Hepatitis Delta Virus Infection Among The Different Groups in The Region of Malatya

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Özet: *MALATYA YÖRESİNDE FARKLI GRUPLARDA DELTA HEPATİT VİRUS İNFEKSİYONU*

Hepatit D Virus (HDV) infeksiyon prevalansını saptamak amacıyla hepatit B surface antijeni (HBs Ag) pozitif 116 kişide mikro ELİSA yöntemiyle anti-HDV antikoru araştırılmıştır. Bu kişilerden 103'ü klinik ve biyokimyasal olarak hepatit bulguları olmayan poliklinik hastası, 6'sı hayat kadını. 7'si hemodiyaliz hastasıydı. Anti-HDV, hepatiti olmayan 103 poliklinik hastasının 3'ünde (%2.9) pozitif bulundu. Hayat kadınları ve hemodiyaliz hastalarının hiç birinde anti-HDV antikoru saptanamadı. Malatya yöresinde toplumdaki anti-HDV pozitifliğinin özellikle HBs Ag pozitifliğiyle kıyaslandığında düşük olduğu sonucuna varıldı.

Anahtar kelimeler: Hepatit B yüzey antijeni, hepatit D virus enfeksiyonu, antikor, prevalans.

Summary: *In order to find out the prevalence of Hepatitis D virus (HDV) infection, antibodies to hepatitis D virus (anti-HDV) were investigated in 116 hepatitis B surface antigen (HBs Ag) positive persons: 103 from outpatients without hepatitis, 6 from prostitutes, 7 from hemodialysis patients by micro enzyme linked immunosorbent assay (ELİSA). Anti-HDV positivity was found in 3 (2.9%) of 103 outpatients without hepatitis. None of prostitutes and hemodialysis patients had anti-HDV. It has been thought that anti-HDV prevalence is low in HBs Ag carriers compared with HBs Ag positivity in general population in the region of Malatya.*

Key words: Hepatitis B surface antigen, hepatitis D virus infection, antibody, prevalence.

The hepatitis D virus (HDV) is an incomplete RNA virus and requires antecedent or simultaneous hepatitis B virus infection for its replication (1-3). In the former instance HDV infection may lead to chronic active hepatitis; in the latter instance it may contribute to a fulminant presantation (4).

Infection with the delta agent has a worldwide distribution and is transmitted similarly to hepatitis B virus through blood or body fluids (2.3). Whereas the infection is endemic and transmission is thought to occur by nonpercutaneous means, especially close personal contact in northern Africa and southern Europe, the virus has been confined to groups with frequent percutaneous exposure in northern Europe and the United States (3).

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The aim of this study is to find out the prevalence of HDV infection among the different groups such as HBs Ag positive outpatients without hepatitis, prostitutes and hemodialysis patients.

MATERIALS and METHODS

The study was carried out on three different groups. The first group contained 103 HBs Ag positive out-patients who applied to our Internal Medicine Clinics and showed no clinical and biochemical evidence of hepatitis. The cases were between the ages of 6 to 80 years. The mean age was 35.7 years.

The second group consisted of 6 persons who were found to be positive for HBs Ag among 40 prostitutes. Their ages ranged from 24 to 44 years, with a mean of 32.0 years.

The third group contained 7 hemodialysis patients who were found to be positive for HBs Ag among 22 persons applying to Hemodialysis Unit of Government Hospital. The mean age of the patients was 43.6 ranging between 28 and 57.

All serum specimens were kept frozen -20 °C until examined in groups.

Serologic tests: All HBs Ag positive sera were tested for HBe Ag, anti-HBe, anti-HBc IgM and anti-HDV by micro ELISA. "Hepanostica Microelisa System kits" (Organon Teknika) and 'Monolisa kits' (Pasteur) were used according to the instructions given in enclosed brochures for investigation of HBe Ag, anti-HBe and anti-HBc IgM. Anti-HDV antibody was investigated only with "Hepanostica Microelisa System kits".

Biochemical Tests: These tests were used together with clinical findings in order to evaluate liver functions. The levels of alkaline phosphatase (AP), aspartat transaminase (AST), alanine transaminase (ALT), total protein, albumin, bilirubin were determined by Becman Syncron Cx-4 autoanalyser system as described.

RESULTS

Anti-HDV positivity was found in 3 (2.9%) of 103 HBs Ag carriers applying to outpatient clinics. HBe Ag and anti-HBe were negative in anti-HDV positive persons. Anti-HBc IgM was found positive in only one patient. The other anti-HDV positive cases were negative for anti-HBc IgM. Liver function tests were normal in all outpatients including anti-delta positive cases.

None of the prostitutes and hemodialysis patients found positive for HBs Ag had anti-HDV antibody.

DISCUSSION

Our results show that HDV is mildly prevalent in the region of Malatya with a rate of 2.9% in asymptomatic HBs Ag carriers. In another study in Turkey, this rate was found 5.2% (5). The prevalence of anti-HDV positivity shows remarkable differences in the other countries. The rate of anti-HDV positivity is 34.4% in Brazil (6), 33% in Tunusia (7), 10% in India (8), 8.3% in Egypt (9), 6.5% in Cameroon (10), 6% in Sicily (11) 5.8% in Ethiopia (12). 5.4% in Saudi Arabia (13) in asymptomatic HBs Ag carriers.

However, the prevalences of HDV infection in these countries are in marked contrast to other countries where low prevalences of anti-delta have been reported; 0% in Western Canada (14), and in Japan (15), 0.4% in China (16), 1.6% in southern Taiwan (17). As it is seen from the results, anti-HDV positivity in our study is lower than those of the former countries, whereas it is closer to the results of the latter ones.

Recently, we had found that HBs Ag positivity in normal population was 14.09% in the region of Malatya (18). The prevalence of anti-HDV with a rate of 2.9% is low compared with HBs Ag positivity. Such a result is not a function of the prevalence of Hepatitis B virus (HBV) infection. A high prevalence of HBV infection in the general population could be associated with a low proportion of HBV carriers having HDV infection (19). Concurrent infection with HBV and HDV exacerbates the severity of liver disease especially in a chronic state (20). This could cause higher morbidity and mortality among people infected with both viruses resulting in a low prevalence of HDV infection in the general population of healthy people. This is also evident in East Asia (16,20) as being in our region.

In our study, one of the persons found positive for anti-HDV had also anti-HBc IgM, so this case was thought to be recently coinfected with HBV.

None of anti-HDV positive cases had HBe Ag reflecting HBV replication and this might be attributed to suppression of replication by HDV infection (21). The absence of anti-HBe in all anti-HDV positive cases might be explained by the lack of response to suppressed HBe Ag.

The number of HBs Ag positive prostitutes and hemodialysis patients was small, and none of them had anti-HDV. Although it is hard to fol-

low the sexual contacts of HDV-infected persons, many studies suggest that sexual transmission of HDV is an important way of transmission of HDV infection (22,23). The absence of HDV infection in prostitutes in our region may be explained by the low prevalence of anti-HDV in HBs Ag carriers from the general population and few HBs Ag positive prostitutes in our study.

Even if the much higher incidence of HDV infection among hemodialysis patients is reported from India (37.5%) (B) and Iran (44%) (24), our result is an agreement with the findings of other studies in Spain (0%) (25) and Germany (less than 1%) (26). The low prevalence of anti-HDV in HBs Ag carriers from the general population in our region might have been effectual in obtaining such a result in hemodialysis patients.

In conclusion, we have found that anti-HDV prevalence is low in HBs Ag carriers compared with the proportion of HBs Ag positivity in general population in the region of Malatya.

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