Mechanisms of Human Disease

Clinical Approach to a patient with Acute Kidney Injury

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ACUTE KIDNEY INJURY - Learning Objectives

- Define acute kidney injury using the KDIGO definition
- Classify acute kidney injury into prerenal causes, intrinsic renal causes, and post-renal causes
- Explain normal renal autoregulation.
- Explain the relationship between arteriolar resistance and Renal Blood Flow and Glomerular Filtration Rate.
- Explain renal autoregulation in the setting of true hypovolemia or a low effective circulating volume state, and explain how NSAIDs, ACE-Is, and ARBs antagonize normal renal autoregulation pathways.
- Describe the common causes and diagnostic approach to post renal failure.
- List the five main categories of intrinsic renal disease and propose examples of diseases in each category: vascular causes, glomerular diseases, acute interstitial nephritis, acute tubular necrosis and acute pyelonephritis.
- Explain the diagnostic approach to acute kidney injury and how urine indices will help differentiate prerenal from intrinsic renal disease.
- Describe the pitfalls of using serum creatinine as a marker for acute kidney injury.
- Assess for the cause of acute kidney injury and reverse if possible
- Recognize the complications of acute kidney injury – volume overload, metabolic acidosis, electrolyte disturbances & uremia and indications for dialysis