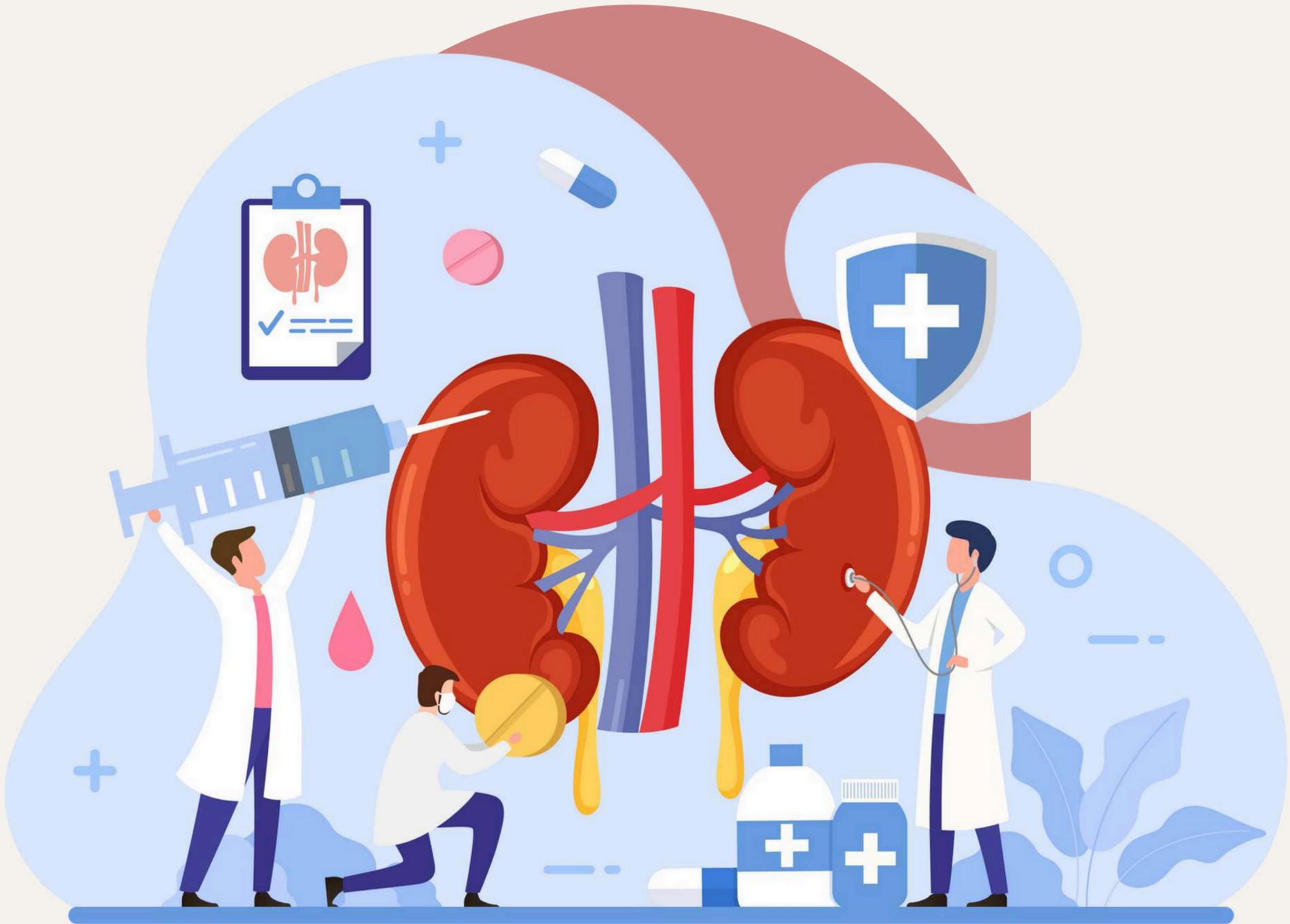


# NEPHROLOGY

INTERNAL MEDICINE



Archive



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- 5. ACUTE INTERSTITIAL NEPHRITIS**
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# GLOMERULONEPHRITI (NEPHROTIC & NEPHRITIC)

82- Patient has hemoptysis, and red urine, kidney biopsy shows crescent formation in glomeruli, what is the most likely diagnosis?

- A) Anti-GBM disease
- B) Wegner's granulomatosis
- C) Alport syndrome

Answer: A

crescentic shape in renal biopsy indicate that anti-GBM disease, rapidly progressive GN.

9- Which type of nephrotic disease we don't use corticosteroids?

- A) Diabetic nephropathy
- B) FSGS
- C) RPGN
- D) DPGN

Answer: A

in secondary causes, you focus to treat the underlying cause.

A 25-year-old man has a renal biopsy due to worsening renal function. This reveals linear IgG deposits along the basement membrane. What is the most likely diagnosis?

- A. Systemic lupus erythematosus
- B. IgA nephropathy
- C. Minimal change disease
- D. Post-streptococcal glomerulonephritis
- E. Goodpasture's syndrome

Answer: E

linear deposits of IgG indicates that Goodpasture syndrome

one of the following types of glomerulonephritis is most characteristically associated with Goodpasture's syndrome?

- A. Diffuse proliferative glomerulonephritis
- B. Mesangiocapillary glomerulonephritis
- C. Membranous glomerulonephritis
- D. Rapidly progressive glomerulonephritis
- E. Focal segmental glomerulosclerosis

Answer: D

Which one of the following causes of glomerulonephritis is associated with normal complement levels?

- A. Post-streptococcal glomerulonephritis
- B. Mesangiocapillary glomerulonephritis
- C. Subacute bacterial endocarditis
- D. Goodpasture's syndrome
- E. Systemic lupus erythematosus

Answer: D

27- year-old man is diagnosed with Goodpasture's syndrome. Which one of the following does not increase the likelihood of a pulmonary haemorrhage?

- A. Smoking
- B. Inhalation of hydrocarbons
- C. Male gender
- D. Dehydration
- E. Lower respiratory tract infection

Answer: D

# GLOMERULONEPHRITI (NEPHROTIC & NEPHRITIC)

which one of the following is least associated with focal segmental glomerulosclerosis?

- A. Alport's syndrome
- B. Heroin
- C. Sickle-cell anaemia
- D. Sarcoidosis
- E. HIV infection

Answer: A

Which one of the following types of glomerulonephritis is associated with fusion of podocytes on electron microscopy?

- A. Membranous glomerulonephritis
- B. IgA nephropathy
- C. Focal segmental glomerulosclerosis
- D. Mesangiocapillary glomerulonephritis
- E. Minimal change glomerulonephritis

Answer: E

• A 45-year-old female with nephrotic syndrome develops renal vein thrombosis. What changes in patients with nephrotic syndrome predispose to the development of venous thromboembolism?

- A. Reduced excretion of protein S
- B. Loss of antithrombin III
- C. Reduced excretion of protein C
- D. Loss of fibrinogen
- E. Reduced metabolism of vitamin K

Answer: B

• A 60-year-old man presents with nephrotic syndrome thought to be secondary to amyloidosis. A renal biopsy is taken. Which one of the following stains should be applied to the tissue?

- A. Rose Bengal
- B. Pearl's stain
- C. Congo red
- D. Periodic acid Schiff
- E. Cresyl blue

Answer: c

• one of the following is a recognised complication of nephrotic syndrome, except:

- A. Hyperlipidaemia
- B. Acute renal failure
- C. Increased risk of infection
- D. Hypercalcaemia
- E. Increased risk of thromboembolism

Answer: D

Which one of the following is the most common cause of nephrotic syndrome in children?

