4 GLOMERULONEPHRITIS

أسئلة نظام قديم

1. What are the characteristics of glomerular proteinuria?

1. **↓ –ve charges in glomerular capillaries → ↓ rebelling of albumin**
2. **Damage of the glomerular membrane**
   - Proteinuria >1.5-2 gm/24h: glomerular disease likely
   - Nephrotic range (proteinuria > 3.5 gm/24hrs) always glomerular disease
3. **Maybe associated with:** Dysmorphic RBCs - RBCs casts

2. Mention 2 pathological types causing glomerular proteinuria

	NON-PROLIFERATIVE	PROLIFERATIVE
DIFFUSE	① Minimal Change Disease ② Membranous GN	① Membrano-proliferative GN ② Mesangio-proliferative GN ③ Rapidly progressive GN ④ Diffuse proliferative GN
FOCAL	▪ Focal segmental glomerulosclerosis	▪ Focal GN

3. What are the required investigations to confirm GN

1. **Urinalysis and Microscopy**
   - ↳ Active Urinary Sediment & casts
   - ↳ Proteinuria < 3.5 g
   - ↳ Hematuria
2. **Renal Function Tests:**
   - ↳ ↑↑ Creatinine & BUN
   - ↳ ↓↓ eGFR
3. **↓↓ Complement levels (post-streptococcal or lupus)**
4. **ASOT (for post-streptococcal)**
5. **ANA/anti-dsDNA (for lupus).**
6. **Renal Biopsy**

4. Mention 4 lines of treatment of glomerulonephritis

1. **Treatment of the cause: SLE – IgA nephropathy**
2. **+ symptomatic:**
   a) **For hypertension:** ACEI -ARBs - diuretics.
   b) **For edema:** Salt restriction - diuretics.
   c) **For proteinuria:** ACEI - ARBs.
   d) **For infection:** Abs

5. Mention 4 complications can be occurred in GN

1. Circulatory congestion
2. Hypertensive encephalopathy
3. Heart failure & acute pulmonary edema
4. Renal failure

6. A 19-year man presents with an episode of macroscopic hematuria which was preceded three weeks by an episode of tonsillitis

A- What is the most probable diagnosis?

↳ Acute poststreptococcal GN

B- What are the required investigations to confirm your diagnosis?

1. ASO level "initial"
2. Serum complement: ↓↓
3. Streotoenzyme test
4. Serum creatinine & electrolytes
5. Urine: dysmorphic RBCs + RBCs cast

أسئلة أخرى

1. Define glomerulonephritis?

- Glomerulonephritis refers to diseases that adversely affect the structure and function of the glomerulus.

2. What is the hallmark of glomerular disease?

- The hallmark of glomerular disease is an **alteration in glomerular permeability and selectivity, resulting in proteinuria and/or hematuria.**

3. Distinguish between primary and secondary glomerular diseases?

1. **Primary glomerular diseases** occur in the absence of a known systemic process.
2. **Secondary glomerular diseases** are caused by systemic disease processes, such as diabetes mellitus, systemic lupus, certain cancers, or vasculitis.

4. List the secondary causes of Minimal change disease?

1. Malignancy, specifically Hodgkin lymphoma
2. Drugs, such as NSAIDS
3. Autoimmune disease, such as lupus nephritis

5. List examples of primary glomerular diseases?

1. IgA nephropathy
2. Minimal change disease
3. Membranous nephropathy
4. Focal segmental glomerulosclerosis (FSGS)
5. Membranoproliferative GN (MPGN)

6. List the secondary causes of IgA nephropathy?

1. Henoch-schonlein purpura
2. Liver disease & Inflammatory bowel disease

7. List the secondary causes of Focal segmental glomerulosclerosis (FSGS)?

1. Drugs, such as interferon
2. Heroin
3. Infection, including HIV and COVID-19
4. Adaptive causes due to reduced renal mass, such as a solitary kidney, hypertension, or obesity

8. List the secondary causes of Membranous nephropathy?

1. Autoimmune diseases, such as SLE
2. Malignancy, specifically solid tumors
3. Infections, including HBV, HCV, and HIV
4. Drugs, such as NSAIDS
5. Sarcoidosis

9. List the secondary causes of Membranoproliferative GN (MPGN)?

1. Infection, including HCV, HBV, IE, and bilharziasis
2. Autoimmune disease, such as SLE
3. Monoclonal gammopathy
4. Cryoglobulinemia

