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Occurrence of feco oral and blood borne hepatitis virus infection among children in North India

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Abstract

Introduction:

Viral hepatitis in children is a major public health problem and it imposes a burden on children's health worldwide including India, which is hyper endemic for HAV and HEV. In preschoolers, Hepatitis A virus (HAV) infection is recognized as the most frequent cause of hepatitis, whereas hepatitis B virus (HBV) & hepatitis C virus (HCV) are important cause of chronic liver disease in children and adolescents.

Aim:

To determine the occurrence of hepatitis A, B, C & E infections in Indian children visiting the hospital with suspected infectious hepatitis.

Methods:

A total of 2594 children upto the age of 12 years, with clinical provisional diagnosis of hepatitis, who attended the OPD or were admitted from January 2012 to June 2013 (1 1/2 years period) to a tertiary level pediatric referral public hospital in Delhi, India were serologically evaluated for hepatitis markers. Cases were categorized as Neonates (< 1 month old) (n=39), Infants (1 month to 1 year old) (n=195), Pre School age (1 to 5 years old) (n=791) and School age (5 to 12 years old) (n=1450). Serum sample was subjected to anti-HAV IgM, HBsAg, anti-HBcIgM, HBeAg, Total anti-HBc, Anti-HBeAg by ELFA (Enzyme Linked Fluorescence Assay) using Mini Vidas, for anti-HEV IgM by ELISA and anti-HCV antibodies by rapid test which were confirmed by ELISA.

Results:

HAV was found to be the leading cause of viral hepatitis 749/2594 (28.8%), followed by HBV, HEV and HCV (8.2%, 3.4% and 0.26%, respectively), while 78 cases (3%) had mixed viral hepatitis in which 75 cases were dual infection while three had triple viral infection, whereas no serological marker was observed in 56.6% of the analyzed samples. Furthermore, when children were categorized by age, an increase in anti-HAV detection was observed in pre-school children (51.2%) and a reduction in school age group (22.06%)

Conclusions:

Hepatitis A is the most prevalent viral hepatitis infection detected in children, followed by HBV, HEV and HCV. The age-dependent vulnerability of groups with HAV infections emphasizes the importance of HAV vaccination in young children in India. Screening of mothers for HBV infection should be strictly followed and vaccine coverage for HBV vaccine should be emphasized to control the increasing rate of HBV infection in children. Rise in the occurrence of mixed infection is a cause of concern and warrants urgent measures to strengthen patient safety in healthcare.