- A. Minimal change disease
- B. IgA nephropathy
- C. Focal segmental glomerulosclerosis
- D. Chronic pyelonephritis
- E. Infantile microcystic disease

Answer: A

all are mechanisms of increase risk of infections in minimal lesion nephrotic syndrome, except:

- a. Loss of immunoglobulin
- b. Loss of Properdin factor B
- c. Decreased perfusion of the spleen
- d. Loss of opsonization factors
- e. Leukopenia

Answer: D

# GLOMERULONEPHRITI (NEPHROTIC & NEPHRITIC)

Q) In Goodpasture syndrome; anti-glomerular basement membrane (anti-GBM) antibodies are directed against which type of collagen? A. Type I collagen B. Type II collagen C. Type III collagen D. Type IV collagen E. Type VI collagen

Answer: D

Q) which one of the following is least associated with minimal change glomerulonephritis?

- A. Hodgkin's lymphoma
- B. Goodpasture's syndrome
- C. Thymoma
- D. Non-steroidal anti-inflammatory drugs
- E. Gold therapy

Answer: B

Goodpasture's syndrome is associated with rapidly progressive glomerulonephritis

Q) A 42-year-old female comes with 2 weeks history of epistaxis and hemoptysis. Urine analysis showed +2 proteinuria and RBC casts. Her PR3 ANCA is highly positive. The most likely diagnosis is:

Select one:

- a. Granulomatosis and polyangiitis.
- b. Polyarteritis nodosa.
- c. Henock-Schonlein purpura.
- d. Good-pasteur syndrome
- e. SLE

Answer: A

PR3 ANCA is highly specific for GPA

Q) A 25-year-old woman, known to have systemic lupus erythematosus presents with edema of lower limbs. Laboratory studies showed proteinuria of 1.2 gm/24 hour. On examination she had BP 130/85 with mild pitting edema of lower limbs. Creatinine 0.9 mg/dL. Renal biopsy was arranged and showed: mesangial proliferative glomerulonephritis. The best treatment option for this patient is:

Select one:

- a. Increase dose of Hydroxychloroquine
- b. Intravenous diuretics alone.
- c. Prednisolone 1mg/kg/day.
- d. Mycophenolate mofetil.
- e. Plasmapheresis.

Answer: c

Patient suggested to have MPGN which treated by corticosteroids as prednisolone

Q) Most common type of lupus nephritis is:

- A. Mesangial glomerulonephritis
- B. Focal proliferative glomerulonephritis
- C. Diffuse GN
- D. Membranous GN

Other Types of Lupus Nephritis (ISN/RPS Classification):

Class	Name	Notes
I	Minimal mesangial GN	Normal light microscopy, mesangial deposits on IF/EM
II	Mesangial proliferative GN	Mild disease, mild proteinuria/hematuria
III	Focal proliferative GN	<50% glomeruli, variable severity
IV	Diffuse proliferative GN	Most common and most severe
V	Membranous GN	Nephrotic syndrome, thick capillary walls
VI	Advanced sclerosing	>90% globally sclerosed glomeruli; ESRD

Answer: C

Q) All the following are recognized complications of Hepatitis C infection Except. a- diffuse proliferative glomerulonephritis.

- b- hepatocellular carcinoma
- c- liver cirrhosis
- d- chronic hepatitis C infection
- e- cryoglobulinemia

Answer: a

# GLOMERULONEPHRITI (NEPHROTIC & NEPHRITIC)

Q) Which one of the following types of glomerulonephritis is most characteristically associated with streptococcal infection in children?

- A. Focal segmental glomerulosclerosis
- B. Diffuse proliferative glomerulonephritis
- C. Membranous glomerulonephritis
- D. Mesangiocapillary glomerulonephritis
- E. Rapidly progressive glomerulonephritis

**Answer: B**

Q) A 45-year-old male patient presents with painless gross hematuria. He reports an URTI 2 weeks earlier. He reports a similar episode 2 years ago. BP is 130/75. Urine analysis shows RBC casts with +2 proteinuria. Creatinine is normal. IgA level is elevated. The most likely diagnosis is:

Select one:

- a. Interstitial.epi..itis.
- b. post-strep ococcal glomerulonephritis.
- c. Urinary bladder malignancy.
- d. Uretric stones.
- e. IgA nephropathy.

**Answer: e**

Q) Normal serum complement levels would be seen in patients with hematuria, abdominal pain, and hypertension resulting from which of the following ?

- a. Mixed essential cryoglobulinemia
- b. Hepatitis c associated membranoproliferative glomerulonephritis
- c. Diffuse proliferative lupus nephritis
- d. Henoch schonlein purpura
- e. Post streptococcal glomerulonephritis

**Answer: d**

Q) 10- year-old boy is taken to see the GP by his mother. For the past two days he has had a sore throat associated with blood in his urine. There is no significant past medical history. The GP suspects glomerulonephritis and refers the patient to hospital. What would a renal biopsy most likely show?

- A. Proliferation of endothelial cells
- B. No change
- C. Mesangial hypercellularity
- D. Basement membrane thickening
- E. Capillary wall necrosis

**Answer: C**

**This boy is likely to have IgA nephropathy. Histological features include mesangial hypercellularity and positive immunofluorescence for IgA & C3**

Q) ONE of the following is LEAST common cause of Microscopical hematuria:

- a-Minimal change disease
- b-Membranous glomerulonephritis
- c-Proliferative glomerulonephritis
- d-Membranoproliferative glomerulonephritis
- e-Lupus nephritis

**Answer: A**

Q) one of the following types of glomerulonephritis is most characteristically associated with Wegener's granulomatosis?

- A. Mesangiocapillary glomerulonephritis
- B. Membranous glomerulonephritis
- C. Rapidly progressive glomerulonephritis
- D. Focal segmental glomerulosclerosis
- E. Diffuse proliferative glomerulonephritis

**Answer: C**

**Wegener granulomatosis - renamed as granulomatosis with polyangiitis is a small-medium vessel necrotizing vasculitis.**

# GLOMERULONEPHRITI (NEPHROTIC & NEPHRITIC)

Q) Which one of the following is the most common type of SLE associated renal disease? A. Class II: mesangial glomerulonephritis B. Class III: focal (and segmental) proliferative glomerulonephritis C. Class IV: diffuse proliferative glomerulonephritis D. Class V: diffuse membranous glomerulonephritis E. Class VI: sclerosing glomerulonephritis

Answer: C

See page 5

Q) 14-year-old boy develops haematuria following an upper respiratory tract infection. What is the likely diagnosis?

- A. IgA nephropathy
- B. Focal segmental glomerulosclerosis
- C. Diffuse proliferative glomerulonephritis
- D. Rapidly progressive glomerulonephritis
- E. Mesangiocapillary glomerulonephritis

Answer: a

Q) which one of the following statements regarding minimal change glomerulonephritis is incorrect?

- A. Has a good prognosis
- B. The majority of cases are steroid responsive
- C. Is a common cause of nephrotic syndrome
- D. Hypertension is found in approximately 50% of patients
- E. Haematuria is rare

Answer: D

Hypertension and haematuria are rare in minimal change glomerulonephritis

Q) 15-year-old girl presents with complaints of discoloration of urine with reduced urine output for the previous 2-3 days, 1 week earlier she had a sore throat, examination reveals that her BP is 150/95, on urinalysis which of the following strongly supports the diagnosis of Glomerulonephritis

Select one:

- a. RBC more than 5/HPF
- b. Leucocytes more than 10/HPF
- c. Presence of Dysmorphic RBCs
- d. Proteinuria + on dipstick
- e. Presence of Muddy brown casts

Answer: a

Patient scenario suggest that she has post infectious nephropathy.

