albumin excretion in the urine.
- (3) Raising the hemoglobin level to normal will lead to regression of left ventricular hypertrophy.
- (4) Strong RCT evidence of a beneficial effect on cardiovascular morbidity and mortality is lacking.

22. Hyponatremia is considered when plasma Na^+ concentration is greater than

- (1) 135
- (2) 140
- (3) 145
- (4) 150

23. Patient on regular hemodialysis is receiving erythropoietin, but his Hb is still low. There is no evidence of active or past infection. He is on oral iron. What is the next step in his management ?

- (1) Give higher doses of iron tablets
- (2) Give IV iron
- (3) Give folic acid
- (4) Check for antibodies against erythropoietin

24. What is believed to be mainly responsible for late kidney graft loss ?

- (1) Hypertension and hyperlipidemia
- (2) New-onset diabetes after transplantation
- (3) Recurrence of primary disease
- (4) HLA alloantibodies

25. Anterograde pyelography; which one is true ?

- (1) It is the injection of a contrast media into kidney through the bladder and ureters.
- (2) It is usually done blindly.
- (3) Much more difficult and hazardous in a non-obstructed kidney.
- (4) Poorly outline the collecting system.

26. A 55-year-old man who has received hemodialysis for 15 years presents with deteriorating discomfort in both shoulders. Past medical history included bilateral carpal tunnel decompression. What is the most likely diagnosis ?

- (1) Beta 2 microglobulin amyloidosis
- (2) Gout
- (3) Pseudogout
- (4) Polymyalgia rheumatica

27. Fractional excretion of sodium (FENa) is very usefulness marker to distinguish pre-renal AKI from ATN. However, in certain conditions FENa of >1% may be seen even in cases of pre-renal AKI. Which of the following pre-renal AKI conditions are associated with FENa > 1% ?

1. Prerenal AKI in patients receiving diuretics,
2. Patients with metabolic alkalosis and bicarbonaturia.
3. Patients underlying CKD.
4. Multiple myeloma with cast nephropathy
5. Villous adenoma with diarrhea

- (1) 1, 2, 3
- (2) 1, 3, 5
- (3) 1, 2, 4
- (4) 2, 3, 5

28. Drug induced hyponatremia is not associated with which of the following drugs ?

- (1) Cefditoren
- (2) Sertraline
- (3) Quetiapine
- (4) Cyclophosphamide

29. Which of the following is not true regarding Hepatitis-B Nephropathy ?

- (1) Mainly seen among children from endemic areas with evidence of vertical transmission.
- (2) Membranous Nephropathy is most common histological lesion.
- (3) Without treatment most of children develop ESRD in next 10-20 years.
- (4) Lamivudine treatment has been shown to be effective in reduction of proteinuria.

30. Which histological lesion is commonly seen in patients infected with hepatitis C virus ?

- (1) Membranoproliferative glomerulonephritis type 1
- (2) Membranoproliferative glomerulonephritis type 2
- (3) Membranoproliferative glomerulonephritis type 3
- (4) Diffuse proliferative glomerulonephritis

31. Sensitization to alloantigen can occur during the following conditions :

- (1) Pregnancy
- (2) Blood transfusion
- (3) Transplantation
- (4) All of the above

32. Long-term ingestion of large quantities of analgesics has been associated with chronic interstitial nephritis and papillary necrosis. Which of the following fact is not true regarding analgesic nephropathy ?
- (1) This entity was recognized 5-7 times more frequently in women than in men.
 - (2) Urinary tract malignancy develops in as many as 8% to 10% of patients with analgesic nephropathy, typically after 15 to 25 years of heavy use of analgesics.
 - (3) Risk of malignancy was more closely related to ibuprofen containing combination pills as compared to other NSAIDs combinations.
 - (4) Characteristic findings on noncontrast computed tomographic (CT) scans include : Small kidneys, with bumpy renal contours and papillary calcifications.
33. A 42-year-old woman presents with nausea, vomiting, and left flank pain with radiation to the groin; these symptoms have persisted for 3 days. A helical CT scan reveals a stone in the left ureter. On the basis of urinalysis and serum chemistries, a diagnosis of type 1 Renal Tubular Acidosis (RTA) is made. Which of the following is NOT consistent with type 1 RTA ?
- (1) Serum HCO_3^- 14 meq/L with anion gap of 12.
 - (2) Serum Potassium 2.9 meq/L.
 - (3) Urine pH 4.5
 - (4) Urinary calcium phosphate crystals.
34. Which of the following is not risk factor for renal stone formation ?
- (1) Hypercalciuria
 - (2) Hyperoxaluria
 - (3) Hypercitraturia
 - (4) Hyperuricosuria.
35. A 75-year-old woman with diabetes and hypertension is admitted to the hospital with nausea, vomiting, and abdominal pain. At admission, laboratory values include a blood urea nitrogen (BUN) measurement of 18 and a plasma creatinine measurement of 0.5 mg/dl. As part of her workup, she undergoes a contrast-enhanced CT scan of the abdomen. During the first 48 hours of the hospital stay, repeat laboratory studies reveal a plasma creatinine level of 1.1 mg/dl. Which of the following statements is false regarding estimates of this patient's glomerular filtration rate (GFR) ?
- (1) A low baseline plasma creatinine value may lead to an overestimation of GFR because of decreased muscle mass in this elderly patient.
 - (2) The change in plasma creatinine level of 0.6 mg/dl represents an approximately 50% decrease in the patient's GFR.
 - (3) The use of drugs such as cimetidine and trimethoprim increase plasma creatinine levels without affecting true GFR.
 - (4) The patient's ideal body weight correlates inversely with GFR.

36. A 60-year-old man who presented with fatigue and bone pain is found to be anemic and thrombocytopenic. Radiographs demonstrate osteolytic lesions in several thoracic vertebrae and the left femur. Serum chemistries reveal a creatinine level of 1.2 mg/dl, a calcium level of 11.5 mg/dl, a total protein level of 11 mg/dl, and an albumin level of 3.2 mg/dl. On bone marrow biopsy, there is replacement of normal marrow with sheets of plasma cells. Urinalysis is unremarkable, but 24-hour urine study reveals proteinuria of 2.0 g/day. Which of the following statements regarding this patient's proteinuria is true ?

- (1) The likely underlying pathology involves a structural abnormality of the filtration barrier that results in loss of negatively charged proteins.
- (2) It is likely that the results of the 24-hour urine study are falsely elevated because the urine dipstick test is sensitive for most protein species, including albumin and paraproteins.
- (3) The proteinuria reflects an overproduction of normally filtered proteins, which overwhelms the reabsorptive capacity of the tubules.
- (4) The patient's degree of proteinuria and spectrum of clinical findings is consistent with the nephrotic syndrome.

37. Endocrinal abnormalities are common in chronic renal failure. All of the following statements are true, except :

- (1) Hyperprolactenemia may be seen but unfortunately many cases don't respond to bromocryptine.
- (2) The half-life of insulin is shortened.
- (3) Amenorrhea is common in females.
- (4) Loss of libido in both sexes is very common.

38. A 36-year-old hypertensive man develops macroscopic hematuria 3 days after the onset of pharyngitis. The patient's brother had a history of poststreptococcal glomerulonephritis at age 6 after a strepto-coccal infection of the throat. What is the most likely explanation for this patient's hematuria ?

- (1) Poststreptococcal glomerulonephritis
- (2) Minimal change disease
- (3) IgA nephropathy
- (4) Henoch-Schonlein Purpura (HSP)



39. The number of ureteric constrictions along its course includes

- (1) one
- (2) two
- (3) three
- (4) four

40. A 58-year-old man known to have nephrotic syndrome presents to the emergency department. For several days, he has been experiencing low back pain and for the past several hours, he has been experiencing hematuria and shortness of breath. The patient is tachypneic, with an oxygen saturation of 92% on 4 L of oxygen via nasal cannula. A CT angiogram reveals pulmonary thromboembolism. Which of the following statements is true in this patient, regarding renal vein thrombosis (RVT)?

- (1) RVT is most frequently associated with idiopathic and secondary membranous nephropathy; of these patients, 30% may have RVT.
- (2) Classical presentation is acute lower back pain, hematuria, and renal insufficiency.
- (3) Doppler ultrasonography is the most common modality used in the diagnosis of RVT.
- (4) For patients with RVT, a 6-month course of warfarin is indicated.

