

## TEACHING FILES (GRAND ROUNDS)

# HEPATIC ENCEPHALOPATHY DUE TO HEPATITIS A – CAN AGE PREDICT NEED FOR LIVER TRANSPLANT?

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### KEYWORDS

Hepatitis A, Hepatic Encephalopathy

### ARTICLE HISTORY

Received 6 September 2020

Accepted 21 November 2020

### Clinical Problem:

#### Case 1

An 8-year-old female child presented with fever and lethargy for 8 days, right hypochondriac pain and abdominal distension for 5 days, vomiting for 3 days, oliguria and irrelevant speech for 2 days. There was no hematemesis, jaundice, or bleeding from any site. On examination, she was icteric, had anasarca with altered sensorium with blood pressure 98/60 mm of Hg. There was no hepatosplenomegaly, meningeal signs, or focal neurological deficit. Other systems were normal. Investigations showed hemoglobin of 11 gm/dl, white blood cell (WBC) count of 8400/cumm, platelets of 1,71,000/cumm, bilirubin of 4.4 mg/dl, SGOT of 2890 IU/L, SGPT of 4215 IU/L, total proteins of 5.7 gm/dl, albumin of 2.7 gm/dl, prothrombin time (PT) of 39 sec, partial thromboplastin time (PTT) of 93.3 sec and ammonia of 300 mg/dl. Her Hepatitis A IgM was positive. HBsAg, Anti hepatitis C virus (HCV), leptospira IgM, dengue IgM was negative. Ultrasound abdomen showed moderate ascites with right sided pleural effusion. The child was treated with dextrose, lactulose, metronidazole, and L-ornithine-L-aspartate following which she gradually improved and recovered.

#### Case 2

An 8-year-old male child presented with abdominal pain for 7 days, jaundice for 4 days, increased sleepiness for 2 days. There was edema or no bleeding from any site. On examination, he had icterus, hepatomegaly, ascites. There were no meningeal signs or focal neurological deficit. Other systems were normal. Investigations showed hemoglobin of 8.2 gm/dl, WBC of 5500/cumm, platelets of 2,25,000/cumm, bilirubin of 18.13 mg/dl, SGOT of 352 IU/L, SGPT of 713 IU/L, total proteins of 7.0 gm/dl, albumin of 3.6 gm/dl, PT of 12 sec, PTT of 23.8 sec. His Hepatitis A IgM was positive. HBsAg, Anti HCV, Leptospira IgM, Dengue IgM were negative. The child was treated with intravenous (IV) fluids, lactulose and L-ornithine-L-aspartate following which he gradually improved and recovered.

*Can age predict need for liver transplant in children with Hepatitis A virus infection?*

### Discussion:

Viral Hepatitis A is one of the most frequent of the infectious liver diseases in the pediatric population. Hepatitis A presents as a mild self-limited disease where symptoms may include anorexia, nausea, vomiting, low grade fever, myalgia, arthralgia, jaundice, dark coloured urine, clay coloured stools and right upper quadrant pain.<sup>1,2</sup> Approximately 85% of individuals infected with hepatitis A virus (HAV) have full clinical and biochemical recovery within a 3-month period with nearly all individuals recovering within 6 months. In about 10% to 20% of symptomatic patients, a prolonged and relapsing course can occur lasting several months.<sup>2,3</sup> Hepatic encephalopathy due to hepatitis A is rare and has been reported to be around 0.4%.<sup>4</sup> Precipitants of hepatic encephalopathy in patients of Hepatitis A include conditions that increase the nitrogen overload such as constipation, gastrointestinal bleeding, blood transfusions, azotemia, infection, hypokalemia and conditions that decrease toxin clearance such as hypotension and dehydration via fluid restriction, excessive diuresis, diarrhoea.<sup>5</sup> Generally, hepatitis A-related ALF has a spontaneous survival rate of 69%; the remaining 31% require emergency liver transplant (ELT) or die.<sup>6</sup> Globally, the estimated mortality rate for Hepatitis A, is 0.1% for children less than 15 years of age, 0.3% for adults of age 15 to 39 years and 2.1% for adults of age 40 years and older.<sup>7</sup> The annual mortality rate for children 28 to 364 days of birth is about 12 per 100,000 people, for 1 to 4 years of age is about 2 per 100,000 people, for 5 to 9 years of age is about 0.2 to 0.4 per 100,000 people and for 10 to 15 years is about 0.2 to 0.3 per 100,000 people. [8]. Both our patients were 8 years of age suggesting that risk of mortality was extremely low. Even though bilirubin was high in the second child, he responded to conservative management. Thus, age may also be a criteria to determine need for liver transplant in Hepatitis A encephalopathy.

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### Compliance with ethical standards

Funding: None

Conflict of Interest: None

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