# Diagnostic Pathway for Hepatic Encephalopathy

Many patients with hepatic encephalopathy present with comorbid conditions that may also affect mental status. The diagnosis of hepatic encephalopathy (HE) is primarily clinical and is based on history, examination, laboratory and imaging findings. It is important to use laboratory testing and imaging to evaluate for other causes of encephalopathy to exclude other causes, determine the cause of the hepatic encephalopathy, and/or diagnose a comorbid encephalopathy. There is no exam finding, laboratory test, or imaging study that is specific to HE. All data must be taken into the larger clinical context and interpreted with additional data unique to the patient.

## History

A careful history is the backbone of the HE evaluation. Use historical data to calibrate the probability that HE is a primary or contributing factor for chief concern of altered mentation.

Use the history to assess for common precipitants of HE such as infection, gastrointestinal bleeding, and electrolyte abnormalities such as hyponatremia.

### Historical Symptoms Suggestive of Hepatic Encephalopathy

- History of cirrhosis or other condition(s) causing portal hypertension
- Personal history of hepatic encephalopathy
- History of subtle behavior changes prior to frank onset
- Alterations in attention and cognition precede alterations in the level of consciousness
- Lack of medication adherence

## Exam

The physical examination should include evaluation for signs of acute or chronic liver disease, as well as thorough neuropsychiatric examination. Additionally, clinicians should evaluate volume status and objective signs of infection.

### Portal Hypertension and/or Liver Disease

- Ascites
- Jaundice
- Spider Angiomas
- Caput Medusae
- Splenomegaly
- Lower Extremity Edema

### Neuropsychiatric Exam

- Negative Myoclonus (asterixis, milkmaid sign)
- Alterations in the level of consciousness (ranging from mild lethargy to coma)
- Inattention
- Impulsive Behavior
- Dysarthria

## Laboratory Evaluation, Imaging, Other Studies

Laboratory evaluation should focus on the identification of comorbid encephalopathies or precipitating causes of hepatic encephalopathy. As an example, anemia may suggest GI bleed, leukocytosis may suggest infection, and serum chemistry may reveal electrolyte derangements, such as concurrent hyponatremia.

Ammonia has not been shown to be a valuable or distinct diagnostic indicator in the evaluation of hepatic encephalopathy.

### Laboratory Evaluation

- CBC
- Chemistry Panel
- Transaminases and Bilirubin
- PT/INR
- Blood Gas
- Urine and Serum Toxicology

### Microbiology

Cultures of urine, ascites, blood, sputum, etc.

### Imaging / Other

- Head CT
- Brain MRI
- EEG

If hepatic encephalopathy is suspected, treatment should commence urgently. A trial of treatment for HE and evaluation of effect may further support a diagnosis of hepatic encephalopathy.

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