10. List the clinical presentations of glomerular disease?

1. Asymptomatic abnormalities on urinalysis
2. Macroscopic hematuria
3. Nephrotic syndrome
4. Nephritic syndrome
5. Rapidly progressive glomerulonephritis (RPGN)
6. Chronic GN

11. Describe the typical findings in asymptomatic glomerular disease presentation?

- It is characterized by abnormalities on urinalysis such as **microscopic hematuria or proteinuria.**
- **Proteinuria** is usually in the sub-nephrotic range, between 150 mg to 3 g/d in a 24-hour collection.
- Common causes include IgA nephropathy, Alport syndrome, and thin basement membrane disease.

12. Define nephrotic syndrome?

- Nephrotic syndrome is a clinical syndrome characterized by a pentad of:
    1. Proteinuria >3.5 g/d
    2. Hypoalbuminemia <3.5 g/dl
    3. Edema
    4. Hypercholesterolemia
    5. Lipiduria

13. List the common primary diseases presenting as nephrotic syndrome?

1. Minimal change disease
2. Membranous nephropathy
3. Focal segmental glomerulosclerosis (FSGS)

14. List common secondary causes of nephrotic syndrome?

- Diabetic nephropathy
- Amyloidosis

15. Describe the clinical features of nephritic syndrome?

1. **Gross or microscopic hematuria** with dysmorphic RBCs and/or RBC casts
2. **Hypertension secondary** to sodium retention
3. **Reduction in glomerular filtration rate (GFR),** with or without oliguria
4. **Sub-nephrotic proteinuria**
5. **Edema**

16. List the serologic tests associated with poststreptococcal glomerulonephritis?

1. Antistreptolysin titer
2. Streptozyme antibody
3. Low C3 level with a normal C4 level

17. List the serologic tests for Lupus nephritis?

1. Antinuclear antibody
2. Anti-double-stranded DNA antibody
3. Low C3 and C4 levels

18. Compare nephritic and nephrotic syndromes?

Feature	Nephritic	Nephrotic
Urine Volume	Oliguria	Normal (usually)
Hematuria	Present (often with RBC casts)	Absent
Proteinuria	Non-selective; usually sub-nephrotic	Nephrotic range (>3.5g/24h)
Lipids	Absent	Lipiduria and Hyperlipidemia
Edema	Due to salt and water retention	Due to retention and Hypoalbuminemia
Blood Pressure	Hypertension	Often normal
Lab Findings	Increased Cr and BUN; decreased GFR	Hypoalbuminemia

19. Define rapidly progressive glomerulonephritis (RPGN)?

- RPGN is a **clinical syndrome** where glomerular injury is so acute and severe that kidney function deteriorates markedly over days or weeks.
- It may present as a uremic emergency with nephritic syndrome that rapidly progresses to kidney failure.

20. Identify the histologic hallmark of RPGN?

- The histologic hallmark is **crescentic glomerulonephritis.**

21. List the categories of glomerular disease that can present as RPGN?

1. Goodpasture syndrome
2. Vasculitis
3. Immune complex disease
4. Endocarditis

22. List the stains used in light microscopy for renal biopsy?

1. Hematoxylin and eosin
2. Periodic acid-schiff
3. Masson trichrome
4. Silver stain

23. Define the terms diffuse, focal, segmental, and global in glomerular pathology?

1. **Diffuse:** Affecting the majority of glomeruli.
2. **Focal:** Affecting only some of the glomeruli.
3. **Segmental:** Involving only part of a single glomerulus (e.g., FSGS).
4. **Global:** Affecting all regions of any given glomerulus.

24. List the components typically stained for in immunofluorescence studies?

- Deposition of immunoglobulins: IgG, IgA, and IgM.
- Components of complement pathways: C3, C4, and C1q.

25. Identify the features detected by electron microscopy (EM) in glomerular disease?

1. GBM thickness
2. GBM duplication
3. Infiltration
4. Podocyte foot process effacement

26. Outline the components of conservative treatment for glomerular disease?

1. Antiproteinuric therapy using angiotensin-converting enzyme (ACE) inhibitors and/or angiotensin-2 receptor blockers (ARBs).
2. Control of blood pressure.
3. Management of edema or volume overload through the reduction of dietary salt.