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HEPATOLOGY PEARLS FOR THE PRACTICING PHYSICIAN

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Cirrhosis

A patient with cirrhosis has a significant surgical risk if the hepatic venous pressure gradient (HVPG: free hepatic vein pressure minus wedged hepatic vein pressure) is greater than 10 mm Hg.

Suspect occult cirrhosis on ultrasound if the spleen is greater than 10 cm and portal vein larger than 10 mm or if the patient has an unexplained low platelet count.

Suspect significant portal hypertension (HVPG > 10 mm Hg) if the platelet count is less than 88,000, if the portal vein diameter is greater than 13 mm on ultrasound. The size of the spleen does not correlate with the degree of portal hypertension.

HVPG values to remember:

- 8 mm Hg: ascites form
- 10 mm Hg: varices form
- 12 mm Hg: varices bleed

Up to one-half of patients with compensated cirrhosis have moderate to large esophageal varices.

The following four clinical variables significantly correlate with the presence of varices: platelet count less than 88,000/mL, elevated international normalized ratio (INR), splenomegaly, and portal vein diameter greater than 13 mm.

Once esophageal varices are present, the risk of bleeding within 2 years is 20% to 35% and the risk of dying from the initial variceal bleed is about 20%.

Statin drugs are *not* contraindicated in those with liver disease. Check labs in 2 weeks, then monthly for the first 3 months, and then 4 times a year. If aspartate transaminase (AST) or alanine aminotransferase (ALT) levels increase two or more times the baseline, discontinue statin therapy but consider another statin after AST and ALT levels return to baseline.

Nasogastric tube placement is not a cause for esophageal variceal bleeding and should be performed without hesitation in evaluating an upper gastrointestinal bleed in a cirrhotic patient.

Hepatitis

The "short-list" differential diagnosis for AST and ALT levels greater than 1000 U/L:

- acute viral hepatitis
- acute drug or toxin injury
- autoimmune hepatitis
- ischemic hepatitis

An ALT to lactate dehydrogenase (LDH) ratio greater than 1.5 distinguishes acute viral hepatitis from drug-induced/toxin-induced or ischemic hepatitis with a sensitivity of 94% and specificity of 84%.

An AST:ALT ratio greater than 2 equals alcoholic hepatitis. If enzymes are greater than 1,000, think alcoholic hepatitis plus acetaminophen toxicity.

In a case of cholestatic hepatitis with negative hepatitis A and other serology, consider hepatitis E, which has an increased incidence in immunosuppressed and heart transplant patients. Reservoirs in the United States include deer and pigs, therefore ask your patient about possible exposure.

When encountering a markedly elevated ALT and AST with normal bilirubin, alkaline phosphatase, and INR, obtain a total CPK to consider rhabdomyolysis or muscular dystrophy.

Ascites

There is more than one cause of ascites in 5% to 10% of patients.

In patients with compensated liver cirrhosis, 60% will develop ascites within 10 years after the onset of liver disease.

Once ascites develops, half of patients will die within 2 to 3 years (development of ascites is one factor that defines decompensated liver disease).

Serum ascites albumin gradient (SAAG) is calculated by taking the albumin level in the serum and subtracting the albumin level in the ascitic fluid. A value equal to or greater than 1.1 is associated with portal hypertension in 97% of the cases.

Ascitic fluid total protein exceeding 2.5 mg/dL and a SAAG > 1.1 indicates cardiac ascites, Budd-Chiari syndrome, or myxedema from hypothyroidism.

SAAG less than 1.1 indicates that the patient does not have portal hypertension. The differential diagnosis is peritoneal carcinomatosis, abdominal tuberculosis, pancreatic ascites, nephrotic syndrome, or biliary ascites.

Ascitic cholesterol concentration of greater than 45 mg/dL is consistent with malignancy

Spontaneous bacterial peritonitis (SBP) is diagnosed with a level > 250 PMNs/mm^3 in the ascitic fluid sample.

Ascites culture is negative in approximately 40% of patients with established SBP. Cultures should be collected at the bedside with a minimum of 10 mL of ascitic fluid placed into the culture bottle.

An extremely high polymorphonuclear cell count or multiple organisms on culture of an ascitic fluid tap should prompt you to think of secondary peritonitis.

An LDH fluid to serum ratio greater than 0.5 equals secondary bacterial peritonitis; if greater than 1.0, suspect abdominal tuberculosis.

In the cirrhotic patient, the aldosterone antagonist spironolactone is the most effective diuretic for controlling ascites.

When the glomerular filtration rate is less than 60 mL/min, loop diuretics (furosemide) should be added. The best ratio is 40 mg furosemide to 100 mg spironolactone. The doses should be changed using this ratio.

In a cirrhotic patient with ascites, if the ratio of urine sodium to potassium in a spot urine sample is greater than 1 (more urinary sodium than potassium), the patient has a sufficient response to diuretic therapy.

Numbers to Remember

3X UNL (upper limit of normal): If ALT is above this threshold in the setting of acute pancreatitis, gallstone pancreatitis is the likely diagnosis in 95% of the cases.

5: A ratio of AST:ALP greater than this threshold in the setting of potential drug toxicity suggests a hepatocellular form of drug-induced liver injury.

7.5 g: This is the threshold of acetaminophen consumption consumed in a single dose that is hepatotoxic even in a patient without pre-existing liver disease.

30: A body mass index above this threshold defines obesity. In the presence of fatty liver disease, the number-one cause of death is coronary artery disease and not cirrhosis. These patients should be screened appropriately.