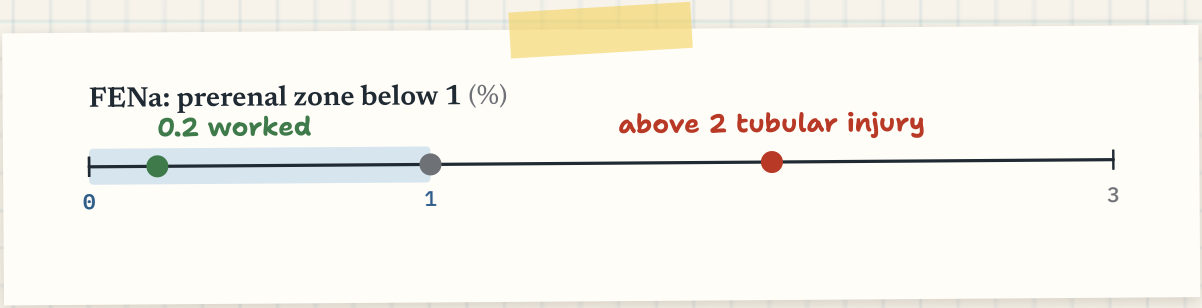
AKI: prerenal, intrinsic, postrenal

Define it, place it, and beware the FENa trap



Step by step

1. AKI: creatinine up ≥0.3 mg/dL in 48 h, ≥1.5× baseline in 7 days, or urine below 0.5 mL/kg/h for 6 h
2. Sort by place: before, inside or after the kidney
3. Use sediment and ultrasound (hydronephrosis = postrenal)
4. FENa below 1% points to prerenal

Sediment	Points to
Hyaline casts	Prerenal
Muddy brown casts	ATN
RBC casts, dysmorphic RBCs	Glomerulonephritis
WBC casts	Interstitial nephritis

Sediment points to the lesion

FENA (%)

$$\frac{(\text{urine } Na^{+} \times \text{plasma Cr})}{(\text{plasma } Na^{+} \times \text{urine Cr})} \times 100$$

Below 1% prerenal; above 2% tubular injury; between unclear. FEUrea below 35% suggests prerenal.

Rule of thumb

Before, inside, after the kidney

Diuretic on board: use FEUrea, below 35%

Worked case: FENa = 24 / 11,200 × 100 ≈ 0.2%

Exam traps

- Diuretics and CKD raise FENa even in prerenal AKI.
- Contrast, GN and rhabdomyolysis can give a low FENa despite intrinsic injury.
- BUN:creatinine above 20:1 is a teaching convention and not specific.

Acute kidney injury: prerenal, intrinsic or postrenal

Video, written lesson, practice question and sources: medservatory.com/usmle-step-2-ck/nephrology-electrolytes/acute-kidney-injury-prerenal-intrinsic-postrenal

For exam study only, not medical advice. Follow local guidelines and your lab's ranges.
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