

## Hepatitis E: Risk and Prevention

Prateek Saurabh Shrivastava, Saurabh Ram Bihari Lal Shrivastava, Jegadeesh Ramasamy, Syed Hasan Nawaz Zaidi

Department of Community Medicine, Shri Sathya Sai Medical College and Research Institute, Kancheepuram, Tamil Nadu, India

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### Correspondence to:

Dr. Prateek Saurabh Shrivastava, Department of Community Medicine, Shri Sathya Sai Medical College and Research Institute, 3<sup>rd</sup> Floor, Ammapettai, Thiruporur - Guduvancherry Main Road, Sembakkam Post, Kancheepuram - 603 108, Tamil Nadu, India.  
E-mail: drshrishri2008@gmail.com

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### DEAR EDITOR,

Hepatitis E virus (HEV) is one among the five isolated hepatitis viruses that can infect humans. HEV infection was first recorded in 1955 in an outbreak in New Delhi.<sup>[1]</sup> Genomic sequence analysis has identified four genotypes of HEV out of which HEV genotypes 1 and 2 are limited to humans while genotypes 3 and 4 are isolated from humans and other mammalian species.<sup>[2,3]</sup>

Hepatitis E is a major cause of several outbreaks of waterborne hepatitis in tropical and subtropical countries. Every year, there are 20 million hepatitis E infections, over three million acute cases of hepatitis E, and 70,000 hepatitis E related deaths.<sup>[4]</sup> Overall population mortality rates from hepatitis E range from 0.5% to 4.0%.<sup>[4]</sup> HEV infection is one of the predominant causes of pregnancy-related complications in the developing countries including India. Hepatitis E in pregnancy is also associated with high rates of spontaneous abortion, preterm labour, intra-uterine deaths. The fatality rate among pregnant women with acute liver failure is reported to be high in India at 22.2%, with the maximum severity occurring during the third trimester (44.4%). Fulminant HEV infection in pregnancy contributes to highest mortality rate of the fetus and mother.<sup>[5]</sup>

Hepatitis E virus is transmitted mainly through the feco-oral route due to fecal contamination of

drinking water others being zoonotic transmission from animals to humans, transfusion of infected blood products and vertical transmission from a pregnant woman to her fetus.<sup>[4]</sup>

Since there is no specific treatment for HEV, prevention of HEV takes the center stage, especially in pregnant women. As most HEV infections spread by feco-oral route, good personal hygiene, high quality public water supplies, proper disposal of sanitary waste, general food safety and finally assessment of cost-effectiveness for food surveillance for Hepatitis E could be the important means of prevention. Travelers to developing countries can reduce their risk for hepatitis E by only drinking purified water. HEV infection has been also reported in patients who have undergone solid-organ transplantation,<sup>[6]</sup> patients on chemotherapy,<sup>[7]</sup> and in HIV-positive individuals.<sup>[8]</sup>

From a public health point of view, Water Supply Department must implement Water Safety Plans based on preventive risk management and multi-barrier approach to ensuring the safety of drinking water. It is important to ensure that the water supplies are of high quality complying with drinking water standards along with proper treatment and disposal of waste. In spite of efforts to provide safe drinking water to all, majority of the times the results are not long lasting. Hence, all

developing nations should explore other avenues of prevention like vaccine.

Immuno-prophylaxis for HEV is still in research phases. China is the only country to license the first vaccine (HEV 239 based on recombinant truncated HEV capsid protein produced in bacterial cells) to prevent HEV infection.<sup>[4]</sup> The vaccine has shown high immunogenicity/protective efficacy against hepatitis E besides favorable safety profile in Phase-III trials.<sup>[9]</sup> The most important question which still remains is the safety and efficacy of a vaccine in the immediate postexposure situation and among the most vulnerable population (pregnant women, young children) and those with preexisting chronic liver disease. There is an immense need for conduction of more vaccine trials for hepatitis E vaccine so that on the basis of their findings government can integrate hepatitis E vaccine in the immunization schedule at the earliest for betterment of the masses. In order to reap long lasting benefits, governments should focus on strengthening the existing preventive, screening and control strategies for viral hepatitis along-with simultaneous integration of viral hepatitis in the surveillance system.<sup>[10]</sup>

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