

# Successful Treatment of Severe Hepatitis E with Ribavirin: A Case Report from Bangladesh

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## ABSTRACT

A case of severe acute hepatitis E was treated with antiviral drugs. The clinical course and prognosis would be reported.

**Abbreviations:** HEV: Hepatitis E virus; ALT: Alanine aminotransferase.

**Keywords:** Hepatitis E, Severe hepatitis E, Ribavirin.

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## INTRODUCTION

Acute hepatitis E virus (HEV) infection is usually a self-limiting disease presenting as acute, icteric hepatitis. HEV is a small, nonenveloped RNA virus, icosahedral in shape and 27 to 34 nm in diameter. It is transmitted through the feco-oral route, commonly by contaminated water supplies. Blood-borne transmission and a zoonotic reservoir of HEV have also been described. HEV has been responsible for major outbreaks of acute infection in the developing countries of Asia, Africa and Latin America over the last 50 years.<sup>1</sup> The first documented epidemic of HEV was reported in New Delhi, India, in 1955-1956. Twenty nine thousand people were affected. Outbreaks have since been reported from many countries in South and South-East Asia, Eastern Europe and North and East Africa. The longest-lasting outbreak was reported from South Xinjiang in the Uighur region of China. This lasted for 20 months from 1986 to 1988, and over 119,000 cases were reported. The Kanpur outbreak in India in 1991 recorded over 79,000 cases. Outbreaks of HEV usually coincide with heavy rains that result in flooding. This leads to sewage contamination of the water supply from nearby sewer lines or from contaminated surface water. A similar outbreak was experienced in Dhaka after the last major flooding in 2004. At that time, almost 80% of Bangladesh was under flood-water for over a month. The outbreak affected more than 1500 students in residential halls of Dhaka University. In the West or in developed countries, sporadic infections are seen in most patients giving a history of residence in or recent travel to endemic areas.

HEV is highly endemic in developing countries and is an emerging autochthonous (locally acquired) disease in industrialized countries in which a preferential zoonotic method of transmission is reported.<sup>1</sup> Acute HEV infection has a high mortality rate in pregnant women, older persons and patients with underlying chronic liver disease. Acute HEV infection can also evolve into chronic infection in immunocompromised patients.<sup>2-4</sup>

We have started a prospective study on use of Ribavirin in case of severe HEV hepatitis in different hospitals of Dhaka city with ethical approval from Bangabandhu Sheikh Mujib Medical University. This is first case in the series.

## CASE REPORT

A 60-year-old male having preexisting history of myelofibrosis was admitted at lab-aid specialized hospital with jaundice of 1 month duration. He had severe jaundice but no ascites, encephalopathy or bleeding manifestation. His blood parameters were given in Table 1.

As the patient had a severe disease he was given Ribavirin 400 mg twice daily for 1 month with prior consent from the patient and his relatives. Within 7 days of initiation of treatment there was significant improvement of the patient. The bilirubin level dropped to 12.9 mg/dl, alanine aminotransferase (ALT) to 53 u/l, hemoglobin to 7.8 gm/dl after 7 days of treatment. Also IgM anti-HEV became negative on day 7. No complication other than slight decrease of hemoglobin was noticed on Ribavirin treatment. The patient recovered completely with normalization of ALT and *serum bilirubin* within 1 month of treatment.

## DISCUSSION

There are reports of successful use of Ribavirin in immunosuppressed patients with chronic liver disease related to hepatitis E virus.<sup>5</sup> Experience from acute setting is limited. However, we lose many patients having fulminant or indolent course from acute hepatitis E. Many patients progress to subacute hepatic failure in Indian subcontinent. Various drugs like glycyrrhizin, albumin have been tried to alleviate the complications. But, no definitive treatment modality has been developed as yet. Ribavirin, a nucleoside analog, has been successfully use in chronic hepatitis C along with pegylated interferon. Major side effect of Ribavirin is fall of hemoglobin due to hemolysis. The major

**Table 1: Patient profile at the onset of therapy**

|   |                                     |
|---|-------------------------------------|
| Total WBC count                                     | 3 × 10 <sup>9</sup> mm <sup>3</sup> |
| Neutrophil 51%, lymphocyte 47%, monocyte 2%         |                                     |
| Platelet count 25 × 10 <sup>9</sup> mm <sup>3</sup> |                                     |
| Hemoglobin  | 9.1 gm/dl                           |
| Erythrocyte sedimentation rate                      | 25 mm in 1st hour                   |
| Random blood sugar                                  | 5 mmol/l                            |
| Serum bilirubin                                     | 25.9 mg/dl                          |
| Alanine aminotransferase                            | 98 u/l                              |
| Alkaline phosphatase                                | 76 u/l                              |
| Serum albumin                                       | 16 gm/l                             |
| Prothrombin time/INR                                | 14.7 sec/1.3                        |
| Ultrasonogram of whole abdomen                      | Hepatosplenomegaly                  |
| HBsAg (ELISA)                                       | Negative                            |
| Anti-HBc (total)                                    | Negative                            |
| Anti-HCV (ELISA)                                    | Negative                            |
| IgM anti-HEV (ELISA)                                | Positive                            |
| IgM anti-HAV (ELISA)                                | Negative                            |

mode of excretion is by kidney. So, if cases are carefully selected excluding those cases of renal failure than there is high chance of response to this drug. The disappearance of IgM anti-HEV may be due to fall in HEV RNA with which it correlates.

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