HYPOCOMPLEMENTEMIA IN GLOMERULAR DISEASES

Memorize this

What are 5 classic renal diseases associated with hypocomplementemia?

1. **Post Strep GN**
2. **MPGN**
3. **SLE**
4. **Cryoglobulinemia**
5. **Shunt Nephritis**

HYPOCOMPLEMENTEMIA PATHOGENESIS

- Due to increased consumption via complement activation by immune deposits
- Other factors may include:
  - Hereditary complement deficiency
  - Presence of circulating factors that promote complement activation.

IMPORTANCE OF COMPLEMENTS

- Complement activation normally plays an important role in clearing immune complexes (in part via attachment to C3b receptors on erythrocytes)

DIFFERENTIAL DIAGNOSIS

- Hypocomplementemia can also occur with some non-immune complex-mediated renal diseases, resulting in a clinical picture that may mimic a primary glomerulonephritis
  - Atheroembolic renal disease - complement pathway activated by exposed atheromata.
  - HUS and TTP -complement may be activated by endothelial damage or bacterial toxins.
  - Severe sepsis, acute pancreatitis, and advanced liver disease

SERUM COMPLEMENT CONCENTRATIONS IN GLOMERULAR LESIONS

	Serum Concentration			
Lesion	**C3**	**C4**	**C'H50**	**Other**
Minimal change disease	Normal	Normal	Normal	–
Focal sclerosis	Normal	Normal	Normal	–
Membranous glomerulonephritis (idiopathic)	Normal	Normal	Normal	–
Immunoglobulin A nephropathy	Normal	Normal	Normal	–
Membranoproliferative glomerulonephritis:				
Type I	Moderate decrease	Mild decrease	Mild decrease	–
Type II	Severe decrease	Normal	Mild decrease	C3 nephritic factor+
Acute poststreptococcal glomerulonephritis	Moderate decrease	Normal	Mild decrease	Antistreptolysin 0 titer increased
Lupus nephritis:				
(World Health Organization Class IV)	Moderate to severe decrease	Moderate to severe decrease	Mild decrease	anti–double-stranded DNA antibody+
(World Health Organization Class V)	Normal or mild decrease	Normal or mild decrease	Normal or mild decrease	anti–double-stranded DNA antibody+
Cryoglobulinemia (hepatitis C)	Normal or mild decrease	Severe decrease	Moderate decrease	Cryoglobulins; hepatitis C ab
Amyloid	Normal	Normal	Normal	–
Vasculitis	Normal or increased	Normal or increased	Normal	Antineutrophil cytoplasmic antibody+

C'H50—serum hemolytic complement activity.

Arthur H. Cohen and Richard J. Glassock Atlas of Diseases of the Kidney: The Primary Glomerulopathies

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