41. Which of the following statements regarding Polyarteritis Nodosa (PAN) is true?

- (1) Serologic tests for PAN are diagnostic; most patients exhibit antibodies against serine protease 3 and myeloperoxidase.
- (2) The pathogenesis of PAN is unclear, although there appears to be an association with hepatitis C infection.
- (3) ACE inhibitors and angiotensin receptor blockers. (ARBs) should be used cautiously in patients with PAN because renal involvement may produce a functional equivalent of RAS.
- (4) In approximately 90% of patients with PAN, remission is achieved with high-dose steroids.

42. A 54-year-old man presents with a 4-day history of low-grade fever and confusion. He was previously healthy. His physical examination is significant for pallor and ecchymoses. Laboratory studies reveal a hemoglobin of 7.6 g/dl, a WBC of 8,200/ μ l, and a platelet count of 12,000/ μ l. The peripheral blood smear shows schistocytes and a decreased number of platelets. For this patient, which of the following statements regarding thrombotic microangiopathies (TMAs) is true ?
- (1) When plasma activity of ADAMTS-13 is elevated, von Willebrand antigens predominate; those antigens bind to platelets and cause aggregation and thrombi in the small vessels.
 - (2) A presumptive diagnosis of thrombotic thrombocytopenic purpura (TTP) is often based on the presence of thrombocytopenia, schistocytes, and prolonged prothrombin time (PT) and Partial Thrombo-Plastin Time (PTT).
 - (3) Hemolytic-uremic syndrome (HUS) is characterized by platelet aggregation and the presence of large von Willebrand multimers.
 - (4) The most common clinical presentation of antiphospholipid syndrome (APS) is arterial thrombosis.

43. A 21-year-old college student reports abdominal pain, bilateral ankle and knee pain, bloody urine, and a worsening rash that began on his lower legs and has spread to his trunk. On examination, the patient is afebrile, his blood pressure is 120/80 mm Hg, and his pulse is 76 beats/min. Skin examination reveals raised, indurated, purple coalescing papules on his anterior shins, lower legs, and abdomen. Urinalysis shows 2+ protein with RBC casts on microscopic examination. Stool guaiac results are positive; CBC is normal, with a normal WBC differential; creatinine is 0.8 mg% and negative antinuclear antibodies. Skin biopsy results reveal an intense neutrophilic infiltrate surrounding dermal blood vessels, confirming leukocytoclastic vasculitis. Which of the following is most likely to be true about this man's condition ?
- (1) Renal biopsy is diagnostic for Henoch-Schonlein purpura.
 - (2) Polyclonal IgG deposits on skin biopsy confirm Henoch-Schonlein purpura.
 - (3) The extent of renal involvement is the most important prognostic factor.
 - (4) Prednisone and cyclophosphamide therapy should be started as soon as possible.

44. Investigations in patient with methanol poisoning are likely to reveal
1. Normal anion gap
 2. Metabolic acidosis
 3. Oxalate crystals in urine
 4. High osmolal gap
- (1) Only 2, 4 are correct.
 (2) Only 2, 3, 4 are correct.
 (3) Only 1, 2, 4 are correct.
 (4) Only 1, 2, 3 are correct.
45. Which anatomical structure prevents a horse shoe kidney from ascending to a level above umbilicus ?
- (1) Length of ureters
 - (2) Inferior mesenteric artery
 - (3) Weight of isthmus bridging both kidneys
 - (4) Left renal artery
46. The following symptom often points to suspicion of renal tuberculosis :
- (1) Recurrent painless hematuria
 - (2) "Acid sterile pyuria"
 - (3) Lack of constitutional symptoms
 - (4) All of the above
47. A 32-year-old woman presents to you after a recent hospital admission for flash pulmonary edema. She was diagnosed with hypertension several months ago. Her blood pressure remains poorly controlled despite compliance with a regimen of hydrochlorothiazide, amlodipine, and metoprolol. She denies having headache and palpitation. Her physical examination is remarkable for a blood pressure of 204/106 mm Hg in the left arm and bilateral abdominal bruits. You consider the diagnosis of renal artery stenosis (RAS) secondary to fibromuscular dysplasia (FMD). Which of the following statements regarding RAS and FMD is true ?
- (1) Renal ultrasonography should be the first step in the evaluation of RAS because a finding of symmetrical kidneys precludes the need for further testing.
 - (2) Angioplasty with stenting can completely cures more than 50% of patients with hypertension and improves renal function in over one third.
 - (3) The segmental nature of medial fibroplasia, the most common subtype of FMD, results in the classic so-called beads-on-a-string appearance in the proximal third of the main renal artery.
 - (4) Surgical repair of aneurysms is required if their diameter is greater than 1.5 cm or if the patient has uncontrolled hypertension or is pregnant.

48. In patients with acute kidney disease, histologically renal ischaemia is most damaging to

- (1) Glomerulus
- (2) Proximal tubule
- (3) Loop of Henle
- (4) Distal tubule

49. The corticomedullary osmotic gradient is required for urine concentration. Which of the following would diminish this gradient?

- (1) Increased circulating vasopressin
- (2) Increased blood flow through the renal medulla
- (3) Activation of the sympathetic nervous system
- (4) Activation of the renin-angiotensin-aldosterone system.

50. Which is incorrect regarding CAPD peritonitis?

- (1) Gram stain will be positive in approx. 10-40% of culture positive bags.
- (2) Staph aureus is the most common organism isolated.
- (3) Antibiotics are not needed parentally usually.
- (4) Cell count in bags must be > 100 leucocytes with > 50% neutrophils

51. Podocytes in the adult:

- (1) are unable to replicate.
- (2) are connected by gap junctions.
- (3) have a positively charged glycocalyx.
- (4) are connected to the GBM by hemidesmosomes.

52. You started a male patient with an A-V fistula on HD, and he wants you order buttonhole (constant site) cannulation. Which one of the following complications of buttonhole cannulation compared to the traditional rope-ladder technique or rotating cannulation sites is CORRECT?

- (1) Increases hematoma formation
- (2) Increases infection rate
- (3) Increases pain
- (4) Increases needle sticks

53. All of the following are examples of complicated urinary tract infection, except:

- (1) UTI in males.
- (2) UTI with in-dwelling catheter.
- (3) Acute Pyelonephritis
- (4) Recurrent cystitis in healthy females.

54. Ammonia is an effective important urinary buffer for which of the following reasons:

- (1) Its production in the kidney decreases during chronic acidosis.
- (2) The walls of the renal tubules are impermeable to NH_3 .
- (3) The walls of the renal tubules are impermeable to NH_4 .
- (4) Its acid base reaction has a low pKa.



55. An end stage renal disease patient comes to your office 4 weeks after radiocephalic AV fistula creation. Which one of the following measurements suggests that the fistula is functioning properly and will be ready in 3 months for cannulation ?

- (1) Vein diameter 2 mm and access flow rate 300 mL/min
- (2) Vein diameter 3 mm and access flow rate 400 mL/min
- (3) Vein diameter 4 mm and access flow rate 450 mL/min
- (4) Vein diameter 6 mm and access flow rate 600 mL/min

56. A 32-year-old man was seen in the nephrology clinic with proteinuria. He has a background of T1DM and hypertension. He was treated with Lisinopril (10 mg), amlodipine (5 mg), aspirin (75 mg), simvastatin (40 mg), and insulin. On examination, he was overweight (BMI : 30 kg/m²), BP was 146/84 mmHg, and edema was present to midcalf level bilaterally. Investigations were as follows :

Serum creatinine: 1.6 mg/dl, Serum albumin: 2.8 g/dl, Urinary protein/creatinine ratio: 460 mg/mmol. Which additional feature would provide justification for undertaking a renal biopsy ?

- (1) Presence of diabetic retinopathy
- (2) Duration of diabetes of 12 years
- (3) Presence of nonselective proteinuria
- (4) Negative dipstick urinalysis 4 months earlier

57. On ultrasound, compared to the liver, the normal adult renal cortex is

- (1) Isoechoic
- (2) Hyperechoic
- (3) Hypoechoic
- (4) Anechoic

58. A 28-year-old man was found to have protein 2+ on a routine urinalysis during a life insurance medical. There had been a similar finding at his occupational health screen when he started at university. He had undergone further tests at the time and had been told there was nothing to worry about. Physical examination was normal and his BP was 118/76 mmHg. Urinalysis showed protein 2+. Investigations : serum urea 18 mg/dl, serum creatinine 0.8 mg/dl, estimated glomerular filtration rate (MDRD formula) 115 ml/min, urinary protein: creatinine ratio (clinic sample) 103 mg/mmol (<30), urinary protein: creatinine ratio (early morning) 14 mg/mmol (<30). How should the patient be advised ?

- (1) Should have a renal biopsy to find out the cause of his proteinuria.
- (2) Needs regular blood tests because he is at risk of worsening renal function.
- (3) Reassured that he is at no increased risk of developing renal disease.
- (4) Should be started on an ACE inhibitor.

