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Gastroenterology & Hepatology
Advanced Practice Providers

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Hepatorenal Syndrome

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Disclosures

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Disclosures

Carolyn Catalano, APN

No financial relationships to disclose.

Case study 1

- 31 yo WF w/pmhx of
- ETOH related Cirrhosis
- Hepatic encephalopathy
- Esophageal varices
- Iron deficiency anemia
- Alcohol use disorder

Vital signs

- BP-95/54 MAP-68
- Temp-101.2
- HR-102 bpm
- SPO2-99% RA
- RR-16/min
- Weight -169 lbs
- Height -65 inches
- BMI- 28.12

Presenting signs and symptoms

- Dark urine
- Nausea, no vomiting
- Malaise
- Poor appetite

Current medications

- Lasix 20 mg po daily
- Xifaxan 550 mg po BID
- Zinc sulfate 220 mg po daily
- Folic acid 1 mg daily
- Nadolol 20 mg po BID

Significant results

- BUN- 19->34
- CREAT-0.98->1.35
- Non African American GFR- >60->46
- AG-14
- ALB-3.5, AP- 300, AST-130, ALT-40, TB-2.0

Significant results

- Hemoglobin- 12.1
- Platelet-93
- INR-1.20
- Urinalysis:
- +WBC, protein, blood, leukocytes
- Negative for cast

Differential diagnosis

- Glomerulonephritis- associated with DM, HTN, Iga nephropathy, vasculitis, Lupus, strep infection, viral hepatitis, HIV.
- Hypovolemia- from bleeding, diarrhea, diuresis.
- Urinary tract infection

Additional labs/tests

- Urine culture, Blood culture
- Urine electrolytes
- Chest Xray
- Abdominal US

Diagnosis

- HRS-AKI
- KDIGO defines AKI as:
  Increase is SCr by ≥ 0.3 mg/dl(26.5 umol/l) within 48 hours; or increase in SCr ≥ 1.5 times baseline, which is known to have occurred within the prior 7 days; or urine volume <0.5 ml/kg/hr for 6 hours.

Goals of treatment:

- Reverse HRS or improve renal function until LT.
- All of HRS treatment is bridge therapy.
- Prevent recurrence of HRS.

Interventions:

- *Antibiotic for UTI*
- *Albumin*
- *Octreotide*
- *Norepinephrine*
- *Future treatment: Terlipressin*

Non pharmacologic interventions

- *Volume repletion->keep MAP>70*
- *Discontinue diuretics.*
- *Renal dose medications.*
- *Discontinue and/or avoid nephrotoxins*
- *Improve nutrition status*
- Monitor labs, urine output
- Consider alternative to contrast procedure.

Non pharmacologic interventions

- Hemodialysis
- Transjugular intrahepatic portosystemic shunt
- Renal transplant
- Liver transplant

Case Study 2

- 63 yo HF w/pmhx of:
- Type 2 Diabetes
- Hypertension
- Hyperlipidemia
- Non ischemic cardiomyopathy
- Non obstructive CAD
- Constipation
- Gout, constipation
- Portal vein thrombosis
- HCV s/p Epclusa and ribavirin treatment with SVR, Cirrhosis, portal vein thrombosis, anemia esophageal varices, who is being followed for worsening ascites.

Vital signs

- Vital signs:
- BP – 149/89 – MAP – 109
- HR – 80
- Weight – 183.5 lbs from 171 lbs
- Temp – 98.9
- Height – 58 inches

Presenting signs and symptoms

- Tense ascites
- Anasarca
- Bilateral +3 LE edema
- Grade 1 EV
- Upper/lower extremity rashes

Medications:

- Furosemide 80 mg po daily
- Allopurinol 100 mg po daily
- Lactulose 10G/15ml po BID
- Carvedilol 3.125 mg po BID
- Eliquis 5 mg po BID

Results of Tests/Labs

- H&H – 9.5/26.9%
- PLT – 108
- Creatinine – 1.9-2.5, eGFR – 27ml/min
- Albumin – 3.5
- TB – 1.0
- Na – 139
- INR – 1.10
- Urinalysis: sodium Na – <20, microalbumin – 2.0
- Meld Na – 14

- Acute tubular necrosis – rise in creatinine >0.3mg/dL/day above baseline after an apparent trigger
- Renal stenosis
- Glomerulonephritis

Additional Work Up

- Additional work up:
- Renal US
- Renal biopsy
- Repeat Echocardiogram
- Pre transplant labs

Diagnosis

- HRS-CKD:

Criteria:

A. eGFR <60 ml/min for less than 3 months in the absence of (structural causes)
B. % increase in serum creatinine is <50% using the last available value of OP SCr within 3 months at the baseline value
C. eGFR <60 ml/min for >or equal to 3 months in the absence of other structural causes

Treatment Options

- Continue LVP with albumin
- *TIPSS – Transjugular intrahepatic portosystemic shunt*
- *Simultaneous kidney and liver transplant evaluation*
- Abdominal dopplers for TIPSS evaluation every 6 months
- Ongoing liver transplant workup.

Patient Follow-Up

- Patient Care
  - Short-term plan
    - Evaluate patient for bleeding, liver laceration, hematoma
    - Evaluate for acute hepatic encephalopathy, liver failure, shunt migration, infection
  - Long-term plan
    - Monitor for signs of decompensation
    - Continue counseling on avoidance of liver toxins
    - Dopplers yearly to evaluate TIPSS

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Q&A