A 40 year old woman who has never had significant respiratory disease is hospitalized for hemoptysis. urinary reveals proteinuria and microscopic hematuria, serological findings include normal complement level and negative assay for fluorescent antinuclear antibodies, renal biopsy reveals granulomatous necrotizing vasculitis with scattered immunoglobulin and complement deposits, the most likely diagnosis in this case is ?

- a. Mesangial lupus glomerulonephritis
- b. Henoch schonlein purpura
- c. Microscopic polyarteritis
- d. Wegener granulomatosis
- e. Goodpasture syndrome

Answer: d

signs and symptoms of glomerulonephritis after upper respiratory tract infection, on histopathology of biopsy what is the finding :

IgA nephritis

# GLOMERULONEPHRITI (NEPHROTIC & NEPHRITIC)

• Causes of nephrotic syndrome include all the following Except.

- a) SLE
- b) DM
- c) Amyloidosis
- d) Membranous glomerulonephritis
- e) Autosomal-dominant polycystic kidney disease

Answer : e

• All of the following are complications of nephrotic syndrome, except:

- a. Hypercholesterolemia
- b. Renal vein thrombosis
- c. Recurrent infection
- d. Polycythemia
- e. ARF

Answer : d

• All the following are true about nephrotic syndrome Except:

- a- dietary sodium restriction is initial treatment.
- b- high protein diet (120-150 gram) daily is recommended
- c- prolong bed rest should be avoided as thromboembolism is common.
- d- Sepsis is the major cause of death
- e- hyperlipidemia is responsible for increase risk of ischemic heart disease

Answer : b

• patient with Multiple Myeloma & nephrotic ; membranoproliferative

• Wrong about nephritic syndrome;

- a. More than 2.5 gm is called nephritic range proteinuria
- b. Range from 0.5-1.5 gm is more likely to be glomerular than tubular
- c. Range >2.5 gm is most likely to be glomerular

Answer : A

• Wrong about nephrotic: Answer: Cause of hyperlipidemia due to decrease loss of LDL and VLDL. Actually,

in nephrotic syndrome, hyperlipidemia is often caused by increased hepatic synthesis of lipoproteins due to loss of plasma proteins, particularly albumin, rather than a decrease in loss of LDL and VLDL.

• which of these is not a primary cause of nephrotic syndrome ? Amyloidosis

The primary causes are usually conditions affecting the kidneys directly, such as minimal change disease, focal segmental glomerulosclerosis, membranous nephropathy, and membranoproliferative glomerulonephritis

• On of the following is true regarding to nephrotic syndrome (decrease HDL". increase LDL ..increase lipoprotein .....glomerular basement membrane injury )

• Typical feature of the nephrotic syndrome include one of the following:

- a) Bilateral renal angle pain
- b) Generalized edema and periorbital edema
- c) Hypoalbuminemia and proteinuria > 2g/day
- d) Hypertension and polyuria
- e) Elevated serum creatinine

Answer : b

• A 65-year-old male with back pain, nephrotic syndrome and anemia present to the ER. Ultrasound shows normal kidney size. His creatinine is 5.0. Which diagnosis best fits the scenario?

- a. Polycystic kidney disease
- b. Chronic GN
- c. Multiple myeloma
- d. Diabetic nephropathy
- e. Analgesic abuse

Answer : c

# GLOMERULONEPHRITI (NEPHROTIC & NEPHRITIC)

• Which of the following is true with respect to proteinuria?

- a. All proteinuria is secondary to glomerular disease with 2 g/24 h mean nephrotic syndrome
- b. Is always abnormal and indicative of serious renal disease
- c. It may be normal for an individual to have  $\leq 150$  mg per day of proteinuria
- d. If a patient has 1.5 g of protein in 24 h they must have tubular-interstitial disease
- e. Can be caused by prolonged fasting

Answer : c

• A 40 year old female known to have Membranous GN came to OPD with 24 hour protein 4 gm/24 hours , Cr 1.0 mg/dl , Urea 40 mg/dl . Her Bp 160/100 , she was started on Enalapril 20 mg 1x1 . The desirable Bp reading in such a lady should be :

- a) 140/90
- b) 130/85
- c) 120/75
- d) 130/80
- e) 135/85

Answer : d

• Which one of the following causes of glomerulonephritis is associated with low complement levels?

- A. IgA nephropathy
- B. Membranous glomerulonephritis
- C. Minimal change disease
- D. Post-streptococcal glomerulonephritis
- E. Focal segmental glomerulosclerosis

Answer : d

• Which one of the following is least recognised as a cause of membranous glomerulonephritis?

- A. Streptococcal infection
- B. Penicillamine
- C. Hepatitis B
- D. SLE
- E. Lymphoma

Answer : A

• 45- year-old woman with nephrotic syndrome is noted to have marked loss of subcutaneous tissue from the face. What is the most likely underlying cause of her renal disease?

- A. Mesangiocapillary glomerulonephritis type II
- B. Focal segmental glomerulosclerosis
- C. Minimal change glomerulonephritis
- D. Renal vein thrombosis
- E. Membranous glomerulonephritis

Membranoproliferative glomerulonephritis (mesangiocapillary) \* type 1: cryoglobulinaemia, hepatitis C \* type 2: partial lipodystrophy This patient has partial lipodystrophy which is associated with membranoproliferative glomerulonephritis type II

Answer : A

• A 6- year-old boy presents is diagnosed as having nephrotic syndrome. A presumptive diagnosis of minimal change glomerulonephritis is made. What is the most appropriate treatment?

- A. Cyclophosphamide
- B. Supportive treatment as an inpatient
- C. Plasma exchange
- D. Renal biopsy followed by prednisolone
- E. Prednisolone

Answer : e

# GLOMERULONEPHRITI (NEPHROTIC & NEPHRITIC)

• 54-year-old woman with a history membranous glomerulonephritis secondary to systemic lupus erythematosus is admitted to hospital. Her previous stable renal function has deteriorated rapidly. The following blood tests were obtained:

Na <sup>+</sup>	139 mmol/l
K <sup>+</sup>	5.8 mmol/l
Urea	44 mmol/l
Creatinine	867 μmol/l
Albumin	17 g/l
Urinary protein	14 g/24 hours
Urine dipstick	protein +++ blood ++

What has likely caused the sudden deterioration in renal function?

- A. Exacerbation of SLE
- B. Renal vein thrombosis**
- C. Bilateral hydronephrosis
- D. Acute interstitial nephritis
- E. Analgesic nephropathy

Nephrotic syndrome predisposes to thrombotic episodes, possibly due to loss of antithrombin III. These commonly occur in the renal veins and may be bilateral. Common symptoms include loin pain and haematuria

•• A 10-year-old boy is taken to see the GP by his mother. For the past two days he has had a sore throat associated with blood in his urine. There is no significant past medical history. The GP suspects glomerulonephritis and refers the patient to hospital. What would a renal biopsy most likely show?

- A. Proliferation of endothelial cells
- B. No change
- C. Mesangial hypercellularity**
- D. Basement membrane thickening
- E. Capillary wall necrosis

Answer : c

This boy is likely to have IgA nephropathy. Histological features include mesangial hypercellularity and positive immunofluorescence for IgA & C3

• Each of the glomerular lesions listed below can cause Nephrotic syndrome. Which of them may be found in all the following conditions: non-Hodgkins lymphoma, hepatitis B, hepatitis C, and infective endocarditis?