59. A 39-year-old man with BMI of 32 refers to you with a history of headaches. Blood pressure during regular examinations has been approximately 186/98 mmHg. He is taking no medications and is a non smoker. His eGFR is 49 ml/min/1.73 m² and he has 1.7g of proteinuria per 24 hours. His fundus examination was normal. No abnormalities were identified on a renal ultrasound. What would you do next?

- (1) Refer for bariatric surgery immediately
- (2) Control his BP and then a renal biopsy.
- (3) Use an ACE-Inhibitor to optimize his BP
- (4) Renal angiogram.

60. After the preceding patient undergoes kidney biopsy, the nurse calls your office to report gross hematuria that resolved spontaneously after two voids. The patient otherwise feels well. His vital signs are stable, and he is now voiding without difficulty. He has no flank pain. What is the next step?

- (1) Reassure the patient and obtain renal Ultrasonography
- (2) Plan for renal angiography and gel-foam embolization of bleeding vessel.
- (3) Admit for intravenous hydration
- (4) Place a Foley catheter for 72 hours

61. Which of the following immunosuppressants is most commonly associated with proteinuria?

- (1) Azathioprine
- (2) Sirolimus
- (3) Cyclosporine
- (4) Tacrolimus

62. A 65-year-old man underwent endoscopy to establish cause of hematemesis. The procedure was complicated by the development of an aspiration pneumonia and respiratory failure. A continuous infusion of intravenous lorazepam was required to control agitation and minimize peak Inspiratory pressures. Admission laboratory results (mmol/l): Na⁺ 142, K⁺ 4.3, Cl⁻ 105, HCO₃⁻ 22, creatinine 1.4 mg/dl, BUN 25 mg/dl, hematocrit 36, pH 7.35, pCO₂ 45, pO₂ 75. On hospital day 4, gastrointestinal bleeding recurred, and the patient was taken to the operating room and underwent oversewing of a bleeding duodenal ulcer. The patient remained hemodynamically stable throughout the hospitalization but continued to require IV lorazepam for sedation. Lab results (mmol/l): Na⁺ 138, K⁺ 4.8, Cl⁻ 100, HCO₃⁻ 10, creatinine 1.8 mg/dl, BUN 28 mg/dl, glucose 120 mg/dl, serum osmolality 330 mOsm/l (osmolar gap = 37).

What of the following is, the cause of this patient's anion gap metabolic acidosis and increased osmolar gap?

- (1) Propylene glycol toxicity
- (2) Diabetic ketoacidosis
- (3) Lactic acidosis
- (4) Uremic acidosis



63. Which of the following recipient factors is an absolute contraindication to transplantation ?

- (1) Active sepsis
- (2) HIV infection
- (3) Age >70 years
- (4) Previous malignancy

64. In hemodiafiltration, ultrapure dialysate and nonpyrogenic substitution fluid are generally used. Some of the complications observed in HD patients have been attributed to contaminants such as bacteria and endotoxins in dialysate. Which one of the following choices regarding ultrapure dialysate is FALSE ?

- (1) Ultrapure dialysate is defined as the fluid that contains viable bacteria of < 0.1 colony forming units (CFU)/mL and endotoxin < 0.03 endotoxin units (EU)/mL.
- (2) By definition, the standard dialysate contains < 100 CFU/mL and endotoxin < 0.25 EU/mL.
- (3) Cuprophane and polyacrylonitrile dialysis membranes are more permeable to endotoxins and promote inflammatory cytokine production than polysulfone and polyamide dialysis membranes.
- (4) There is substantial evidence that ultrapure dialysate is superior to standard dialysate in reducing the inflammatory cytokine production.

65. Why is hypomagnesemia associated with hypocalcemia ?

- (1) Hypomagnesemia causes a shift of calcium into bone.
- (2) Hypomagnesemia inhibits the secretion and action of parathyroid hormone.
- (3) Hypomagnesemia causes renal calcium wasting.
- (4) Hypomagnesemia impairs the peripheral actions of vitamin D.

66. All of the following agents mostly affect the B cells and antibody production, except :

- (1) IVIG (intravenous immunoglobulin)
- (2) Rituximab
- (3) ATG (thymoglobulin)
- (4) Bortezomib

67. A 22-year-old female student presented with hyperkalemia (5.9 meq/L) 6 weeks after starting a new oral contraceptive. Which one of the following oral contraceptives predisposes to hyperkalemia ?

- (1) Ethinyl estradiol and Norethindrone
- (2) Ethinyl estradiol and Norgestrel
- (3) Ethinyl estradiol and Desogestrel
- (4) Ethinyl estradiol and Drospirenone

68. CD-4+ regulatory T (Treg) cells generated in response to the persistent presence of alloantigen are thought to have an important role in transplant tolerance. Their tolerogenic actions are mediated through production of which of the following interleukin ?

(1) IL-2 (2) IL-5
 (3) IL-6 (4) IL-10

69. Which of the following recommendations are not true regarding 2019 KDIGO consensus conference for nomenclature for kidney function and disease ?

1. All severe AKI cases requiring dialysis should be classified as AKI stage 3D.
2. All CKD patients requiring permanent dialysis should be classified as CKD G5D and term ESRD should be avoided.
3. Time duration criteria for rise in SCr of more than 0.3 mg/dl has expanded to 7 days since earlier criteria of 48 hours duration missed many cases of mild AKI.
4. A new term Acute kidney disease (AKD) was proposed to include all cases of AKI of < 3 month duration, to differentiate them from incident CKD.
5. Diagnosis of AKI should mention both stage and cause rather than stage alone, eg. AKI stage 3 due to ATN.

(1) 3, 5 (2) 1
 (3) 3 (4) 4

70. Hemodiafiltration (HDF) combines both diffusion and convection. Which one of the following clinical benefits of HDF is FALSE ?

- (1) HDF removes middle molecules more efficiently than high-efficiency and high-flux dialysis.
- (2) Removal of inflammatory cytokines is better or higher with HDF than high-efficiency and high-flux dialysis.
- (3) Preservation of residual renal function is much better with HDF than high-efficiency and high-flux dialysis.
- (4) Improvement in albumin and other markers of nutrition is better with HDF than high-efficiency and high-flux dialysis.

71. Which is the most common genetic abnormality associated with atypical hemolytic uremic syndrome (aHUS) ?

- (1) C3 mutations
- (2) ADAMTS13 mutations
- (3) CFH mutations
- (4) CFTR mutations.

72. Which IgG subclass is predominantly deposited in cases with idiopathic membranous Nephropathy ?

- (1) IgG1
- (2) IgG2
- (3) IgG3
- (4) IgG4



73. A 42-year-old man is discovered to have proteinuria, impaired renal function (serum creatinine 2.3 mg/dl), and normocytic normochromic anemia (hemoglobin 8.2 g/dl). The physical examination shows hypertension (150/98 mmHg), mild obesity (BMI 31 kg/m²), bilateral corneal opacities, and 1+ edema. The albumin is 3.2 g/dl, total cholesterol 120 mg/dl, LDL cholesterol 80 mg/dl, HDL cholesterol 15 mg/dl, triglycerides 200 mg/dl. Serum C3 is normal. A fasting blood sugar is 120 mg/dl. Urinary total protein excretion is 4:6 g/day.

Which of the following is the most likely diagnosis ?

- (1) Alport's syndrome
- (2) Adult-onset Cystinosis
- (3) Lecithin-cholesterol acyltransferase deficiency
- (4) C3 glomerulopathy

74. The key investigation for the diagnosis of immunotactoid glomerulopathy is

- (1) Immunofixation or immunoelectrophoresis of serum proteins
- (2) Characteristic light microscopy findings of MPGN pattern with nodular glomerulosclerosis in kidney biopsy sample
- (3) Immunofluorescence examination of kidney biopsy sample
- (4) Electron microscopy of kidney biopsy sample

75. What is the best predictor of successful induction of remission in a patient with ANCA disease ?

- (1) ANCA titer
- (2) Severity of proteinuria at initiation of induction therapy
- (3) Percent of crescents seen in the renal biopsy specimen
- (4) Serum creatinine at the start of induction therapy.

76. Which of following genetic mutation is not known to cause autosomal dominant form of familial FSGS ?

- (1) INF2
- (2) ACTN4
- (3) TRPC6
- (4) NPHS1

77. An elevated urinary CD80 antigen is a promising diagnostic bio-marker for which of the following glomerular diseases ?

