

Delta-Hepatitis

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Abstract. Investigations were conducted for serological evidence of hepatitis B virus (HBV) and hepatitis D virus (HDV) infections in children suffering from acute viral hepatitis. A total of 52 serum samples were analysed by enzyme immunoassay. Of these, 18 (24%) were positive for hepatitis B virus markers and 34 (65.4%) were negative. Delta virus infection was detected in 6/18 (33%) hepatitis B patients. A significant finding was, that of the 34 patients negative for hepatitis B, 4 (12%) were positive only for HDV although the latter can only occur as a coexistent infection with hepatitis B virus. From the present study it may be inferred that delta virus infection is prevalent in children and absence of HBV markers does not rule out hepatitis D.
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Key words : HDV; Hepatitis; Children.

Hepatitis D virus (HDV) is found throughout the world but its highest prevalence has been reported in Italy, the Middle East, Africa and South America.¹

In our previous study², we had reported the prevalence of delta virus infection in healthy blood donors and adults suffering from Hepatitis B. The present study deals with delta hepatitis in children.

MATERIALS AND METHODS

Fifty-two serum samples of children in the age group of one month to fourteen years were received in the Microbiology department of Christian Medical College, Ludhiana, for sero-diagnostic assessment of acute viral hepatitis during Oct. 1993-June 1994. By using enzyme immunoassays (Kits obtained from Organon Teknika/Sorin biomedical Italy) the sera

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were tested for markers of hepatitis B virus (HBV), hepatitis D virus (HDV), hepatitis C virus (HCV) and hepatitis A virus (HAV) namely HBsAG, anti HBcIgM, anti HBe anti HBs, HD AG, anti HDIgM, anti HCV and anti HAVIgM. All positive tests were reassayed for confirmation of results.

RESULTS

Etiological classification of acute viral hepatitis in children is presented in Table 1. Of the 18 patients positive for hepatitis

TABLE 1. Etiological Classification of Sporadic Viral Hepatitis in Children (n = 52)

Hepatitis B	12 (24%)
Hepatitis A	05 (10%)
Hepatitis D	04 (7.7%)
Hepatitis C	01 (2%)
Mixed infection	09 (17%)
HBV & HAV	03
HBV & HDV	06
Undiagnosed	21 (42%)

TABLE 2. Distribution of Hepatitis B Markers in Children with HDV Infection (n = 10)

No. Name	HBsAg	anti HBcI Ag	HBeAg	anti HBe	anti HBs	HDAg	anti HDigM	Remarks
1. Vipin	+	+	+	+	-	+	-	Coinfection
2. Rajat	-	-	-	-	-	+	+	Ac delta hepatitis
3. Dilprit	+	+	-	-	-	+	+	Coinfection
4. B/o Sarabjit	-	-	+	-	-	+	-	Coinfection
5. Harjinder	+	-	-	+	-	+	-	Superinfection
6. B/o Neena	-	-	-	-	-	+	-	Ac delta hepatitis
7. B/o Sumita	-	+	-	-	-	+	+	Coinfection
8. Gurmeet	+	+	-	-	-	+	+	Coinfection
9. Swapna	-	-	-	-	-	+	+	AC delta hepatitis
10. Anu	-	-	-	-	-	+	-	AC delta hepatitis

B, only 6 (33.3%) had evidence of delta virus infection. Amongst these, 5 were cases of coinfections (Table 2) and one was of superinfection. Surprisingly, presence of delta markers was also detected in 4 (12%) of the 34 patients who were negative for all hepatitis B markers.

Hepatitis C virus was detected in one serum sample and this patient was negative for anti HBcIgM, which is thought to be its surrogate marker.

DISCUSSION

Initially observed in Italy, where it is highly prevalent, HDV infection has since been found to be common in Southern Europe and reported worldwide. Its distribution tends, in general, to follow the prevalence of HBV. However, there are regions of high HBV endemicity where HDV has not been found, such as South Africa.³ Prevalence rates of delta infection in adults in India have been reported to be 35%² and 27.8%.⁴ In one study from Chandigarh,⁵ no case of delta hepatitis was seen in 75 pedi-

atric cases studied. In our series of 52 pediatric cases, 10 (19.23%) were cases of delta hepatitis, but associated hepatitis B virus infection was detected in only 6 (60%) of them and 4 (40%) had no serological evidence of hepatitis B. A study from Italy⁶ reported the prevalence of 12.5% delta virus infection in Italian children with HBsAg positive liver disease; whereas the prevalence was 14 - 15% in adults⁷ of the same population.

In the present study, 4 patients of delta hepatitis were negative for HBV markers. These cases were probably of HBV & HDV coinfection, in whom there was suppression of HBV replication early in the course of disease. As a result, the HBV markers were not detectable in the serum or probably the HBV markers were present but in very low concentration and were not picked up by enzyme immunoassay.

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POLIO TO PASS INTO HISTORY

Five years have now passed since the World Health Assembly first proposed an initiative to eradicate poliomyelitis from the face of the earth by the year 2000. In those five years, the numbers of reported cases of acute polio have fallen from over 32,000 in 1988 to 14,128 in 1991 and to an estimated 12,000 in 1992. This 62% reduction in cases since 1988 has occurred in spite of improved cases detection, although satisfaction at this downward trend must still be tempered by estimates that only 10% of actual cases are being reported.

The most striking success has been in the Western Hemisphere (covering North, Central and South America and the Caribbean) where, in spite of intensive searching, no polio case caused by wild poliovirus has been detected since September 1991.

Worldwide, WHO staff, with their colleagues from UNICEF and Rotary International, are helping countries to forecast their vaccine needs, further exploring the possibilities of local production or bottling from bulk imports. WHO places high priority on strengthening surveillance, not only for polio but also for other communicable diseases. WHO is also helping to develop a laboratory network that will support the diagnosis of suspected cases.

Apart from the human and economic benefits of eradicating poliomyelitis, immunization with poliovaccines has a high cost-benefit. One study showed that, by 1998, the benefit of not having to treat the polio disabled will start to outweigh the costs of the vaccine and its administration. When, eventually, immunization can be stopped everywhere, the savings will be enormous, the USA alone no longer having to spend over US\$ 110 million on poliomyelitis vaccine each year. Before poliovaccines were developed, half a million children suffered from the disease each year. When the last virus is eradicated, that half million will be reduced to zero. As has occurred with smallpox, now eradicated for over 15 years, future generations will only know the disease from history.

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