- a) Focal and segmental glomerulosclerosis
- b) Minimal change disease
- c) Membranous nephropathy**
- d) Type I membranoproliferative glomerulonephritis (with subendothelial deposits)
- e) Type II membranoproliferative glomerulonephritis (dense deposit disease)

Answer : D

# GLOMERULONEPHRITI (NEPHROTIC & NEPHRITIC)

- Patient was diagnosed with rapidly progressive glomerulosclerosis (RPGS), best initial management:  
A. Prednisolone

**TREATMENT** — Untreated RPGN typically progresses to end-stage renal disease over a period of weeks to a few months. However, patients with fewer crescents may have a more protracted, not so rapidly progressive course [3].

Many of the older studies examining treatment in RPGN with pulse corticosteroids, cyclophosphamide, and plasmapheresis are difficult to interpret because they were performed at a time before it was possible to distinguish among the different types of RPGN. Nevertheless, these studies demonstrated that conventional doses of oral prednisone, given alone or in combination with azathioprine, usually had little beneficial effect [1].

As a result, the therapy of most patients with RPGN involves pulse methylprednisolone followed by daily oral prednisone, oral or intravenous cyclophosphamide, and, in some settings, plasmapheresis. Early diagnosis with renal biopsy and serologic testing and early initiation of appropriate therapy is essential to minimize the degree of irreversible renal injury.

Empiric therapy may be begun with the above modalities in patients with severe disease, particularly if either renal biopsy or interpretation of the biopsy will be delayed. Empiric initial therapy consists of intravenous pulse methylprednisolone (500 to 1000 mg/day for three days) and consideration of plasmapheresis, especially if the patient has hemoptysis. This regimen will not alter the histologic abnormalities observed with a renal biopsy that is performed soon after initiating empiric therapy.

- Normal serum complement levels would be seen in patients with hematuria, abdominal pain, and hypertension resulting from which of the following ?

- a. Mixed essential cryoglobulinemia
- b. Hepatitis
- c. associated membranoproliferative glomerulonephritis
- c. Diffuse proliferative lupus nephritis
- d. Henoch schonlein purpura
- e. Post streptococcal glomerulonephritis

Answer : d

- Causes glomerulosclerosis :DM nephropathy

- One of the following doesn't cause secondary nephropathy ?

- A. HSP
- B. DM
- C. congenital glomerulonephritis
- D. NSAIDs
- E. cryoglobulinemia

Answer :c

which one of the following types of glomerulonephritis is most characteristically associated with partial lipodystrophy?

- A. Minimal change disease
- B. Diffuse proliferative glomerulonephritis
- C. Mesangiocapillary glomerulonephritis
- D. Membranous glomerulonephritis
- E. Rapidly progressive glomerulonephritis

Answer : D Mesangiocapillary glomerulonephritis (membranoproliferative) • type 1: cryoglobulinaemia, hepatitis C • type 2: partial lipodystrophy

- Which one of the following types of glomerulonephritis is most characteristically associated with cryoglobulinaemia?

- A. Rapidly progressive glomerulonephritis
- B. Mesangiocapillary glomerulonephritis
- C. Focal segmental glomerulosclerosis
- D. IgA nephropathy
- E. Diffuse proliferative glomerulonephritis

Answer. : B

# ACUTE KIDNEY INJURY

25. 72F with anterior STEMI, treated with tenecteplase, develop hypotension and persistent pain. Next step?

- a. Continue therapy
- b. Glycoprotein IIb/IIIa inhibitor
- c. Repeat tenecteplase
- d. Transfer for emergency PCI
- e. Urgent CABG

Answer: d

wrong about AKI:

- A. Associated with oliguria
- B. Uncompensated cases has poor prognosis and high mortality ?
- C. May lead to life threatening electrolyte disturbance

Answer: b

Pt with ventricular tachycardia and after few days serum creatinine increased what type of kidney injury :

- a. pre-renal
- b. renal
- c. post renal

Answer: a

All of the following are true about pre-renal acute renal failure, except:

- a.  $FeNa < 1\%$
- b. BUN/CR ratio is elevated
- c. Mostly irreversible
- d. Most common cause of ARF
- e. Urine output improves with IV fluid coverage

Answer: C

Pre-renal AKI is usually reversible when the underlying cause is addressed and treated.

Which of the following factors would suggest that a patient has established acute tubular necrosis rather than prerenal uraemia?

- A. Urine sodium = 10 mmol/L
- B. Fractional urea excretion = 20%
- C. Increase in urine output following fluid challenge
- D. Specific gravity = 1025
- E. Fractional sodium excretion = 1.5%

Answer: E

To differentiate between pre-renal and ATN, see this table here:

Which of the following factors would suggest that a patient has pre-renal uraemia rather than established acute tubular necrosis?

- A. Urine sodium = 70 mmol/L
- B. Fractional urea excretion = 20%
- C. No response to fluid challenge
- D. Urine:plasma urea ratio 5:1
- E. Specific gravity = 1005

Answer: B

	Pre-renal uraemia	Acute tubular necrosis
Urine sodium	< 20 mmol/L	> 30 mmol/L
Fractional sodium excretion*	< 1%	> 1%
Fractional urea excretion**	< 35%	> 35%
Urine:plasma osmolality	> 1.5	< 1.1
Urine:plasma urea	> 10:1	< 8:1
Specific gravity	> 1020	< 1010
Urine	'bland' sediment	brown granular casts
Response to fluid challenge	Yes	No

Answer: D

Drug cause prerenal uremia:

- A. ACE inhibitors
- B. Beta blocker
- C. Calcium channel blocker
- D. Potassium sparing diuretics

most common cause of acute tubular necrosis is:

- a. Aminoglycoside antibiotics
- b. Rhabdomyolysis
- c. Renal artery stenosis
- d. Ischemia
- e. Renal artery thrombosis

Answer: D

# ACUTE KIDNEY INJURY

ONE of the following is the most frequent cause of death in acute renal failure.

- A) Uremia
- B) Pulmonary edema
- C) Hyperkalemia
- D) Infection
- E) Hyponatremia

**Answer: D**

A 72-year-old male develops acute renal failure after cardiac catheterization. Physical examination is notable for diminished peripheral pulses, livedo reticularis, epigastric tenderness, and confusion. Laboratory studies include (mg/dL) BUN 131, creatinine 5.2, and phosphate 9.5. Urinalysis shows 10 to 15 white blood cells (WBC), 5 to 10 red blood cells (RBC), and one hyaline cast per high-power field (HPF). The most likely diagnosis is

Select one:

- a. acute interstitial nephritis caused by drugs
- b. rhabdomyolysis with acute tubular necrosis
- c. acute tubular necrosis secondary to radiocontrast exposure
- d. cholesterol embolization
- e. renal arterial dissection with prerenal azotemia

**Answer: D:**

54-year-old woman with a history of membranous glomerulonephritis secondary to systemic lupus erythematosus is admitted to hospital. Her previous stable renal function has deteriorated rapidly. The following blood tests were obtained:

What has likely caused the sudden deterioration in renal function?

- A. Exacerbation of SLE
- B. Renal vein thrombosis
- C. Bilateral hydronephrosis
- D. Acute interstitial nephritis
- E. Analgesic nephropathy

**Answer: B**

Na <sup>+</sup>	139 mmol/l
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Urea	44 mmol/l
Creatinine	867 μmol/l
Albumin	17 g/l
Urinary protein	14 g/24 hours
Urine dipstick	protein +++ blood ++

A 28-year-old woman with HIV on antiretroviral therapy complains of abdominal pain in the emergency department. Laboratory data show a creatinine of 3.2 mg/dL; her baseline creatinine is 1.0 mg/dL. Urinalysis shows large numbers of white blood cells and red blood cells without epithelial cells, leukocyte esterase, or nitrites. Which test is indicated to diagnose the cause of her acute renal failure? Select one: a. Acid-fast stain of the urine b. Anti-GBM (glomerular base membrane) antibodies c. Renal angiogram d. Renal ultrasound e. Urine electrolyt

**Answer: d**

because there are no nitrates or leukocyte esterases, there are no infection. and because it is an emergency case you should consider availability of test and because of pain you should consider obstruction and stones. So US is the best, most available and detect obstructions & stones.