- (1) Minimal change disease
- (2) Focal segmental glomerulosclerosis
- (3) Membranous nephropathy
- (4) Membranoproliferative glomerulonephritis

78. A 30 Years female developed kidney failure secondary to idiopathic FSGS. She is transplanted from live related donor. One week later patient started to have lower limb swelling. Urinary protein to creatinine ratio was 3.6 g/g. Kidney biopsy was performed and found recurrence of FSGS in allograft. What is best option of treatment in this case ?

- (1) Pulse methyl prednisone
- (2) Switch cyclosporine to Tacrolimus
- (3) Intra-venous immunoglobulins
- (4) Plasma exchange

79. If pathologic and serologic studies in a patient are diagnostic for anti-Glomerular Basement Membrane (GBM) disease, antineutrophil cytoplasmic antibody (ANCA) testing is :

- (1) Unnecessary because it is unlikely to be positive.
- (2) Necessary because it is positive in 25-33% patients and may change prognosis.
- (3) Unnecessary because it would not change prognosis if positive.
- (4) The disease is more like anti-GBM disease.

80. A 61-year-old man presented with complaints of weakness and loss of weight. His voice is hoarse. On examination he has pedal edema up to the tibial tuberosity, enlarged tongue and liver edge palpable up to three finger breadths below the right costal margin. Urinalysis showed 3+++ protein. What is the most appropriate test that will lead to the correct diagnosis ?

- (1) 24-h urinary protein
- (2) CECT scan abdomen
- (3) Subcutaneous fat biopsy
- (4) Urine protein electrophoresis

81. What is the most common underlying cause of hypercoagulable state in patients with Nephrotic syndrome ?

- (1) Factor VIII deficiency
- (2) Reduced concentration of Von Willebrand's factor
- (3) Reduced D-dimer levels
- (4) Reduced antithrombin III activity

82. Which one of the following types of GN is most characteristically associated with cryoglobulinemia ?

- (1) Rapidly progressive GN
- (2) Mesangiocapillary GN
- (3) Focal segmental glomerulosclerosis
- (4) Diffuse proliferative GN

83. On December 23, 1954, Joseph Edward Murray created history by performing the world's first successful renal transplant between the identical twins. He originally belonged to which medical streamline ?

- (1) Urologist
- (2) Plastic surgeon
- (3) Nephrologist
- (4) Immunobiologist

84. A 60-year-old woman complains of cramping during hemodialysis as well as weakness after each treatment. Post-treatment, pulse rate is 95/min and blood pressure is 90/60 mmHg. On physical examination, auscultation of the chest shows normal breath sounds. Examination of the extremities shows no edema. Which of the following is the most appropriate next step ?

- (1) Add sodium modeling
- (2) Continue monitoring blood pressure
- (3) Decrease the dialysis time
- (4) Increase the dry weight

85. Which of following antitubercular medicines require dose modification in patients with end stage renal disease ?

1. Rifampicin
2. Isoniazid
3. Ethambutol
4. Pyrazinamide

- | | |
|----------|----------|
| (1) 2, 3 | (2) 3, 4 |
| (3) 3 | (4) 1, 3 |

86. Which of the following symptom is specific to CKD, regardless of etiology ?

- (1) Pain in renal angle
- (2) Frequency
- (3) Anuria
- (4) Nocturia

87. The following are recognized presentations of autosomal recessive polycystic kidney disease, except :

- (1) Nephrogenic diabetes insipidus
- (2) Bilateral flank masses at birth
- (3) Presentation with Nephrotic Syndrome
- (4) Potter's Syndrome

88. Which of the following statements is false ?

- (1) The defined upper dose limit of epoetin is 60,000 IU/wk because it is known that cardiovascular toxicity occurs above this dose level.
- (2) Dose requirements of epoetin are generally 20% to 30% less when the agent is administered subcutaneously compared with intravenously.
- (3) Erythropoiesis-stimulating agent (ESA) therapy should be used with caution in patients with previous or current malignancy.
- (4) Patients who are hyporesponsive to ESA therapy have a worse prognosis than those who do respond.

89. Which of the following combination is not correct ?

- (1) Hexagonal shape : Cystine crystals
- (2) Coffin lid appearance : Magnesium ammonium phosphate
- (3) Envelope shape : Calcium oxalate monohydrate
- (4) Shock of wheat appearance : Amoxicillin

90. A 40-year-old woman was referred because of refractory hypertension. She was being treated with telmisartan, amlodipine and prazosin. Her BP was 160/96 mmHg. Urinalysis showed protein 1+. Investigations: Serum Na 140 mmol/L, Serum K 3.3 mmol/L, Serum bicarbonate 28 mmol/L, Serum urea 16 mg/dl, Serum creatinine 1.2 mg/dl. Plasma renin activity was (after 30 min supine) 0.5 pmol/ml/h (1.1-2.7). What is the most likely diagnosis ?

- (1) Chronic glomerulonephritis
- (2) Pheochromocytoma
- (3) Primary hyperaldosteronism
- (4) Renal artery stenosis

91. Which of the following antibiotics should be avoided for use in treatment of urinary tract infections in pregnancy ?

- (1) Cephalexin
- (2) Nitrofurantoin
- (3) Amoxicillin-clavulanic acid
- (4) Tetracycline

92. A 76-year-old man with long-standing hypertension was admitted with increasing shortness of breath. His BP was 170/70 mmHg, heart rate 92 beats per minute, respiratory rate 28 per min, and pulse oximetry 96% on FiO_2 0.4. A plain chest radiograph showed pulmonary edema and an echocardiogram showed a left ventricular ejection fraction of 60%. Serum creatinine was 0.9 mg/dl. Along with diuretic therapy, he was started on Ramipril 5 mg OD. During his inpatient stay his serum creatinine progressively increased to 1.5 mg/dl over a period of 5 days. His BP at this stage was 145/80. What is the most appropriate next step ?

- (1) Add a beta-blocker
- (2) Add calcium channel blocker
- (3) Add loop diuretics
- (4) Stop Ramipril

93. Which of the following statements concerning angiotensin converting enzyme inhibitor therapy of unilateral renal artery stenosis is correct ?

- (1) Would decrease the difference between renal vein renin levels between the stenotic and unaffected kidney.
- (2) Would increase the GFR in the stenotic kidney.
- (3) Will increase the sensitivity of nuclear medicine renal scan in identifying the presence of renal artery stenosis.
- (4) Will decrease the GFR in the non-stenotic kidney.



94. Which of the following is not a dietary risk factor for primary hypertension?

- (1) Sodium
- (2) Alcohol
- (3) Sugar
- (4) Potassium

95. Which of the following trial report no beneficial effects of renal denervation in patients with resistant hypertension?

- (1) SPYRAL HTN-ON MED
- (2) SPYRAL HTN-OFF MED
- (3) SIMPLICITY HTN-3
- (4) RADIANCE-HTN SOLO

96. A 3-year-old girl presented with febrile UTI. Culture is positive for *E. coli*. Which initial tests should be recommended for this patient?

- (1) USG abdomen+MCU
- (2) USG abdomen+DMSA
- (3) USG abdomen+IVP
- (4) CECT KUB

97. A 50-year-old woman is referred to you for evaluation of HTN, and you found that systolic BP in the right arm is 6 mmHg higher than the left arm. Her BP is 142/89 mmHg with a pulse rate of 72 beats/min. Femoral pulses are strong and present bilaterally. You repeated her BP 1 week later and found a similar difference in both arms. With regard to her inter-arm difference in BP and its management, which one of the following choices is CORRECT?

- (1) Obtain a Doppler ultrasound of both arms
- (2) Obtain a 24-h ambulatory BP monitoring (ABPM)
- (3) Order further tests for evaluation of coarctation of aorta
- (4) No further evaluation of inter-arm BP difference

98. A 72-year-old man presented with postural dizziness. His BP is 150/102 mmHg. There are no sitting and standing BP changes, but a slight increase in pulse rate (12 beats/minutes) on standing is noticed and his both radial arteries are felt hardened. He is on Telmisarten 80 mg daily. He has no retinopathy or proteinuria, and chest X-ray is normal. Which one of the following is the MOST likely cause of his dizziness?

- (1) Autonomic insufficiency
- (2) Essential hypertension
- (3) Pseudohypertension
- (4) Peripheral vascular disease

99. Which of the following drugs does NOT cause neurogenic orthostatic hypotension?

- (1) Diuretics
- (2) α 1-Blockers
- (3) Clonidine
- (4) Nitrates

100. Concerning renal transplant patients and pregnancy, which of the following statements is correct?

- (1) 10 year graft survival is lower in women who have a pregnancy than in women having no pregnancy.
- (2) Prednisolone, azathioprine, Tacrolimus, and cyclosporine are all considered safe to use during pregnancy.
- (3) Hypertension or a decline in renal function occurring before 28 weeks' gestation does not adversely affect pregnancy outcome.
- (4) Mycophenolate mofetil is safe to use provided the pregnant woman receives high-dose folic acid throughout pregnancy.

