

Pragmatic approach to HepatoRenal Syndrome (HRS) in the critically ill patient

Suspicion for possible hepatorenal syndrome:

- **Oliguric acute kidney injury** (e.g. usually <500 ml urine per day)
- **Severe liver disease with ascites**
- (More likely if evidence of vasodilation & hypoperfusion, such as *hypotension* & *hyponatremia*; if MAP >~85 then HRS is doubtful.)

Initiate an evaluation for the cause of acute kidney injury

- History & physical examination
- Evaluation of volume status with POCUS
- Review of recent events, medications (e.g. nephrotoxins)
- Urinalysis, urine chemistries (creatinine, urea, & protein levels)
- Check creatinine kinase if rhabdomyolysis is suspected
- Renal ultrasonography (but don't delay tx while waiting for this)
- Evaluate for infection (e.g. blood cx, paracentesis, chest X-ray)

Clear cause of AKI discovered

Treatment depending on etiology (e.g. volume resuscitate for hypovolemia).

If patient fails to respond, then *reconsider* the possibility of hepatorenal syndrome.

(If treatment fails)

No clear alternative cause found & clinical data is consistent with hepatorenal syndrome.
Diagnosis of **probable hepatorenal syndrome** is made.

Initiate empiric support of renal perfusion

Discontinue: Nephrotoxins, antihypertensives, vasodilators, and diuretics.

Vasopressor: Target MAP \uparrow by >15 from baseline & generous Bp (e.g. MAP>85). Vasopressin or norepinephrine.

Albumin: 1 gram/kg/day up to 100 grams for 2 days, then 20-40 g/day. Either 5% or 25%, depending on volume status.

Therapeutic paracentesis: For tense ascites with concern for intra-abdominal hypertension, consider therapeutic paracentesis. If performed, consider additional albumin (8 grams per liter fluid removed).

Steroid if indicated for another process (e.g. septic shock, alcoholic hepatitis), but not solely for treatment of HRS.

One approach to hepatorenal syndrome. This represents a deviation from the traditional practice of delaying diagnosis for two days to allow for albumin loading. Expedited diagnosis and therapy may be more appropriate for sicker patients who are in the ICU.