35 year old female is evaluated because of an elevated Bp 160/105 for the past 2-3 months . Her mother has hypertension and kidney disease , and a maternal aunt is now on hemodialysis

Labs : Cr 0.8 mg/dl , Na 140 meq/ L , K 5.0 meq /L , Cl 102 meq / L , HCO<sub>3</sub> 25 MEQ / l , Urine Analysis is negative .Which of the following is most likely to provide information regarding cause of her hypertension ?

- a. Captopril Renal Scan
- b. 24 hour urine for Vanillyl Mandelic Acid
- c. Renal U/S
- d. Plasma Renin activity & aldosterone level Plasma PTH

**Answer: C**

mostly it related to polycystic kidney

# ACUTE KIDNEY INJURY

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Select one:

- a. acute interstitial nephritis caused by drugs
- b. rhabdomyolysis with acute tubular necrosis
- c. acute tubular necrosis secondary to radiocontrast exposure
- d. cholesterol embolization
- e. renal arterial dissection with prerenal azotemia

**Answer: D:**

54-year-old woman with a history of membranous glomerulonephritis secondary to systemic lupus erythematosus is admitted to hospital. Her previous stable renal function has deteriorated rapidly. The following blood tests were obtained:

What has likely caused the sudden deterioration in renal function?

- A. Exacerbation of SLE
- B. Renal vein thrombosis
- C. Bilateral hydronephrosis
- D. Acute interstitial nephritis
- E. Analgesic nephropathy

**Answer: B**

Na <sup>+</sup>	139 mmol/l
K <sup>+</sup>	5.8 mmol/l
Urea	44 mmol/l
Creatinine	867 μmol/l
Albumin	17 g/l
Urinary protein	14 g/24 hours
Urine dipstick	protein +++ blood ++

A 28-year-old woman with HIV on antiretroviral therapy complains of abdominal pain in the emergency department. Laboratory data show a creatinine of 3.2 mg/dL; her baseline creatinine is 1.0 mg/dL. Urinalysis shows large numbers of white blood cells and red blood cells without epithelial cells, leukocyte esterase, or nitrites. Which test is indicated to diagnose the cause of her acute renal failure? Select one: a. Acid-fast stain of the urine b. Anti-GBM (glomerular base membrane) antibodies c. Renal angiogram d. Renal ultrasound e. Urine electrolyt

**Answer: d**

because there are no nitrates or leukocyte esterases, there are no infection. and because it is an emergency case you should consider availability of test and because of pain you should consider obstruction and stones. So US is the best, most available and detect obstructions & stones.

35 year old female is evaluated because of an elevated Bp 160/105 for the past 2-3 months . Her mother has hypertension and kidney disease , and a maternal aunt is now on hemodialysis

Labs : Cr 0.8 mg/dl , Na 140 meq/ L , K 5.0 meq /L , Cl 102 meq / L , HCO<sub>3</sub> 25 MEQ / L , Urine Analysis is negative .Which of the following is most likely to provide information regarding cause of her hypertension ?

- a. Captopril Renal Scan
- b. 24 hour urine for Vanillyl Mandelic Acid
- c. Renal U/S
- d. Plasma Renin activity & aldosterone level Plasma PTH

**Answer: C**

mostly it related to polycystic kidney

# CHRONIC KIDNEY DISEASE. & DIALYSIS

1) Glomerular filtration rate at third stage renal failure:

eGFR at CKD 3b : 30-44\*\*\*\*

2) One of the following is considered a stage 4 chronic kidney disease in a patient who has a serum creatinine of 3.2 mg/dL. Select one: a. GFR 15 b. GFR 25 c. GFR 40 d. GFR 60 e. GFR 90

Answer : b

3) In which of the following clinical situations would an increase in serum Cr concentration be explained only by reduction in GFR ?

- a) Use of Trimethoprim in a patient with a urinary tract infection
- b) Increased levels of ketoacids in a patient with DKA
- c) Severe extracellular volume contraction in a patient with diarrhea .
- d) Use of Cimetidine in a patient with a peptic ulcer
- e) Carnitine ingestion for body building

Answer : c

Severe extracellular volume contraction in a patient with diarrhea: This could lead to a reduction in GFR due to decreased renal perfusion, causing an increase in serum creatinine levels.

3) All the following are functions of kidney Except :

- (a). Excretion of waste products.
- (b). production of erythropoietin.
- (c). Metabolism of vitamin D
- (d). destruction of rennin.
- (e). production of prostaglandins.

Answer : d

4) What is the most significant factor leading to the development of anaemia in patients with chronic kidney disease?

- A. Reduced absorption of iron
- B. Increased erythropoietin resistance
- C. Reduced erythropoietin levels
- D. Reduced erythropoiesis due to toxic effects of uraemia on bone marrow
- E. Blood loss due to capillary fragility and poor platelet function

Answer : c

5) All the following are true about renal osteodystrophy Except :

- a. reduced conversion of 25 (OH)<sub>2</sub> D<sub>3</sub> to 1-25-(OH)<sub>2</sub> D<sub>3</sub>
- b. increased parathyroid hormone
- c. increased intestinal calcium absorption
- d. decreased osteoclastic activity
- e. increased reabsorption of calcium from bone.

Answer : c

6) Each one of the following is seen in renal osteodystrophy, except:

- a. Osteitis fibrosa cystica
- b. Primary hyperparathyroidism
- c. High phosphate
- d. Low calcium
- e. Low vitamin D

Answer : b

secondary hyperparathyroidism: due to low calcium, high phosphate and low vitamin D

7) A 59-year-old man is evaluated during a follow-up visit for a 6-year history of end-stage kidney disease and a 20-year history of hypertension. He had a kidney transplant 3 months ago with an unremarkable postoperative course. Current medications are tacrolimus, mycophenolate mofetil, nifedipine, losartan, valganciclovir, and prednisone, 5 mg/d. On physical examination, temperature is 37.0 °C (98.6 °F), blood pressure is 165/95 mm Hg, pulse rate is 86/min, and respiration rate is 14/min. BMI is 28. There are no oral lesions. There is no jugular venous distention. Heart sounds are normal. The lungs are clear. The abdomen is nontender with no bruits. There is a well-healed scar in the right lower abdomen over the kidney allograft. There is 1+ peripheral edema. Laboratory studies are notable for a serum creatinine level of 1.0 mg/dL (88.4 pmol/L). Monitoring for which of the following complications is indicated in this patient? Select one:

- a. Hyperphosphatemia.

- b.Hyperthyroidism
- c.Hypoparathyroidism
- d.New-onset diabetes mellitus and dyslipidemia
- e.Hyperparathyroidism

**Answer :d**

8)True regarding management of chronic renal failure :

**we use calcitriol for treatment of hypocalcemia**

9)Correct about calcium hemostasis :

- a. Vitamin D deficiency causes Hypocalcemia + Hypophosphatemia
- b.Vitamin D deficiency causes Hypocalcemia + Hyperphosphatemia
- c.Hyperparathyroidism causes metabolic acidosis
- d.In primary hyperparathyroidism in primary PTH decreases 24 hour urine calcium
- e.None of the above.