101. A 24-year-old woman who is being treated for eclampsia with acute kidney disease is found to have serum calcium of 7.6 mg/dL and a serum phosphate of 5.1 mg/dL with a serum albumin of 4.0 g/L. She has a BUN of 18 and a creatinine of 1.8 mg/dL. Which of the following is the likely cause of the hypocalcemia?

- (1) Renal failure
- (2) Hyperphosphatemia
- (3) Hypermagnesemia
- (4) Hyperkalemia

102. Which statement about unilateral renal agenesis is false?

- (1) It occurs in 1:10,000 births.
- (2) Typically, there is no ureter.
- (3) The fallopian tube may be absent in girls.
- (4) Renal ultrasound is recommended in first-degree relatives.

103. Most patients with Dent disease have a mutation in which transporter?

- (1) $\text{Na}^+\text{-K}^+\text{-2Cl}$
- (2) GLUT2
- (3) $\text{Na}^+\text{/H}^+$
- (4) CIC-5



104. Which of the following is the most common risk factor for nephrolithiasis in autosomal dominant polycystic kidney disease ?

- (1) Low urine citrate
- (2) Hypercalciuria
- (3) Hyperoxaluria
- (4) Renal tubular acidosis

105. The most common heritable cause of CKD is

- (1) Alport's disease
- (2) Autosomal dominant polycystic kidney disease
- (3) Fabry's disease
- (4) Medullary cystic disease

106. A 60-year-old female patient 6 months post kidney transplant is evaluated in routine follow-up. Physical exam is unremarkable. Laboratory studies reveal the following: creatinine 1.0 g/dL, calcium 10.8 mg/dL; phosphate 2.8 mg/dL; PTH 150 pg/mL. Which of the following statements about her condition is true ?

- (1) Hyperparathyroidism is uncommon following a successful kidney transplant.
- (2) She should be referred to an endocrine surgeon for parathyroidectomy.
- (3) Cinacalcet may offer effective therapy for her hyperparathyroidism.
- (4) Post-transplant hypercalcemia is not associated with increased mortality or graft loss.

107. A 27-year-old man presented with a 6 month history of polyuria and polydipsia and 3 weeks of worsening shortness of breath on exertion. He had also experienced recurrent episodes of excruciating pain in both feet but without any recent injury. On examination his BP was 164/84 mmHg, there were bibasal crepitations on auscultation of the chest and he had a number of abdominal telangiectasia. Investigations: serum creatinine 3.8 mg/dl, urinary protein: creatinine ratio 320 mg/mmol (<15). A renal biopsy was performed. Which of the following is most likely to be found on electron microscopy ?

- (1) Mesangial electron dense deposits
- (2) Thickened and duplicated GBM
- (3) Subepithelial electron dense deposits
- (4) Tubular reticular inclusion bodies

108. ADPKD type 1 is associated with a gene defect in :

- (1) Chromosome 4
- (2) Chromosome 8
- (3) Chromosome 12
- (4) Chromosome 16

109. A 30-year-old woman is referred to a nephrologist for proteinuria, hematuria, and elevation in serum creatinine level. She complained of eye pain and limping. She has a family history of glaucoma and proteinuria, but none on dialysis. Her serum creatinine is 3.6 mg/dL and serum ANA is negative. Her serum complement levels are normal. A 24-h urine collection reveals 3.6 g of proteinuria. The renal biopsy findings are as follows:

Light microscopy : mild increase in mesangial matrix IF: unremarkable

Electron microscopy : thickened BMs with irregular lucent areas and moth-eaten appearance

Based upon the above information, which one of the following is the MOST likely diagnosis ?

- (1) Immunotactoid glomerulopathy
- (2) Membranous nephropathy
- (3) Nail-patella syndrome
- (4) Fabry's disease

110. An HIV-infected individual is receiving antiviral therapy presented with AKI. The laboratory investigations showed reduced serum phosphate and uric acid along with glycosuria is noted. Which of the following is the most likely explanation for these abnormalities ?

- (1) Efavirenz
- (2) Allopurinol
- (3) Tenofovir
- (4) Ritonavir

111. A 52-year-old gentleman with diabetes presents with weight loss, fevers and dull persistent left loin pain. The general practitioner has been treating him for relapsing urinary tract infections with oral antibiotics. Computerized tomography scan shows a heterogeneous non-enhancing mass on the left kidney, which is hydronephrotic. The right kidney is normal. Renal biopsy shows lipid-laden macrophages with lymphocytes and polymorphonuclear leucocytes. What is the definitive treatment in this patient ?

- (1) Intravenous antibiotics
- (2) Left nephrectomy
- (3) Lithotripsy
- (4) Antituberculous treatment

112. Which urine microscopy findings is pathognomonic of acute pyelonephritis ?

- (1) Hematuria
- (2) Pyuria
- (3) Leukocyte casts
- (4) RBC casts

113. A 26-year-old male patient who is 9 months post-transplant undergoes kidney transplant biopsy because of an increase in serum creatinine from his baseline of 1.2 mg/dL to 1.6 mg/dL. The biopsy shows prominent tubule-interstitial inflammation and SV40 positive inclusions seen throughout the cortex and medulla consistent with BK nephritis. His BK plasma PCR is 350,000 IU/ml. His current immunosuppression medication regimen consists of tacrolimus, MMF and prednisone. What is the most appropriate first step in his management?
- (1) Start monthly intravenous immunoglobulin (IVIG)
 - (2) Add oral levofloxacin.
 - (3) Start low dose cidofovir infusions every 2 weeks
 - (4) Stop MMF
114. Which of the following brain-dead donors does not meet the definition for an extended-criteria deceased donor?
- (1) A previously well 53-year-old with hypertension and a serum creatinine at donation of 1.7 mg/dl
 - (2) A 62-year-old with diabetes
 - (3) A 54-year-old with hypertension and death from a cerebrovascular accident
 - (4) A 58-year-old with hepatitis C
115. Which statement is not true regarding belatacept?
- (1) Belatacept, a high affinity CTLA4-Ig that blocks CD28-CD80/CD86 interactions.
 - (2) Compared to calcineurin inhibitors-based therapy belatacept-based therapy is associated with significantly more acute reversible cellular rejections.
 - (3) Belatacept should not be given to CMV seronegative recipients receiving a transplant from an CMV seropositive donor due to the high risk of developing PTLD.
 - (4) Belatacept has been associated with superior glomerular filtration rate as compared to calcineurin inhibitor-based treatments because of the absence of nephrotoxicity.
116. Which statement is not true regarding BENEFIT (Belatacept Evaluation of Nephroprotection and Efficacy as First-line Immunosuppression Trial) trial?
- (1) This Phase III study assessed a more intensive (MI) or less intensive (LI) regimen of belatacept versus tacrolimus, in conjunction with steroids and MMF, in adults receiving a kidney transplant.
 - (2) Belatacept patients experienced a dose dependent higher incidence of acute cellular rejection.
 - (3) BENEFIT included patients 18 and older receiving a living donor or standard criteria deceased donor kidney transplant with an anticipated cold ischemia time of < 24 h. Recipients of extended criteria kidneys were excluded.
 - (4) Basiliximab induction was used in each treatment group.

117. The most common malignancy occurring after kidney transplantation is

- (1) Non-melanoma skin cancer
- (2) Kaposi's sarcoma
- (3) Lymphoma
- (4) Breast cancer

118. The risk of recurrence in the allograft is LOWEST for which of the following primary renal diseases ?

- (1) Oxalosis
- (2) Focal and segmental glomerulosclerosis
- (3) IgA nephropathy
- (4) Lupus nephritis

119. The most common clinical syndrome associated with transplant renal artery stenosis consists of

- (1) Microscopic hematuria and abdominal pain
- (2) Slowly deteriorating kidney function and worsening hypertension
- (3) Nephrotic syndrome
- (4) Rapid deteriorating kidney function

120. 55 year male was having living related donor transplant. Procedure was smooth with normalization of renal profile. At day seven he developed severe pain in allograft area, sudden loss of urine output with blood in urine. What is most likely diagnosis ?

