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Investigation of Suspected Viral Hepatitis Outbreaks in North India

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Abstract : India is endemic for Hepatitis E virus and frequent water borne outbreaks are reported. The conventional diagnosis rests on the detection of serum anti-HEV IgM antibodies which may take 7-10 days to develop. Early diagnosis in such a situation is desirable for the initiation of prompt control measures. The present study compared three diagnostic methods in 60 samples collected during two suspected HEV outbreaks in the vicinity of Chandigarh, India. The anti-HEV IgM, HEV antigen and HEV-RNA could be detected in serum samples of 52 (86.66%), 16 (26.66%) and 18 (30%) patients respectively. The suitability of saliva samples for antibody detection was also evaluated in 21 paired serum- saliva samples. A total of 15 serum samples showed the presence of anti HEV IgM antibodies, out of which 10 (10/15; 66.6%) were also positive for these antibodies in saliva samples ($\chi 2 = 7.636$, $p < 0.0057$), thus showing a concordance of 76.91%. The positivity of reverse transcriptase PCR and HEV antigen detection was 100% within one week of illness which declined to 5-10% thereafter. The outbreak was attributed to HEV Genotype 1, Subtype 1a and the clinical and environmental strains clustered together. HEV antigen and RNA were found to be an early diagnostic marker with 96.66% concordance. The results indicate that the saliva samples can be used as an alternative to serum samples in an outbreak situation.

Keywords : HEV-antigen, outbreak, phylogenetic analysis, saliva
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