Acute Kidney Injury and Urinary Retention

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Acute Kidney Injury and Urinary Retention

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Disclosures

- Consultant CVS Caremark State of RI
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Objectives

- Review the definition and staging criteria for AKI
- Review the most common symptoms of AKI
- Review the most common causes of AKI
- Overview of treatment of AKI in SNF
- Overview of Urinary Retention

Definition

- Abrupt decrease in kidney function, resulting in the retention of urea and other nitrogenous waste products and in the dysregulation of extracellular volume and electrolytes

KDIGO Diagnostic criteria

- Increase in serum creatinine by ≥0.3 mg/dL within 48 hours

OR

- Increase in serum creatinine to ≥1.5 times baseline, which is known or presumed to have occurred within the prior seven days

OR

- Urine volume <0.5 mL/kg/hour for six hours

Staging of AKI

- Stage 1:

  Increase in serum creatinine of ≥0.3 mg/dL or 1.5 - 1.9 times baseline

- Stage 2:

  Increase in serum creatinine to 2 - 2.9 times baseline

- Stage 3:

  Increase in serum creatinine to ≥3 times baseline

  or anuria for >12 hours

  or need for kidney replacement therapy

SYMPTOMS OF AKI

- Edema
- Hypertension
- Decreased urine output
- Change in baseline mental status (increased somnolence/lethargy)
- Incidental on routine lab work

Causes of AKI

PRE- RENAL 21%	RENAL			POST RENAL 10%
HYPOVOLEMIC STATE	**TUBULAR/INTERSTITIAL* 45%**	**GLOMULAR**	**VASCULAR**	**OBSTRUCTION**
-DEHYDRATION	-ISCHEMIA	PARANEOPLASTIC	VASCULITIS,	-Anywhere in the URINARY TRACT
-ACUTE HEMMORHAGE	-NEPHROTOXIC EXPOSURE*	DRUG INDUCED	SCLERODERMA,	
-DIARRHEA		SYSTEMIC RHEUMATOLOGIC	ATHEROEMBOLIC	-PROSTRATIC DISEASE SEC TO
HYPERVOLEMIC STATE				
-SYSTOLIC HEART FAILURE			MALIGNANT HTN	-BPH/ CA/METASTATIC DISEASE
-ACUTELY DECOMPENSATED LIVER FAILURE				

AKI Evaluation and Prevention in SNF

- New AKI vs. recovering from recent hospitalization
- Repeat labs in 1-3 days of SNF admission (baseline, follow trend)
- Repeat labs frequently if Serum Cr. Up trending, evaluate/hold nephrotoxic meds
- Add holding parameters to BP meds (to prevent hypotension/AKI)
- Low threshold to repeat stat labs if patient condition changes (quick, easy and cheap vs. ED evaluation)
- Repeat labs at least once a week if no symptoms

Treatment Depends on Cause of AKI

- Prerenal (hypovolemia), give IVFs, clysis, encourage PO
- Prerenal (hypervolemia), needs diuretics to decrease third spacing, closely follow clinical status and labs, might need ER/hospitalization
- Renal (tubular/interstitial), IVF, IVFs, IVFs, repeat labs frequently
- Hold all nephrotoxic meds (Ace-i/ARBs/diuretics, NSAIDs)
- Adjust doses of meds (Antibiotics/Insulin/Opiates except Dilaudid
- Repeat labs to trend Serum Cr., Potassium, BUN
- If refractory to above and worsening labs, need ER evaluation

Emergency Kidney replacement therapy

- Pulmonary edema
- Hyperkalemia >6.5 mEq/L
- Hyperkalemia with cardiac conduction abnormalities, muscle weakness
- Hyperkalemia >5.5 mEq/L with ongoing tissue damage like rhabdomyolysis or ongoing potassium absorption like GIB
- Uremia with seizures or pericarditis, or an otherwise unexplained decline in mental status
- Severe Metabolic Acidosis (pH <7.1) and hypervolemia, unless acidosis can be rapidly resolve
- Acute poisoning

URINARY RETENTION

- Most common in older men with Prostatic disease and can lead to hydronephrosis
- Less common in females but can present sec to constipation, infection
- Straight catheterization for acute intervention
- Review medication history esp. for BPH meds (Tamsulosin, Finasteride), UI meds (Oxybutynin, Myrbetric) and resume
- Review new meds like opiates, Oxybutynin (known side effect)
- Start PVR, if >350 cc x 2, place Foley for bladder rest, TOV in 7 days
- Urology appointment, Renal US

Questions?

References

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