- (1) Renal Artery thrombosis
- (2) Renal Vein Thrombosis
- (3) Lymphocele
- (4) Acute Transplant rejection

121. A 30-year-old woman with diabetic nephropathy received a cadaveric renal allograft. On the third post-operative day her serum creatinine concentration was 1.8 mg/dL. She is being treated with cyclosporine and prednisone. On the sixth postoperative day she experiences a decrease in urine output from 1500 mL/d to 1000 mL/d; the serum creatinine concentration increases to 2.2 mg/dL. The best initial step in management would be to

- (1) Decrease the dose of cyclosporine
- (2) Obtain ultrasonography of the renal allograft
- (3) Obtain a biopsy of the renal allograft
- (4) Administer pulsed steroid therapy

122. A transplant patient on the Tacrolimus+MMF for 5 years started on a health-food diet and over-the counter herbal products. The transplant center noted that his Tacrolimus levels have abruptly decreased to unacceptably low levels, putting him at risk for rejection. The nurse coordinator accused him of being noncompliant, but the patient insisted he was taking his medication as prescribed. What is your assessment?

- (1) This patient is taking Echinacea, which activates renal, tubular excretion of Tacrolimus.
- (2) This patient is taking grapefruit extracts, which are preventing the absorption of his Tacrolimus.
- (3) This patient is taking St. John's Wort, which is increasing his cytochrome P450 system and accelerating the metabolism of his Tacrolimus.
- (4) This patient is taking creatine supplements, which increase the activity of P-glycoprotein, which leads to enhanced Tacrolimus excretion.

123. A 40-year-old woman is evaluated for kidney donation. All the pertinent tests are negative except for microscopic hematuria. She had menstrual cycle 15 days ago. Urine sediment shows six dysmorphic RBCs on phase contrast microscopy. Which one of the following tests you recommend for this donor?

- (1) CECT of the kidneys
- (2) Renal biopsy
- (3) Malignancy work-up
- (4) Straight away refuse as potential donor.

124. A 60-year-old man with history of skin cancer received a cadaveric kidney transplant 10 years ago. His creatinine remains at 1.2 mg/dL. He is on tacrolimus and mycophenolate mofetil (MMF) 500 mg twice a day. In view of his history of skin cancer, which one of the following immunosuppressive agents is found to lower the incidence of skin cancer?

- (1) Cyclosporine
- (2) Prednisone
- (3) Sirolimus
- (4) Belatacept

125. A young adult female with end stage renal disease has been undergoing APD for the last four months. After five months of amenorrhea, she started her menstrual periods yesterday and last night, when she connected to the cyclor, noted that the dialysate in the initial drain was pink in color. She reported to the dialysis unit the next day and the PD nurse performed several in-and-out exchanges and but the fluid remained pinkish-red. The PD fluid sample was sent for cell count : 20 WBCs/mm³ and 800 RBCs/mm³ were present.

Which ONE of the following represents the best plan of action in this patient?

- (1) Intraperitoneal heparin for the period of hemoperitoneum
- (2) Intravaginal ultrasound to evaluate ectopic pregnancy.
- (3) Antibiotic treatment.
- (4) PD fluid cytology to exclude malignancy

126. Which of the following immune response is specific to organ transplantation ?

- (1) Direct Allorecognition
- (2) Indirect allorecognition
- (3) Activation of adaptive immune response
- (4) Activation of innate immune response.

127. A 28-year-old White female patient presents with nephrotic syndrome and is found to have class V membranous lupus on renal biopsy. Based on randomized controlled trials, which of the following medications has *not* been shown to be effective in treating this pattern of lupus nephritis ?

- (1) Intravenous cyclophosphamide
- (2) Oral MMF
- (3) Oral cyclosporine
- (4) Intravenous rituximab

128. A 68-year-old female on hemodialysis complained of progressive abdominal pain and bloating for 3 months. She was on CAPD for last 9 years and CAPD catheter was removed 8 months ago due to refractory fungal peritonitis. On examination she was afebrile with tight distended abdomen.

Which finding is most likely to be seen on investigations ?

- (1) CT evidence of visceral peritoneal calcification.
- (2) Evidence of small bowel obstruction on skiagram
- (3) Gram negative bacilli on diagnostic effluent culture.
- (4) Transudative peritoneal effluent.

129. Which of the following is not an indication for combined liver-kidney transplantation ?

- (1) Primary oxalosis.
- (2) Alcoholic Cirrhosis with persistent GFR < 30 ml/min
- (3) Mitochondrial disorders.
- (4) aHUS due to factor H mutation.

130. Which of the following antibiotics is least likely to achieve therapeutic concentration in cyst fluid while treating urosepsis in ADPKD patient with CKD stage 3A ?

- (1) Cephalosporin
- (2) Trimethoprim
- (3) Ciprofloxacin
- (4) Chloramphenicol

131. Linear deposition of IgG in IF renal biopsy slides is seen in all, except :

- (1) Diabetes mellitus
- (2) Light chain disease
- (3) Membranous nephropathy
- (4) Fibrillary glomerulonephritis

132. A 59-year-old male with CKD stage G3A0 who started on sunitinib for renal cell carcinoma stage IV, now presented with new onset hypertension. His blood pressure is 164/90 mm Hg. There is no papilloedema, loin pain or any neurological deficit. His Serum creatinine remained stable, however 24 hour urine protein increased to 1200 mg from baseline value of 200 mg. Urine analysis showed 1+ protein and absence of WBCs and RBCs. What should be appropriate management ?

- (1) Add Ramipril.
- (2) Discontinue Sunitinib
- (3) Add Non-dihydropidine CCB.
- (4) Doppler of bilateral renal vessels.

133. A 65-year-old woman (weight, 60 kg) is admitted to the intensive care unit with urosepsis and associated *Escherichia coli* bacteremia. Her course is complicated by respiratory failure due to acute lung injury and oligoanuric AKI (baseline serum creatinine level, 1.0 mg/dL, currently 5.0 mg/dL; urine output in the past 12 hours, 50 mL). In addition to antibiotics, she is receiving norepinephrine to achieve a mean arterial pressure of greater than 65 mm Hg and is mechanically ventilated, requiring a fraction of inspired oxygen of 40%. Her pH is 7.25, bicarbonate level of 18 mmol/L, and serum potassium level of 4.9 mmol/L. Her cumulative fluid balance since ICU admission is +16 L. The clinical team has elected to commence renal replacement therapy.

Which of the following would not be compatible with an optimal strategy of renal replacement therapy ?

- (1) Intermittent hemodialysis: initial session of 4 hours, with planned ultrafiltration of 1 L
- (2) Intermittent Hemodialysis: initial session 4 hours, with planned ultrafiltration of 4 L
- (3) Sustained low-efficiency dialysis (SLED): initial session, 8 hours; blood pump speed, 200 mL/min; planned ultrafiltration of 2 L.
- (4) Continuous renal replacement therapy (CRRT): net fluid removal of 2 L over subsequent 24 hours

134. Which of the following is the most common sleep disorder in dialysis patients ?

- (1) Increased sleep latency
- (2) Insomnia
- (3) Restless leg syndrome
- (4) Day time sleepiness

135. True statements regarding myeloma cast nephropathy :

1. Majority of casts are formed in distal tubules and collecting ducts.
2. There are minimal associated glomerular or vascular lesions.
3. Plasma exchange is the first line treatment of cast nephropathy.
4. Majority of free light chains are extracellularly distributed.
5. True incidence of cast nephropathy is unknown since majority of multiple myeloma patients do not undergo renal biopsy.

- (1) 1, 3, 5 (2) 1, 2, 5
(3) 2, 3, 4 (4) 1, 2, 4

136. Which of the following facts is true regarding Denosumab ?

- (1) Denosumab is a monoclonal antibody which acts as RANKL inhibitor.
- (2) The usual dose in post menopausal osteoporosis and glucocorticoid induced bone loss is 30 mg SC q6months.
- (3) It is contraindicated in patients with $CrCl < 30$ ml/min.
- (4) Hypocalcemia is the most common reported side effect.

137. A peritoneal dialysis patient presents with a 1-week history of abdominal pain. She has been on dialysis for 2 years and also has a history of coronary artery disease. Clinically, her abdomen is rigid and distended with absent bowel sounds, BP is 85/50 mmHg, pulse rate is 120/min and the dialysate appears very cloudy. Culture of the dialysis fluid reveals a mixed growth of *Escherichia coli*, *Bacteroides* spp. and *Enterobacter* spp. What is the most likely cause of this presentation ?

- (1) Acute pancreatitis
- (2) Diverticulitis
- (3) Catheter related peritonitis
- (4) Ulcerative colitis

138. An 85-year-old male patient came with CKD stage G5A0 due to lithium induced CTIN. His current eGFR is 9 ml/min and daily urine output is approximately 1 litre per day. He does not wish for dialysis commencement and request for palliative care only. Which of the following fact best describes the outcome of active medical care without dialysis in such cases ?

