ACUTE KIDNEY INJURY - Lecture Outline

1. Technical definition of AKI
2. Staging of AKI
3. In-hospital AKI and risk of death
4. Causes of AKI: Pre-renal, renal and post-renal
5. Prerenal causes: i. Absolute decrease in effective circulating volume (ECF)
   ii. Decreased effective circulating volume
   iii. Impaired renal autoregulation with low ECF
   iv. Renal artery stenosis/occlusion
6. Normal renal autoregulation
7. Normal renal homeostasis
8. Arteriolar resistance and Renal Blood Flow and effect on Glomerular Filtration Rate (GFR).
9. Renal Autoregulation in low ECF state
10. Renal Autoregulation in low ECF state and NSAID use
11. Renal Autoregulation in low ECF state and ACEI/ARB use
12. Renal Autoregulation in low ECF state with NSAID and ACEI/ARB use
13. Consequences of prerenal azotemia
14. Common causes of post-renal failure
15. Findings and consequences of post-renal failure
16. Intrinsic renal failure: main categories
17. Two main causes of Acute Tubular Necrosis – Ischemic and Toxic
18. Ischemic ATN – from prolonged prerenal state

19. Toxic ATN – Exogenous causes: something given to the patient

21. Description of contrast induced nephropathy – risk factors, clinical features and preventive strategies

22. Toxic ATN – Endogenous causes: something the body produces in excess

23. Pathogenesis of ATN

24. Clinical Course of ATN

25. Acute Glomerulonephritis: Causes and Clinical features

26. Acute Interstitial Nephritis: Causes, clinical features and clinical course


28. Clinical features of acute pyelonephritis

29. Establishing diagnosis of AKI: review Inputs/outputs, BP, medication changes

30. Pitfalls of using serum creatinine for AKI

31. Why serum creatinine is used as a measure of kidney function?

32. Urine indices in differentiating prerenal and renal causes of AKI

33. Serum BUN and creatinine ratio in AKI

34. Management of AKI – Treating the underlying cause, stopping offending agents and supportive management of complications.

35. Indications for dialysis in AKI.

36. Prognosis of AKI.