



# Seropositivity of Delta Hepatitis in HBsAg Positive Patients in Eskişehir Province

Eskişehir İl'inde HBsAg Pozitif Kişilerde Delta Hepatit Seropozitifliği

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## ABSTRACT

**Objective:** In this study, it was aimed to determine positivity of anti-HDV in inactive HBsAg carriers and the patients diagnosed with chronic hepatitis B in our province.

**Materials and Methods:** We retrospectively evaluated the data of a total of 547 HBsAg-positive patients (204 chronic hepatitis B patients and 343 inactive HBsAg carriers) who were admitted to the infectious disease outpatient clinic in our hospital between July 2012 and October 2013.

**Results:** Three hundred and eight (56.3%) patients were males and 239 (43.7%) were females. The mean age of the subjects was 48.52±12.38 years. Anti-HDV positivity was determined in 5 (0.9%) of the 547 HBsAg-positive patients (204 chronic hepatitis B patients and 343 inactive HBsAg carriers). HDV-RNA positivity was determined in all anti-HDV-positive patients. While anti-HDV positivity was determined in 3 (0.87%) of 343 inactive HBsAg carriers, 2 (1%) of 204 chronic hepatitis B patients were found to be anti-HDV-positive.

**Conclusion:** In conclusion, anti-HDV positivity determined in chronic hepatitis B patients and inactive HBsAg carriers in our province decreased within years consistently in accordance with all regions of our country. (Viral Hepatitis Journal 2014; 20(2): 72-74)

**Key words:** HDV, chronic hepatitis B, inactive HBsAg carrier

## ÖZET

**Amaç:** Bu çalışmada ilimizdeki inaktif HBsAg taşıyıcılarında ve kronik hepatit B tanısı alan hastalarda anti-HDV pozitifliğinin saptanması amaçlandı.

**Gereç ve Yöntemler:** Temmuz 2012-Ekim 2013 tarihleri arasında hastanemiz Enfeksiyon Hastalıkları polikliniğine başvuran 204'ü kronik hepatit B, 343'ü inaktif hepatit B taşıyıcısı olan 547 HBsAg pozitif bireyin dosyası retrospektif olarak incelendi.

**Bulgular:** Hastaların 308'i (%56,3) erkek, 239'u (%43,7) kadın olup, yaş ortalaması 48,52±12,38 idi. Çalışmamızda 204'ü kronik HBV, 343'ü inaktif HBV taşıyıcısı olan 547 HBsAg pozitif kişinin 5'inde (%0,9) Anti -HDV pozitifliği saptandı. Anti-HDV pozitif hastaların hepsinde HDV RNA pozitif idi. Üçyüz kırk üç inaktif HBV taşıyıcısının 3'ünde (%0,87) Anti-HDV pozitifliği saptanırken, 204 kronik hepatit B hastasının 2'sinde (%1) Anti-HDV pozitif idi.

**Sonuç:** Sonuç olarak, ilimizde KHB'li hastalarımızda ve inaktif hepatit B taşıyıcılarımızda elde edilen anti-HDV pozitifliği, ülkemiz geneliyle uyumlu olarak yıllar içerisinde azalma göstermiştir. (Viral Hepatit Dergisi 2014; 20(2): 72-74)

**Anahtar Kelimeler:** HDV, kronik hepatit B, inaktif HBsAg taşıyıcısı

## Introduction

Viral hepatitis remain a significant public health issue throughout the world including our country (1). Hepatitis B virus (HBV) infection is a common and severe inflammatory disease of the liver with a wide clinical spectrum from asymptomatic carrier state to chronic hepatitis and fulminant hepatitis (2). Hepatitis D virus (HDV) is a defective virus which may cause disease only in individuals with HBV infection (3). Worldwide, approximately more than 15 million HBV carriers are infected with HDV. Our country is located in an intermediate endemic area for HDV (4,5).

When the studies performed regarding hepatitis delta in our country are evaluated, it is observed that anti-HDV positivity is

present at a rate of 20% in patients with chronic hepatitis and at a rate of 4.9% in inactive hepatitis B carriers (6).

In this study, it was aimed to determine anti-HDV positivity in inactive hepatitis B carriers and chronic hepatitis B (CHB) patients in our hospital and to provide contribution to the data on the seroprevalence of hepatitis delta in our province.