- (1) Less survival but fewer episodes of hospitalization and better quality of life.
- (2) Equivalent outcome and survival.
- (3) Inferior physical health.
- (4) Palliative care is only recommended in patients with GFR 10-20 ml/min.



139. Which of following modality is least useful extracorporeal toxin removal therapy in poisoning ?
- (1) Intermittent Hemodialysis.
 - (2) Charcoal Hemoperfusion.
 - (3) Exchange transfusion.
 - (4) Peritoneal dialysis.
140. Which of the following statement is most appropriate for refractory peritoneal dialysis peritonitis ?
- (1) Failure of effluent to clear after 3 days of antibiotics.
 - (2) Failure of effluent to clear after 5 days of antibiotics.
 - (3) Failure of effluent to clear after 7 days of antibiotics.
 - (4) Failure of effluent to clear after 14 days of antibiotics.
141. A 45-year-old male who had terminal ileostomy for 5 years now presented with renal colic. Plain X-Ray KUB showed no stones. His investigations included: Na 138 meq/L, K^+ 3.8 meq/L, HCO_3^- 17 meq/L, Albumin 3.9 gm/dl, Uric acid 7.4 mg/dl, Ca^{++} 9.8 mg/dl, Phosphate 4.1 mg/dl.
- Which of the following is the most likely cause of his symptoms ?
- (1) Oxalate stone
 - (2) Uric acid stone
 - (3) Cystine stone
 - (4) Calcium phosphate stone

142. A 38-year-old man was referred for evaluation of renal impairment. He had suffered with gout for the past 10 years. His maternal grandfather had died of kidney failure and his mother started dialysis when she was 56 years old. Examination was unremarkable. His BP was 143/82 mmHg. Investigations: serum K 2.7 mmol/L, serum creatinine 1.8 mg/dl, eGFR 52 mL/min, serum urate 9 mg/dl, urinalysis blood trace protein 2+. Renal ultrasound scan normal sized kidneys with increased echogenicity and a single 2 cm cyst in the right kidney. MRI abdomen multiple small cysts ranging from 3 mm to 2 cm in diameter in the corticomedullary junction. What is the most likely diagnosis ?
- (1) Autosomal dominant polycystic kidney disease
 - (2) Autosomal recessive polycystic kidney disease
 - (3) Medullary cystic kidney disease
 - (4) Nephronophthisis
143. Which of the following statements is not true for Calciphylaxis seen in maintenance hemodialysis patients ?
- (1) Painful, symmetrical, sharply demarcated non healing ulcers.
 - (2) Hyperphosphatemia is an important predisposing factor.
 - (3) Distal extremity lesions have poor prognosis as compared to proximal ones.
 - (4) Histologically characterized by calcification, microthrombosis, fibrointimal hyperplasia of dermal small arteries.

144. A 56-year-old on CAPD for last 6 years presented with poor ultrafiltration. His baseline 2.5% PET showed D/P ratio of 0.62 and at 4 hours ultrafiltration volume was 450 ml. Which one of the following tests will help in establishing the diagnosis ?

- (1) 4.25% Dextrose PET.
- (2) CT abdomen with intra-peritoneal contrast.
- (3) Do nothing; reassure the patient that everything is OK.
- (4) Repeat 2.5% dextrose PET test.

145. Urease producing bacteria are associated with formation of

- (1) Oxalate stone
- (2) Uric acid stone
- (3) Calcium stones
- (4) Magnesium ammonium phosphate stones

146. An 18-year-old woman was referred for investigation of progressive generalized muscle weakness and lethargy. She was taking no regular medications. Examination was unremarkable. Her BP was 110/60 mmHg. Her body mass index was 19. Investigations: serum K 2.7 mmol/L, serum bicarbonate 34 mmol/L, serum creatinine 72 μ mol/L, estimated glomerular filtration rate (MDRD) > 90 ml/min, serum magnesium 0.60 mmol/L (N: 0.75-1.05), serum chloride 83 mmol/L, 24-hour urinary calcium 1.5 mmol (N: 2.5-7.5). What is the most likely diagnosis ?

- (1) Bartter's syndrome
- (2) Gitelman's syndrome
- (3) Hypokalaemic periodic paralysis
- (4) Liddle's syndrome

147. The first hemodialysis session should remove urea level by

- (1) 10%
- (2) 20%
- (3) 30%
- (4) 50%

148. In transplant renal biopsy, isometric vacuolization of proximal tubule cells may be seen in all, except :

- (1) Acute CNI toxicity
- (2) Post IVIg administration
- (3) Radio contrast media administration
- (4) BK virus nephropathy

149. Which of the following drugs may be efficiently removed by dialysis ?

- (1) Lithium
- (2) Digoxin
- (3) Theophylline
- (4) Phenytoin



150. Regarding peritoneal dialysis catheter function, which of the following statements is false ?

- (1) Introducing the routine use of the laparoscopic technique for catheter insertion will improve early catheter survival more than carefully audited standard methods used by an experienced surgeon.
- (2) Slow catheter drainage is most commonly a result of constipation.
- (3) Pain on draining out is best solved in APD patients by use of tidal PD.
- (4) Poor drainage associated with edema in the genital area indicates an inguinal hernia or patent processus vaginalis.

151. Intradialytic hemolysis may be caused by all of the following, except :

- (1) Copper in the dialysate
- (2) Residual formaldehyde
- (3) Faulty dialysis pumps
- (4) Heparin exposure

152. High-efficiency, post-dilution on-line Hemodiafiltration is associated with improved outcomes in chronic hemodialysis patients. High-efficiency on-line Hemodiafiltration is defined as :

- (1) Blood flow rate > 300 ml/min
- (2) Dialysate flow rate > 700 ml/min
- (3) Effective treatment time > 300 minutes per treatment
- (4) Delivered convection volume > 22 liters per treatment

153. A 31-year-old man was reviewed at a routine clinic visit having been undergoing continuous ambulatory peritoneal dialysis for 6 months. He felt well, had no specific complaints, and was clinically euvolemic. He was using 4×1.5 L dextrose 1.36% exchanges. Investigations: serum creatinine 13.2 mg/dl, urine volume 220 mL/day, ultrafiltration volume 400 mL/day, Kt/V 1.28, creatinine clearance 42 L/week. What is the most appropriate management ?

- (1) Change nocturnal exchange to icodextrin
- (2) Increase volume of exchanges to 2L
- (3) No change to dialysis regimen
- (4) Reduce to 3×1.5 L exchanges

154. For hemodialysis patients, sudden cardiac death (SCD) occurs more commonly at certain times in the dialysis schedule. Compared to the mid-week scheduled day off dialysis, SCD is more common ?

- (1) During dialysis
- (2) Within a few hours of dialysis
- (3) In the 24 hours prior to the next dialysis session
- (4) Immediately before dialysis on the longest inter-dialytic interval

155. A 35-years-old male diagnose case of anti GBM disease need to start on Therapeutic plasma exchange. Her weight is 70 kg, HCT is 0.45, and Blood volume is 70 ml/kg. What will be his calculated plasma volume ?

- (1) 2695 ml
- (2) 2515 ml
- (3) 2780 ml
- (4) 3010 ml

156. Which of the following drugs is most likely to be removed by high-flux hemodialysis ?

- (1) Amlodipine [molecular weight (MW) = 567; volume of distribution (VD) = 21.0 L/kg; plasma protein binding > 95%]
- (2) Clindamycin (MW = 476; VD = 0.8 L/kg; plasma protein binding = 94%)
- (3) Atenolol (MW = 266; VD = 1.1 L/kg; plasma protein binding = 3%)
- (4) Apixaban (MW = 460; VD = 0.3 L/kg; plasma protein binding = 87%)

157. A 63-year-old has end stage renal disease secondary to hypertensive nephrosclerosis and has been undergoing treatment with continuous ambulatory peritoneal dialysis. His PD prescription consists of four exchanges of 2.5 L and he is currently anuric. At the time of his most recent assessment of peritoneal dialysis adequacy, the following parameters were obtained: Serum urea nitrogen 77 mg/dL, Dialysate urea nitrogen 72 mg/dL, Total ultrafiltration volume: 1000 mL, Volume of distribution of urea 40 L, Which ONE of the following represents the closest approximation of the weekly Kt/V urea ?

