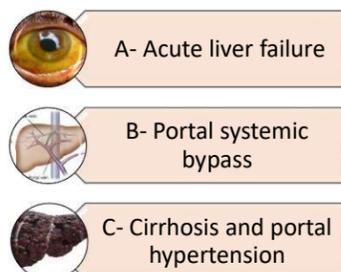


1 What is Hepatic encephalopathy (HE)?

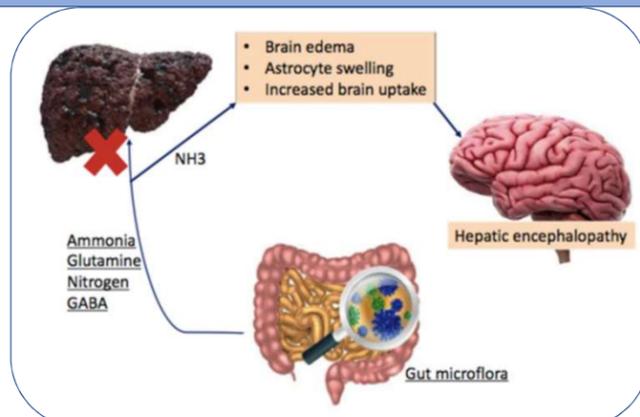
- Hepatic encephalopathy, also known as portosystemic encephalopathy, is a complex but reversible neuropsychiatric disorder resulting from impaired liver function
- It occurs to some degree in over 50% of patients with cirrhosis
- The presence of HE portends a poor prognosis, with an estimated 1-year survival rate of only 40%

2 Who is at risk for HE?

- There are 3 types of HE
- Type C is the most common



3 How does HE occur?



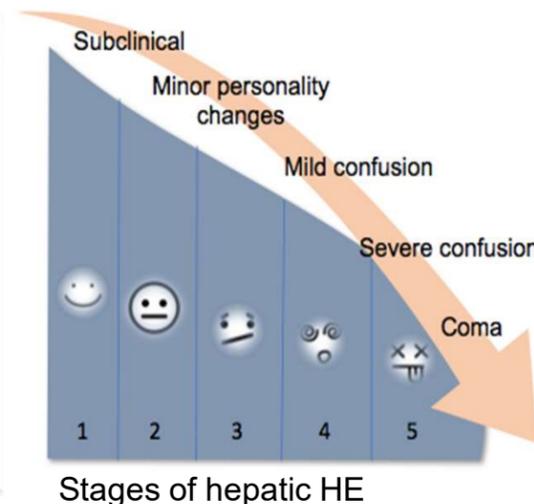
- The abnormal liver is unable to filter toxins, epitomized by ammonia, from the blood, leading to deleterious effects on the brain

4 What are the symptoms of HE?

- HE could be minimal (covert) or overt
- Initial symptoms are usually subtle, and include forgetfulness, change in handwriting, reversal of sleep-wake cycle
- As HE worsens, agitation and disinhibited behavior may develop
- They could also develop asterixis (flapping tremors), seizures and coma

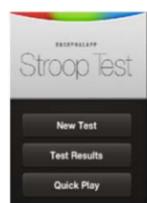
Precipitating factors
GI bleeding
Sepsis
Azotemia
Narcotics, BZDs, antidepressants
Increased dietary protein
Hypokalemia
Diuretics
Constipation
Surgery
Acute hepatitis

BZD: benzodiazepines



5 How is HE diagnosed?

- Evidence of liver disease and portosystemic shunts
- Blood ammonia is elevated in 90% of cases, but is a non-specific test
- Abnormal EEG and psychometric testing



Encephalapp is a validated, available smartphone app For the diagnosis of covert hepatic encephalopathy

DRIVE SAFELY

- It is prudent to have discussions with your doctor about your capacity to drive and operate heavy machinery.
- An assessment is made on an individual basis



6 How is HE treated?

It is important that HE be identified and treated early
The goals of treatment of acute HE include:

- Correcting the precipitating factor
- Reducing blood ammonia level
- Avoiding the toxic effect of ammonia on the brain

Non-absorbable disaccharides

- Lactulose increases stool elimination of nitrogen and reduced ammonia
- It is effective in lactase-deficient patients as well

Antibiotics

- Oral rifaximin has been shown to be effective in treating and preventing recurrence
- Other antibiotics, including metronidazole, vancomycin and neomycin could be used, but not known to be as effective

Other therapies: Intravenous LOLA, Zinc, sodium benzoate.

- Liver transplantation usually leads to restoration of normal liver function and resolution of HE

Diet & nutrition

- Vegetable and dairy protein may be preferable to animal protein as they have better calorie-to-nitrogen ratio and increase stool elimination of nitrogen



A balanced diet is encouraged and protein restriction discouraged
Avoidance of alcohol, smoking, fried foods