**Answer :b**

**Vitamin D deficiency does cause hypocalcemia (low calcium levels) due to decreased calcium absorption from the gut, and it typically leads to hyperphosphatemia (high phosphate levels) because of increased PTH secretion, which increases phosphate**

10)Hypocalcemia with increased serum phosphate is found in ONE of the following :

- a.hypoparathyroidism
- b.osteomalacia
- c.acute pancreatitis
- d.chronic renal failure
- e.malabsorption.

**Answer :d**

11)All the following are found in chronic renal failure Except.

- a.hyperkalemia
- b.hyperurecemia
- c.hypophosphatemia
- d.hypocalcemia
- e.Low serum erythropoietin.

**Answer :c**

12)Which one of the following would have been most likely to prevent the deterioration in renal function?

- a.Low dose dopamine
- b.Urinary acidification
- c.Intravenous fluids
- d.Frusemide
- e.Mannitol

**Answer :c**

**Collapse + ARF -> rhabdomyolysis - treat with IV fluids**

**Intravenous fluids are the most important management step in the prevent of rhabdomyolysis in such patients.**

13)What is the best way to differentiate between acute and chronic renal failure

- a.24 hr creatinine.
- b.Urinary albumin.
- c.Serum creatinine.
- d.Renal ultrasound.
- e.Serum urea.

**Answer :d**

**Small kidneys is (usually) a sign of chronic renal failure**

**Acute vs. chronic renal failure**

**Best way to differentiate is renal ultrasound - most patients with CRF have bilateral small kidneys**

**Exceptions**

- autosomal dominant polycystic kidney disease
- diabetic nephropathy
- amyloidosis

**Other features suggesting CRF rather than ARF**

- hypocalcaemia (due to lack of vitamin D)

14)The following statements about potassium balance is true except?

- a.85% of the daily potassium intake is excreted in urine
- b.Intracellular potassium ion concentrations are about 150 mmol/l
- c.Cellular uptake of potassium is enhanced by adrenaline and insulin
- d.Alkalosis predispose to hyperkalemia

**Answer :d**

e.The normal dietary potassium is about 100 mmol/day.

Answer :d

15)Which of the following would be most effective in reducing his urinary Calcium excretion ?

- a.Dietary Ca restriction
- b.Cranberry juice
- c.Hydrochlorothiazide
- d.Furosemide
- e.High fluid intake

Answer :c

16)Treatment of hyperkalemia except

- a.Nahco<sub>3</sub>
- b.B agonist
- c.Aldactone Diuretics V
- d.Insulin Incorrect

Answer :c

17)What is the leading cause of death in patients with chronic kidney disease?

- a.Cardiovascular disease
- b.Hyperkalemia
- c.Infection
- d.Malignancy
- e.Uremia.

Answer : a

18)Which one of the following drugs may be safely continued at the same dose in renal failure?

- a.Tetracycline
- b.Diclofenac
- c.Warfarin
- d.Nitrofurantoin
- e.Lithium.

Answer : c

#### Drugs in renal failure

Questions regarding which drugs to avoid in renal failure are common in the MRCP Drugs to avoid in renal failure

- antibiotics: tetracycline, nitrofurantoin
- NSAIDS

Drugs likely to accumulate in renal failure - need dose adjustment

- most antibiotics including penicillins, cephalosporins, vancomycin, streptomycin
- digoxin, atenolol
- methotrexate
- sulphonylureas
- frusemide

Drugs relatively safe - use in normal dose

- antibiotics: erythromycin, rifampicin
- diazepam
- warfarin

19)According to chronic renal failure classification, creatinine clearance rate at 3A is?

45-60

20)Pt on dialysis o sar 3ndu nausea o blurred vision..

Et Disequilibrium syndrome.

20)ONE of the following is the most frequent cause of death in acute renal failure.

- a.Uremia
- b.Pulmonary edema
- c.Hyperkalemia
- d.Infection.
- e.Hyponatremia.

Answer : d

21)Patient with type 1 diabetes mellitus is reviewed in the nephrology outpatient clinic. He is known to have stage 2 diabetic nephropathy. Which of the following best describes his degree of renal involvement?

- a.Microalbuminuria
- b.End-stage renal failure
- c.Latent phase
- d.Hyperfiltration
- e.Overt nephropathy

Answer : c

22) 45-year-old male with a diagnosis of ESRD secondary to diabetes mellitus is being treated with peritoneal dialysis. This is being carried out as a continuous ambulatory peritoneal dialysis (CAPD). He undergoes four 2-L exchanges per day and has been doing so for approximately 4 years. Complications of peritoneal dialysis include which of the following? Select

- a. Hypotension after drainage of dialysate
- b. Hypoalbuminemia
- c. Hypercholesterolemia
- d. Hypoglycemia.
- e. Left pleural effusion

**Answer :**

23) 55 year old male has progressive CRF due to type II Diabetic Nephropathy & hypertension. His Cr clearance is 23 ml/min, his serum Cr is 3.1 mg/dl. He has just returned from an introductory educational session regarding dialysis & transplant options. He asks your opinion about the best options

Which of the following offers the best prognosis for this patient :

- a. NIPD
- b. Hemodialysis
- c. Renal transplant
- d. Combined renal & pancreas transplant
- e. CCPD

**Answer : c**

24) Absolute contraindication in chronic kidney disease?

**Metformin.**

25) Wrong about the use of US to diagnose kidney problems:

- a. Cheap, available quickly.
- b. Disadvantage is that it is highly operator dependent
- c. Use of Doppler velocimetry can significantly enhance the information that we can get from it like resistivity index.
- d. In CKD, the kidneys appear small with loss of corticomedullary differentiation .

**Answer : d**

In chronic kidney disease (CKD), kidneys may appear small and shrunken on ultrasound due to fibrosis and loss of nephrons.

However, not all cases of CKD present with small kidneys; some patients with diabetes or polycystic kidney disease may have normal-sized or enlarged kidneys. Also, loss of corticomedullary differentiation can occur in some advanced stages of CKD.

26) Which of the following is wrong?

**Anemia of chronic disease is macrocytic anemia.**

27) Complications of chronic renal failure include all of the following except?

- a. Normocytic or microcytic anemia
- b. Peripheral neuropathy
- c. Bone pain
- d. Uremic pericarditis
- e. Metabolic alkalosis and hypokalemia.

**Answer : e**

28) Known Patient of renal failure complaining of monoarthritis (swelling, pain, signs of inflammation) with no previous history, after aspiration microscopic picture reveals intracellular needle shape crystals, Treatment of choice:

**intra-articular corticosteroid (Voltaren is contraindicated in renal impairment).**

29) True regarding management of chronic renal failure :

**we use calcitriol for treatment of hypocalcemia.**

30) All of the following are causes of high turnover bone disease in chronic renal failure, except:

- a. Aluminum toxicity
- b. Decreased vitamin D hydroxylation
- c. Metabolic acidosis
- d. Hyperphosphatemia
- e. Increased parathyroid hormones

**Answer : a**

31) All to detect renal disease except:

- a. biopsy
- b. CT triphasic
- c. autoimmune serology
- d. HbA1c.