- (1) 1.4
- (2) 1.6
- (3) 1.8
- (4) 2.0

158. All of the following agents have been used as "catheter locks" for tunneled dialysis catheter for prevention of catheter related blood stream infection (CRBSI), except :

- (1) 46.7% Citrate
- (2) Absolute alcohol
- (3) 1.35% Taurolidine
- (4) 2% Betadene

159. Which of the following immunosuppressive agent is linked with infertility in male kidney transplant recipients ?

- (1) Tacrolimus
- (2) Belatacept
- (3) Mycophenolate
- (4) Sirolimus



160. Tocilizumab is an Anti IL-6 monoclonal antibody. In kidney transplant cases it has been successfully used in following conditions, except :

- (1) As desensitization protocols in highly sensitized recipients.
- (2) Treatment of chronic antibody mediated rejection.
- (3) Treatment of acute cellular rejection.
- (4) To counter-act cytokine storm syndrome in kidney transplant recipients with COVID-19 pneumonia.

161. Roxadustat, which is currently in phase-3 clinical trials, is likely to become an important tool for anemia management in patients with CKD. Which of the following statement is not true regarding this molecule ?

- (1) The mechanism of action is to stabilize hypoxia-inducible factor (HIF) by inhibiting prolyl hydroxylase (PH).
- (2) Most commonly used dosing frequency is three times a week as compared to daily dosing of other HIF pathway modulators.
- (3) Roxadustat, may be associated with worsening of hypertension requiring a modification to antihypertensive medication.
- (4) The agent was withdrawn from clinical trials recently due to high incidence of hematological malignancies with long term (> 2 years) use.

162. Which of the following statements regarding C4d deposition is NOT correct ?

- (1) C4d is a fragment of C4 produced during the classic complement activation pathway.
- (2) C4d deposition is known to cause severe graft injury in renal transplantation.
- (3) C4d deposition in the peritubular capillaries correlates with the presence of circulating anti-donor antibodies.
- (4) C4d is highly stable and persists at the cell surface for a long time periods.

163. Which of the following elements of an apnea test would determine that a potential donor is NOT brain dead after removal from the respirator for 10 min ?

- (1) $\text{PaO}_2 > 100 \text{ mmHg}$
- (2) Absence of chest movements
- (3) $\text{PaCO}_2 < 40 \text{ mmHg}$
- (4) $\text{PaO}_2 < 50 \text{ mmHg}$

164. For sulfa-allergic patients, which of the following antimicrobial agents can be used for prophylaxis against *Pneumocystis jiroveci* in renal allograft recipients ?

- (1) Linezolid
- (2) Dapsone
- (3) Ciprofloxacin
- (4) Ganciclovir

165. Neutrophil Gelatinase Associated Lipocalin (NGAL) is a

- (1) 13-kDa, low-molecular-weight cysteine protease inhibitor produced at a constant rate by all nucleated cells and eliminated exclusively by glomerular filtration.
- (2) 18-kDa proinflammatory cytokine that is activated by caspase 1 and is produced by renal tubule cells and macrophages.
- (3) Type I transmembrane glycoprotein with an ectodomain containing a six-cysteine immunoglobulin-like domain, two N-glycosylation sites, and a mucin domain
- (4) 25-kDa protein glycoprotein bound to matrix metalloproteinase-9 in renal epithelial cell

166. True about nail patella syndrome includes, all except :

- (1) It is an autosomal dominant disease.
- (2) Abnormal gene is located on long arm of chromosome 6.
- (3) multiple osseous abnormalities primarily affect elbows and knees, and nail dysplasia.
- (4) Approximately 5% of affected individuals develop severe CKD and will require renal replacement therapy.

167. Four weeks after arrival from Africa, a 24-year-old student presents with blood in his urine. Microscopic examination of his urine reveals the presence of eggs with terminal spines. He revealed that he had been working on his family's rice fields for long time. The most likely etiologic agent of his complaint is

- (1) *Schistosoma haematobium*
- (2) *Schistosoma mansoni*
- (3) *Schistosoma Japonicum*
- (4) Amoebiasis

168. A 24-year-old man is diagnosed with Acute Myelogenous Leukemia (AML) and is treated with induction chemotherapy (cytarabine and daunorubicin). Despite intravenous hydration he develops oliguric acute kidney disease after 4 days of treatment. Which of the following statements is most correct ?

- (1) His AKI is likely caused by infiltration of the kidney by AML.
- (2) Hypercalcemia and hypokalemia are typical features in this setting.
- (3) Calcium phosphate crystals are usually seen under urine microscopy in this setting.
- (4) Recombinant uricase may be used to treat his AKI.

169. Regarding functions of normal kidneys, all of the following statements are true, except :

- (1) Erythropoietin is secreted by peritubular cells in response to hypoxia.
- (2) Hydroxylates 1-hydroxycholecalciferol to its active form.
- (3) Locally produced prostaglandins have important role in maintaining renal perfusion.
- (4) 90% of the erythropoietin comes from the kidneys and 10% from the liver.

170. Normal adult kidney; all are true, except :

- (1) Its length is about 10-13 cm (about 3 vertebral bodies).
- (2) The right kidney is usually few millimeters smaller than the left.
- (3) Each kidney contains approximately 10 million nephrons
- (4) Both kidneys receive about 20-25% of the cardiac output.

171. A 76-year-old man presents with confusion, dry mucous membranes, decreased skin turgor, fever, tachypnea, and a blood pressure of 142/82 mm Hg without orthostatic changes. The serum sodium concentration is 168 meq per liter, and the body weight is 68 kg. Hyponatremia caused by pure water depletion due to insensible losses is diagnosed, and an infusion of 5 percent dextrose is planned. How much fall in serum sodium is anticipated in this case after infusion of 1 litre 5% Dextrose solution ?

- | | |
|-------------|-------------|
| (1) 4.8 meq | (2) 5.4 meq |
| (3) 6 meq | (4) 6.4 meq |

172. Micturating cystourethrogram; all are wrong, except :

- (1) Not used in the diagnosis and assessment of the severity of vesicoureteric reflux
- (2) Usually used in conjunction with urodynamic studies.
- (3) Not indicated in those with recurrent UTI.
- (4) Not indicated in those with renal scars and not indicated in those with chronic renal failure of unknown cause.

173. Hyperlipidemia is not associated with which of the following drug in renal allograft recipients ?

- (1) Mycophenolate mofetil
- (2) Sirolimus
- (3) Prednisolone
- (4) Cyclosporine

174. What is the most common histological manifestation of HIV nephropathy ?

- (1) Amyloidosis
- (2) Collapsing variant of FSGS
- (3) Perihilar FSGS
- (4) FSGS-NOS

175. You are managing a man with long-standing hypertension, diabetes, and chronic renal insufficiency. He has gradually developed anemia and edema and has recently developed hyperkalemia and acidosis as the time approaches when he will require hemodialysis. Which of the following statements is true regarding the etiology and management of these typical abnormalities associated with chronic renal insufficiency ?

- (1) Sodium citrate as Alkali should not be administered to patients receiving aluminum-containing phosphate binders.
- (2) Alkali therapy can help treat the acidosis but is unlikely to improve the hyperkalemia.
- (3) Hyperkalemia typically starts once GFR is decreased below 30 ml/min.
- (4) Failure to respond to erythropoietin therapy is most commonly the result of underlying anemia of chronic renal disease.

176. All of the following statements are not false in case of medullary sponge kidney (MSK), except

- (1) Most cases of MSK are sporadic.
- (2) It has a characteristic "Paint brush" picture on IVU.
- (3) May be complicated with type 2 RTA.
- (4) Nephrocalcinosis may be seen on the KUB film

177. Which of the following drug is not associated with development of Fanconi syndrome ?

- (1) Ifosfamide
- (2) Valproic Acid
- (3) Tenofovir
- (4) Pacitaxel

178. All of the following statements are not true regarding renal tubular acidosis type II, except :

- (1) Acidosis may be corrected with 1-2 meq/kg/day of alkali therapy in most cases.
- (2) Aminoaciduria is usually associated with sarcopenia.
- (3) Most common cause is cystinosis.
- (4) Hypercalciuria is profound.

179. Which of the following renal disease is classically not associated with low complement C3 levels ?

- (1) aHUS.
- (2) Post infectious glomerulonephritis
- (3) Essential mixed cryoglobulinemia
- (4) Shunt nephritis.

180. Which of the following statement is not true ?

- (1) Minimal change disease is associated with HLD DR7, atopy and drugs.
- (2) Membranous nephropathy is associated with HLA DR3, drugs and heavy metals.
- (3) Association with liver disease has been documented in IgA nephropathy.
- (4) Membranoproliferative glomerulonephritis type I is associated with C3 nephritic factor and partial lipodystrophy.

रफ कार्य के लिए स्थान / SPACE FOR ROUGH WORK

1. एक संख्या

2. एक संख्या

3. एक संख्या

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