POCUS Evaluation in Acute Kidney Injury

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POCUS Evaluation in Acute Kidney Injury

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Written consent was obtained from patient and PSJH HRPP has determined that this case report, as submitted, does not meet the definition of research and does not require IRB review as defined in the federal regulations.
A 67 year old male, previously healthy

P/W 4 days dysuria, fevers, chills, lower abdominal and bilateral flank pain with urinary hesitancy and frequency

VITALS: afebrile and hemodynamically stable

Physical exam: lower abdominal and left costovertebral angle tenderness.
Case Description

- **Labs** showed leukocytosis (22K) with bands (13%), creatinine of 2.61 mg/dL
- Urine was positive for pyuria (>180), blood, and nitrates
- The patient received broad spectrum antibiotics for presumed pyelonephritis complicated by AKI
Admitting resident team performed POCUS evaluation of kidneys
POCUS Findings

- Bilateral anechoic collection within the kidney sinus
- Dilated calyces and loss of outer cortex suggesting severe bilateral hydronephrosis
- Color flow doppler was applied without any differentiated blood vessels
A Foley catheter was placed immediately for bladder decompression

Comprehensive kidney and bladder ultrasonography was performed by radiology within 2 hours of POCUS exam

Confirming severe bilateral hydronephrosis as well as mobile echogenic debris and thickened bladder wall suggestive of cystitis

Urology was consulted and the patient required bilateral ureteral stent placement
POCUS can quickly detect hydronephrosis with a sensitivity of 77-90%, specificity of 71-96% and positive LR +2.91

Initial POCUS can decrease cumulative radiation exposure without significant differences in diagnostic accuracy, treatment outcomes, or re-admissions

Skill acquisition is a minimal barrier: indeed, accuracy of POCUS is not significantly limited by training level or scanning experience
Conclusion

- POCUS is fast, accurate, and is an easy skill to acquire and train
- Integrating POCUS in the evaluation of AKI may:
  - Decrease time to intervention
  - Avoid/decrease radiation exposure
  - Control associated costs
  - Reduce length of stay without variation in quality of diagnostic accuracy
References


Questions?