Answer : d

32) 72-year-old male develops acute renal failure after cardiac catheterization. Physical examination is notable for diminished peripheral pulses, livedo reticularis, epigastric tenderness, and confusion. Laboratory studies include (mg/dL) BUN 131, creatinine 5.2, and phosphate 9.5. Urinalysis shows 10 to 15 white blood cells (WBC), 5 to 10 red blood cells (RBC), and one hyaline cast per high-power field (HPF). The most likely diagnosis is

Select one:

- a. acute interstitial nephritis caused by drugs
- b. rhabdomyolysis with acute tubular necrosis
- c. acute tubular necrosis secondary to radiocontrast exposure
- d. cholesterol embolization
- e. renal arterial dissection with prerenal azotemia

Answer : d

34) Anti-TB drugs and side effect, correct answer is:

- a. streptomycin and renal failure
- b. Pyrazinamide and hepatitis
- c. Optic neuritis and
- d. Vestibular neuritis and ethambutol.

Answer : a

35) What is the leading cause of death in patients with chronic kidney disease?

- a. Cardiovascular disease
- b. Hyperkalemia
- c. Infection
- d. Malignancy
- e. Uremia

Answer : a

36) All the following are found in chronic renal failure, Except:

- a- hyperkalemia
- b- hyperurecemia
- c- hypophosphatemia
- d- hypocalcemia
- e- Low serum erythropoietin

Answer : c

37) What is the most significant factor leading to the development of anaemia in patients with chronic kidney disease?

- a. Reduced absorption of iron
- b. Increased erythropoietin resistance
- c. Reduced erythropoietin levels
- d. Reduced erythropoiesis due to toxic effects of uraemia on bone marrow
- e. Blood loss due to capillary fragility and poor platelet function

Answer : c

38) Which of the following are indications for dialysis in acute renal injury?

- a. Severe alkalosis unresponsive to medical therapy
- b. Severe acidosis unresponsive to medical therapy
- c. Severe hypokalemia unresponsive to medical therapy
- d. Severe hypercalcemia unresponsive to medical therapy
- e. Severe hypomagnesaemia unresponsive to treatment

Answer : c

39) What of the following not considered in the management of CKD patient?

- A) BP should be above 140/90 to ensure adequate blood flow to the kidneys
- B) Tight control of patient's blood glucose
- C) Give ACEi and SGLT-2 for the patients to delay the progression of disease.

Answer : a

40) All of the following are indications for dialysis EXCEPT?

- a. Hyperkalaemia
- b. Hypomagnesaemia
- c. Metabolic acidosis
- d. Fluid overload

Answer : b

41) One of the following is correct about CKD

5 stages according GFR

42) All of the following are indications for hemodialysis, except one :

- a. Oliguria with GER 60
- b. Metabolic acidosis
- c. Pulmonary edema
- d. Symptomatic uremia.

Answer : b

43) All of the following are indications to start hemodialysis, except:

- a. Pericarditis
- b. Encephalopathy
- c. Creatinine - 8 mg/dL
- d. Hypercalcemia
- e. Hyperkalemia

Answer : c

## MINI-OSCE

Which of the followings isn't an indication for hemodialysis?

- A. Pulmonary edema
- B. Encephalopathy
- C. Creatinine = 9mg/dl
- D. Metabolic acidosis
- E. hyperkalemia

Answer : c



# POLYCYSTIC KIDNEY DISEASE

1. Causes of nephrotic syndrome include all the following except:

- A. SLE
- B. DM
- C. Amyloidosis
- D. Membranous glomerulonephritis
- E. Autosomal-dominant polycystic kidney disease

Ans. E

2. What is the most common site for extra-renal cysts in a patient with ADPKD?

- A. Pancreas
- B. Brain
- C. Liver
- D. Spleen
- E. Thyroid

Ans. C

3. One of the following statements is true regarding autosomal recessive polycystic kidney disease:

- A. Onset is typically in the third decade
- B. Liver involvement is rare
- C. Is due to a defect on chromosome 16
- D. More common than autosomal dominant polycystic kidney disease
- E. May be diagnosed on prenatal ultrasound

Ans. E

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

- A. Chromosome 4
- B. Chromosome 8
- C. Chromosome 12
- D. Chromosome 16
- E. Chromosome 20

Ans. D

5. A 26-year-old man with loin pain and hematuria is found to have ADPKD. A defect in which one of the following genes is likely responsible?

- A. Fibrillin-2 gene
- B. Polycystin gene
- C. Fibrillin-1 gene
- D. Von Hippel-Lindau gene
- E. PKD1 gene

Ans. E

6. A 24-year-old man whose sister has polycystic kidney disease asks for screening. What is the most appropriate screening test?

- A. PKD1 gene testing
- B. CT abdomen
- C. Urine microscopy
- D. Ultrasound abdomen
- E. Anti-polycystin 1 antibodies levels

Ans. D

7. ADPKD type 2 is associated with a gene defect in:

- A. Chromosome 4
- B. Chromosome 8
- C. Chromosome 12
- D. Chromosome 16
- E. Chromosome 20

Ans. A

# POLYCYSTIC KIDNEY DISEASE

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Ans. E

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- D. Chromosome 16
- E. Chromosome 20

Ans. D

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- C. Fibrillin-1 gene
- D. Von Hippel-Lindau gene
- E. PKD1 gene

Ans. E

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- B. CT abdomen
- C. Urine microscopy
- D. Ultrasound abdomen
- E. Anti-polycystin 1 antibodies levels

Ans. D

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- B. Chromosome 8
- C. Chromosome 12
- D. Chromosome 16
- E. Chromosome 20

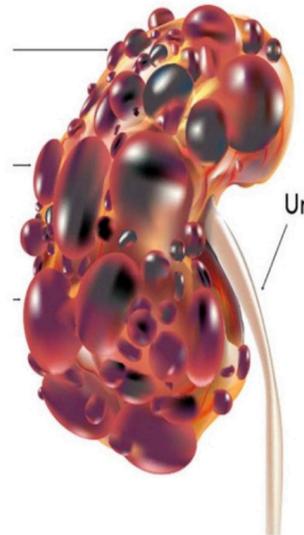
Ans. A

# POLYCYSTIC KIDNEY DISEASE

## Minie osce

Q5: which one of the following is NOT among the signs of this condition:

- Hematuria
- **Nephrotic syndrome**
- Loin pain
- Hypertension
- Renal failure



Q1

Q1: what's your Dx?  
**Polycystic kidney disease**

Q2: investigation :  
**Ultrasound**

Q3: pattern of inheritance :  
**Autosomal Dominant**



36 years old male , increase in creatine suddenly, apyrexia , then after he dies .. kidney autopsy shows this photo

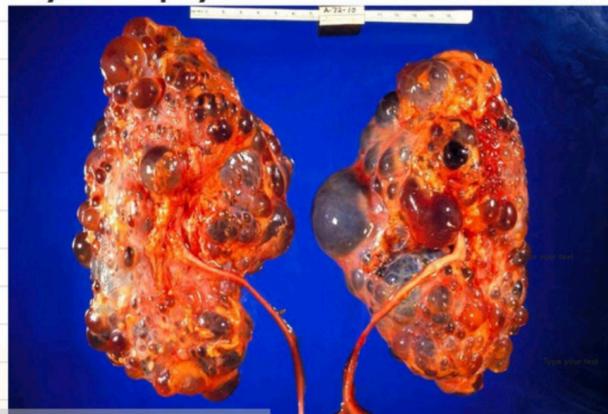
في تكملة مهمة بس صراحة ما لحقت اقرأ

1) what's the cause for his death?  
-PKD

2) the type of inheritance?  
-AD

3) 3 investigations you will need for other than in image ?

-US  
-KFT/urinalysis  
-cbc



Station 4: A patient presented to the ER with hematuria and ..... he died. This was found on autopsy.

1) What is your diagnosis?  
Polycystic kidney disease

2) What is the inheritance trait of this disease?  
Autosomal dominant

3) What is the investigation that should have been done on presentation?  
Renal ultrasound



# UTI

Her urine culture is positive at 24 hrs, the most likely organism , is:

- a. klebsiella
- b. E. coli
- c. staph. Aureus
- d. proteus
- e. enterococcus.

