

HEPATITIS "A" -NEW DEVELOPMENTS

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Knowledge regarding the etiology of viral hepatitis has increased sharply over the last few years. The agents identified so far include the viruses of hepatitis A or "infectious hepatitis", hepatitis B or "serum hepatitis", a group of viruses yet unidentified, but thought to be responsible for "non B hepatitis" and the recently identified "delta agent".

The virus of hepatitis A is almost always transmitted by the orofaecal route and though it never leads to the development of chronic hepatitis, yet it is an important cause of morbidity and occasional mortality due to its high potential for epidemic spread.

Hepatitis A virus (HAV) is a small non enveloped RNA containing virus, belonging to the picorna family. Mature HAV virions are roughly spherical measure 27nm in diameter and have an isocohedral symmetry¹. The genomic organisation of HAV appears to be similar to that of polio virus and other picorna viruses,² but there are substantial differences between HAV and polio virus, and the former is antigenically distinct from other known picorna viruses.³ Recently, epidemic viral hepatitis not related to HAV has been recognised in developing countries. This type of hepatitis which has been termed as "epidemic" or "water-borne" non A non B hepatitis, has been associated with a virus which is biologically quite similar to HAV but is quite different from that agent which causes the non A non B hepatitis after blood transfusion^{4,5}

The pathogenesis of hepatitis A remains largely unknown but animal and human studies^{6,7} have confirmed an incubation period of about 28 days. The route of infection can be parenteral too in addition to the oral one.⁸ Interestingly, the route does not influence the length of the incubation period, which may be more directly related to the titer of the inoculum.⁹ Yireamia precedes the onset of hepatic disease, faecal shedding of the virus being maximal during the late incubation period. Young school going children, due to lack of toilet training and thumb sucking habits, have frequently been implicated in the transmission of HAV among themselves and to older siblings and parents¹⁰ Sexual transmission of HAV is more commonly seen in homosexuals, especially in those immunised against hepatitis B.¹¹ Unlike hepatitis B or post transfusion non A non B hepatitis, HAV does not cause chronic or persistent infection.

Hepatocellular injury in hepatitis A is poorly understood. It typically occurs in two phases, an initial highly replicative phase during which there is copious release of virus, followed by a second cytopathic phase in which there is an inflammatory cell response with developing immunity. Thus it appears that liver injury is largely mediated through immunopathologic processes.¹² Electron microscopic study has revealed vital particles vesicles¹³ Antigen may be found in the liver before it within cytoplasmic appears in the faeces, and later on becomes localised to only a few hepatocytes and Kupffer cells.¹⁴ The clinical features of hepatitis A are quite similar to those of other types of hepatitis although diarrhoea is said to be more frequent especially in children.¹⁵ Fulminant hepatitis due to HAV occurs in a small fraction of cases, with a fatality rate of 0.14% in hospitalised patients.¹⁶ Serum enzymes may remain elevated for a number of months, but they always appear to resolve.¹⁷ Total serum immunoglobulins especially IgM are elevated during acute hepatitis A. The initial antibody response probably also involves IgG and IgA antibodies.¹⁸ The IgM anti-HAV response is mostly short lived, but serum IgG anti-HAV persists for longer periods and perhaps for life.¹⁹

Seroepidemiological studies in USA indicate that only 20% of the population below 20 years of age exhibit antibody to HAV,

whereas almost 50% of those above 50 years of age have antibody. This age related effect appears to be due to a declining incidence of hepatitis A in present times. Thus older persons are more likely to have antibody because the incidence of HAV infection was higher during the early years of their lives. On the other hand in many under developed countries, a high seroprevalence is seen in early life indicating a high frequency of viral transmission probably due to inadequate sanitation and personal hygiene. Most of these infections are acquired in the first years of life and are probably asymptomatic or at least anicteric. In Pakistan hepatitis A is uncommon in adults as over 90% of adults are immune to this infection. According to one estimate 58.5% of children under 5 years, 89.8% upto 15 years and 92.9% of adults exhibit HAV antibody. Pooled serum immunoglobulin (ISG) from human beings has been known to provide protection against hepatitis A especially if administered to close contacts within two weeks of exposure. Active immunisation against HAV may also soon be a reality. Efforts are underway to develop an effective vaccine against hepatitis A as it would be very beneficial for certain high risk groups such as young children, homosexuals, overseas travellers and institutionalised persons. General childhood immunisation could also be feasible depending on the duration of the expected immunity.

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