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Inpatient Management of Cirrhosis

Ascites and Volume Management

Context: Ascites is extracellular fluid trapped in the peritoneal cavity because of changes in hydrostatic and oncotic pressure. The maximal rate of mobilization of ascites is 1 L/day.

Current: Paracentesis is the optimal way to evaluate for spontaneous bacterial peritonitis (SBP) and is indicated for any acute decompensation. Coagulopathy is not a contraindication for paracentesis.[1]

Cutting Edge: Diuretics may help reduce ascites accumulation, but fluid restriction leads to increased thirst and subsequent increase in ADH which can worsen the pathologic derangements of cirrhosis.[2]

Portosystemic [Hepatic] Encephalopathy

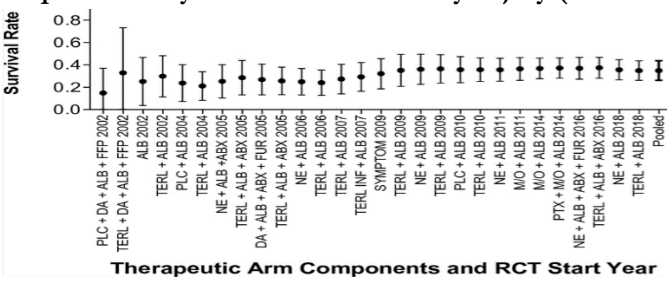
Context: Toxins from the portal circulation enter and accumulate in the systemic and cerebral circulations.

Current: The cornerstone of therapy for hepatic encephalopathy (HE) is early and aggressive lactulose. Rifaximin may be better tolerated and help reduce recurrent episodes.

Cutting Edge: HE is diagnosed clinically based on a spectrum of symptoms ranging from alterations in circadian rhythms (early) to coma (late). Ammonia levels are of negligible clinical utility.[3,4]

Clinician's pretest probability of HE	n (%)	Ammonia level "positive" for clinicians (± SD)	Ammonia test ordered before seeing patient, n (%)	Cirrhosis (%)	Ammonia test result (± SD)	Provider who ordered test	Prior HE diagnosis, n (%)	Lactulose administered, n (%)	HE diagnosed, n (%)
<25%	18 (36)	67.8 (19.5)	6 (33.3)	50	33.1 (18.2)	Physician = 11 APP = 4 Nurse = 3	4 (44)	5 (55.6)	1 (11) Grade 1
25%–75%	21 (41)	69.5 (19.1)	3 (14.2)	86	82.1 (40.2)	Physician = 11 APP = 6 Nurse = 4	16 (88.9)	16 (88.9)	8 (44)2 – Grade 3 5 – Grade 2 1 – Grade 1
>75%	11 (22)	60.9 (21.2)	4 (36.3)	91	82.5 (48.6)	Physician = 3 APP = 4 Nurse = 4	9 (90)	9 (90)	9 (90) 1 – Grade 3 5 – Grade 2 3 – Grade 1

Hepatorenal Syndrome-Acute Kidney Injury (HRS-AKI)



Context: HRS carries very poor prognosis and has not improved over the past decdes.[5]

Current: Diagnose and treat with albumin challenge. Initiate vasopressors (terlipressin or norepinephrine) if refractory AKI.

Cutting Edge: Elevated MAP and urine output are key positive indicators.[6]

GI Bleeding

Context: High portal pressures lead to varices. Coagulopathy contributes to bleeding.

Current: Use octreotide to reduce portal pressures and antibiotics (ceftriaxone 1 gram daily) to prevent bacterial translocation. Pursue endoscopic banding as soon as feasible.

Cutting Edge: Transfuse PRBC only for Hgb <7.[7] Transfusions of FFP may not improve coagulation[8] and dramatically increases portal pressures.

References:

1. Crowe B, et al. Things We Do for No Reason™: Routine Correction of Elevated INR and Thrombocytopenia Prior to Paracentesis in Patients with Cirrhosis. J Hosp Med. 2021 Feb;16(2):102-104. PMID: 32966201
2. Gaglio P, et al. Hyponatremia in cirrhosis and end-stage liver disease. Dig Dis Sci. 2012;57(11):2774-85. PMID: 22732834
3. Gonzalez JJ, Tapper EB. A Prospective, Blinded Assessment of Ammonia Testing Demonstrates Low Utility Among Front-Line Clinicians. Clin Gastroenterol Hepatol. 2022;20(4):e895-e896. PMID: 33453401
4. Ninan J, Feldman L. Ammonia Levels and Hepatic Encephalopathy in Patients with Known Chronic Liver Disease. J Hosp Med. 2017;12(8):659-661. PMID: 28786433.
5. Thomson MJ, et al. Limited Progress in Hepatorenal Syndrome (HRS) Reversal and Survival 2002-2018. Dig Dis Sci. 2020;65(5):1539-1548. PMID: 31571102
6. Singh V, et al. Noradrenaline vs. terlipressin in the treatment of hepatorenal syndrome. J Hepatol. 2012;56(6):1293-8. PMID: 22322237
7. Odutayo A, et al. Restrictive versus liberal blood transfusion for gastrointestinal bleeding. Lancet Gastroenterol Hepatol. 2017;2(5):354-360. PMID: 28397699
8. Rassi AB, et al. Fresh frozen plasma transfusion in patients with cirrhosis and coagulopathy. J Hepatol. 2020;72(1):85-94. PMID: 31536747