Answer : b

All the following are causes of sterile pyuria Except:

- a. Kidney stones
- b. Tubulointerstitial disease
- c. Papillary necrosis
- d. Tuberculosis
- e. Acute pyelonephritis

Answer : e

• Patient come with loin pain & fever and costovertebral angle tenderness what's your diagnosis :

- A. Pyelonephritis
- B. kidney stones
- C. Nephrotic syndrome
- D. Nephritic syndrome

Answer : a

In acute pyelonephritis, which of the following is most commonly associated with bacteremic spread from a distant focus?

- a. Escherichia coli
- b. Proteus sp.
- c. Staphylococcus aureus
- d. Serratia sp.
- e. Enterococcus sp.

Answer : c

• Pregnant with lower UTi : Ampicillin

• Dysuria, frequency , urine analysis shows WBCs , leukocyte esterase on stain (not culture) no organism was found , diagnosis : TB , Lower UTI

**Can TB cause urinary tract infection? Genitourinary tuberculosis (GUTB) usually involves the urinary tract or genital organs due to the hematogenous spread of chronic latent pulmonary tuberculosis. The diagnosis of GUTB is often delayed due to symptoms and signs often being masked by another disease, usually a urinary tract infection (UTI)**

• True regarding catheter induced UTI : Patient with more than 2 weeks on catheter without changing reveals bacteriuria

• Most uti bacteria- e. Coli

• 11 month-old girl presents to your office with fever (39.c) for the last 2 days. 3 hrs ago she started to to have vomiting and decrease oral intake, she looked tired and ill. Her exam reveals no focus and moderate to severe dehydration. you suspect UTI

ONE of the following is the most frequent cause of death in acute renal failure.

- a) Uremia
- b) Pulmonary edema
- c) Hyperkalemia
- d) Infection
- e) Hyponatremia

Answer : d

# UTI

## MINI OSCE

Urine analysis:  
protein -ve , Glucose +2  
RBC 8 cells/uL , leukocytes 25/uL

60 years old male complaining from abdominal pain and dysuria the most likely diagnosis is :

- A. UTI
- B. Bladder stone
- C. Bladder tumor
- D. Rapidly progressive GN
- E. Tubular necrosis

**Answer :A**

- Patient come with lower abdominal pain and burning sensation during the urination ,RBC and WBC and nitrate were positive
- 1) What is your diagnosis? UTI
- 2) if he presents with recurrent symptoms what you will order?(renal biopsy/ Bun cr ratio / urine osmolarity.....)
- 3) give 3 line of treatment (antibioty/iv fluid ...) + pain relief

الإجابة **D**

14-A19 year old female patient is presented to the emergency department with abdominal pain of 1 day duration along with nausea , vomiting and generalized Weakness . Her mother reports 3 days of dysuria and suprapubic pain treated At home by amoxicillin without improvement . The underlying cause of her presentation is most likely ?

- a. Extensive hyperosmolarity
- b. Constipation
- c. **Starvation**
- d. Urinary tract infection ?
- e. Missed insulin dose

Physical exam is remarkable for very rapid breathing.

Bp 100/60      pulse 120      SpO<sub>2</sub> 99%  
RR 28

pH 7.20      pCO<sub>2</sub> 22      HCO<sub>3</sub> 11      pO<sub>2</sub> 93

Na 135      < 4

Glucose 40 mmol/L

# ELECTROLYTICS

Treatment of hyperkalemia except

- A-  $\text{NaHCO}_3$
- B- B agonist
- C- Aldactone Diuretics
- D- Insulin Incorrect

Ans: c

all in management of hyperkalemia except:

- dialysis
- insulin

• 55 All of the following drugs can cause hyperkalemia EXCEPT:

- a. Spironolactone
- b. Amiloride
- c. Enalapril
- d. Salbutamol
- e. Valsartan

ans:d

The following statements about potassium balance is true except?

- a- 85% of the daily potassium intake is excreted in urine
- b- Intracellular potassium ion concentrations are about 150 mmol/L
- c- Cellular uptake of potassium is enhanced by adrenaline and insulin
- d- Alkalosis predispose to hyperkalemia
- e- The normal dietary potassium is about 100 mmol/day

ans:d

• Drugs that Cause hyperkalemia except :

- A. Salbutamol
- B. Insulin
- C. ACEI
- D. ARBs
- E. SPIRONOLACTONE

ans:a

• Hyperkalemia changes on ecg :

**PR prolongation and QRS widening which one**

• Wrong about ECG of hyperkalemia >>  
peaked p wave

• Not used for treatment of hyperkalemia :

**Magnesium sulphate**

• All cause hyperkalemia, except:

- A. ACEI
- B. Furosemide
- C. RTA type 4

ans:b

• All predispose to hepatic encephalopathy, except:

- A. Hyperkalemia
- B. Furosemide

• Wrong about ECG findings in hyperkalemia:

A. Peaked P wave

- ECG signs of hyperkalemia may include all of the following except : a) Peaked T wave
- b) QRS widening
- c) Delta wave
- d) Prolonged P-R interval
- e) Sine wave

Ans: c

# ELECTROLYTICS

26- Not used in correction of K+ for the following case: K level is 6.5 and normal ECG?

- A) Insulin with dextrose
- B) Sodium bicarb
- C) Albuterol
- D) Calcium gluconate
- E) Dialysis

ans:d

• 75-year-old female on the surgical wards due to hyperkalaemia. Results are as follows:

What is the most likely diagnosis?

- A. Acute tubular necrosis
- B. Hyperosmolar non-ketotic coma
- C. Hydronephrosis
- D. Prerenal uraemia
- E. Pyelonephritis

	Plasma	Urine
Na <sup>+</sup> (mmol/l)	129	5
K <sup>+</sup> (mmol/l)	6.8	
Urea (mmol/l)	26	350
Creatinine (μmol/l)	262	
Osmolality (mosmol/kg)	296	470

ans:d

## MINI OSCE

Station

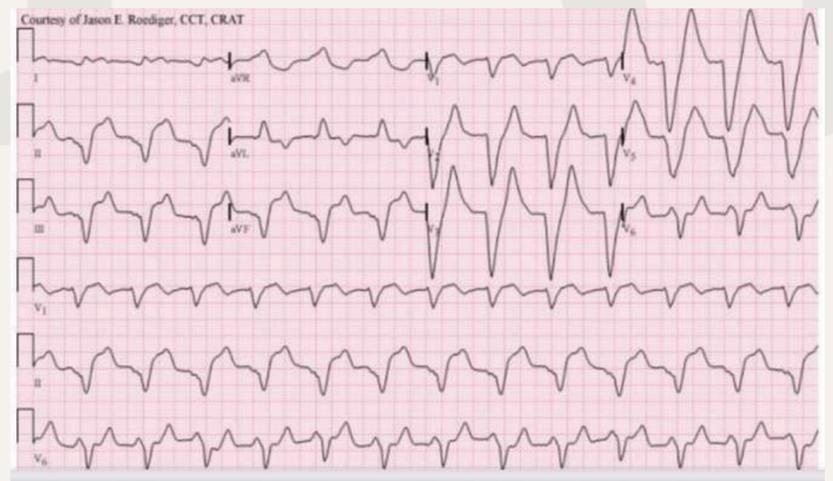
Q1: mention 2 abnormalities in ECG?

T-inversion

Wide QRS

Q2 : what is your DX?

hyperkalemia



Finding : hyperacute T wave

Caused by : hyperkalemia

