Viral Hepatitis case detection

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List of Abbreviations

Abbreviation	Elaboration
CI	Confidence interval
ELISA	Enzyme-linked immunosorbent assay
HRPO	Horse-Radish Peroxidase
TMB	Trimethyl Benzidine
HAV	Hepatitis A Virus
HBV	Hepatitis B Virus
HBsAg	Hepatitis B surface antigen
HCV	Hepatitis C Virus
HDV	Hepatitis D Virus
HEV	Hepatitis E virus
IgA	Immunoglobulin A
IgG	Immunoglobulin G
IgM	Immunoglobulin M
OR	Odds ratio
RT-PCR	Real Time- Polymerase chain reaction

Abstract

Hepatitis is a very common medical condition of the liver where the disease causes inflammation and swelling potentially leading to permanent damage in the liver tissues. Globally it has become a major public health concern since the morbidity and mortality rate of the disease is increasing and is becoming more visible as the second major killer infectious disease after tuberculosis. In Bangladesh, infections due to hepatitis A (HAV), hepatitis B (HBV), Hepatitis C (HCV), and hepatitis E (HEV) are associated with significant morbidity and mortality. A study done two decades ago (Khan, et.al., 2000) showed the prevalence of antibodies to HAV was 39% among the study subjects. HBsAg was present in 19%, HCV antibodies in 13% and HEV antibodies in 53% of the study subjects respectively. This study was conducted to observe the current situation in one district (Chattogram) of Bangladesh. A total of 3514 patients whose serum samples tested positive for any form of viral hepatitis over a three-year duration (Jan 2018- Dec 2020) were included as study subjects. For each type of hepatitis, variation across gender, season and across different years were evaluated. The overall prevalence of Hepatitis A was 1.2% (n=42) with 95% CI: (0.9-1.6), Hepatitis B was 86.06% (n=3,024) with 95% CI: (84.9-87.2), Hepatitis C was 2.93% (n=103) with 95% CI: (2.4-3.5) and Hepatitis E alone was 9.82% (n= 345) with 95% CI: (8.9-10.5). Hepatitis A, Cand E were found to be significantly ($p \leq 0.01$) higher in Male patients than that of female patients throughout the year. Hepatitis B was most prevalent in female patient than that of male patient ($p < 0.001$). In seasonal variation Hepatitis B was significantly low in rainy season while hepatitis E was high in that same season. Overall, more females were affected than males and most cases were observed during rainy season. Number of cases drastically dropped in 2020.

The result indicates the importance of modern molecular techniques such as polymerase chain reaction (PCR) for reliable diagnosis of hepatitis. Moreover, identification of further risk factors such as seasonal variation, sanitation, access to safe water, living in households with infected persons, etc. associated with the occurrence of viral hepatitis would help to take proper strategies for the prevention and control in different areas especially during seasons of high infection.

Key words: Viral Hepatitis, HAV, HBV, HCV, HEV