## Material and Methods

We retrospectively evaluated the hospital records of 547 HBsAg-positive patients who were admitted to the infectious disease outpatient clinic between July 2012 and October 2013. According to the American Association for the Study of Liver

Diseases (AASLD) 2009 Practise Guidelines, 204 of our patients were with CHB and 343 of them were inactive HBsAg carriers. Anti-HDV was studied using ELISA (DIA.PRO, Italy), ELX 50 bioelisa washer and ELX 800 bioelisa reader. HDV RNA extraction from plasma or serum samples of the patients was performed automatically in EZ1 Advanced (QIAGEN, Germany) device using EZ1 Virus Mini Kit v2.0 (QIAGEN, Germany). HDV RNA amount (viral load) was studied in Real-Time PCR device (ROTOR GENE 6000, CORBETT Research Pty Ltd, Austria) according to the recommendations of the manufacturer.

## Results

Three hundred and eight (56.3%) of the patients were males and 239 (43.7%) were females. The mean age was  $48.52 \pm 12.38$  years. Anti-HDV positivity was determined in 5 (0.9%) of the 547 HBsAg-positive patients (204 CHB patients and 343 inactive HBsAg carrier). HDV-RNA positivity was determined in all anti-HDV-positive patients. While anti-HDV positivity was determined in 3 (0.87%) of 343 inactive HBsAg carriers, 2 (1%) of 204 CHB patients were found to be anti-HDV-positive.

## Discussion

While the prevalence of HDV infection is less than HBV infection, the clinical feature caused by HDV infection is severe (7). HDV infection is a critical problem in our country, particularly in Eastern and Southeastern Anatolia. In recent years, HDV infection is decreasing throughout the country, however, the positivity rate still remains to be critical (6). In a study performed in Ankara between 2009 and 2011, Altınbas et al. reported that anti-HDV positivity rate was 2% in 348 HBsAg-positive patients (8). Anti-HDV positivity was determined at a rate of 2% in 913 HBsAg-positive patients in a study performed by Yurtsever et al. in İzmir between 2008 and 2010, at a rate of 9.7% in 787 HBsAg-positive patients in a study performed by Dogan et al. in Ağrı between 2009 and 2012, at a rate of 2.5% in 194 HBsAg-positive patients in a study performed by Sirmatel et al. in Şanlıurfa between 2004 and 2006, at a rate of 7.1% in 8959 HBsAg-positive patients in a study performed by Azap et al. in Ankara between 1987 and 2003, and at a rate of 7% in 3753 HBsAg-positive patients in a study performed by Yaşar K et al. in İstanbul between 2009-2010 (2,9-12).

Anti-delta IgG positivity was determined at a rate of 2.7% in a nationwide community-based survey on the prevalence of viral hepatitis in our country (13,14). In our study, anti-HDV positivity was determined in 5 (0.9%) of the 547 HBsAg-positive patients in Eskişehir province. When the data of our province was evaluated, it was seen that anti-HDV positivity was lower than general average of our country. This was attributed to intensity of anti-HDV positivity especially in the East and Southeast regions of our Turkey and lower rates of anti-HDV positivity reported in the Central Anatolia Region including also our province.

Anti-delta positivity can vary in different patient groups. In a meta-analysis performed by Degertekin et al. in our country, anti-HDV positivity rate in inactive hepatitis B carriers between 1980 and 2005 was determined to be 4.9%. In the same study, it was reported that this rate decreased to 2.9% after 2001 (6). Anti-HDV

positivity in inactive hepatitis B carriers was determined to be 6.3% in İzmir by Yurtsever et al., 2.7% in Afyon by Demirdal et al., 5.4% in Ankara by Balık et al., 1.4% in Adıyaman by Kölgeliler et al., and 3.6% in Trabzon by Kaya et al. (9,15-18). In a study performed by Us et al. in Eskişehir province between 1995 and 1997, anti-HDV positivity in 50 inactive hepatitis B carriers was determined to be 2% (19). In our study, this rate was determined to be 0.87% and it was observed that seroprevalence of hepatitis delta in inactive hepatitis B carriers decreased within years in our region.

Frequency of HDV infection in patients with CHB was determined to be 24.8% in 145 patients by Guducuoglu et al. in Van, 45.5% in 282 patients by Bahcecioglu et al. in Elazığ, 27.5% in 120 patients by Celen et al. in Diyarbakır, 2.9% in 69 patients by Demirdal et al. in Afyon, 3.3% in 30 patients by Kaya et al. in Trabzon, 8.9% in 112 patients by Kolgeliler et al. in Adıyaman, and 6.3% in 645 patients by Yurtsever et al. in İzmir (9,15,17,18,20-22).

In their study, Degertekin et al. demonstrated that while the rate of anti-HDV positivity in patients with CHB in our country was 31% between 1980 and 1990, it regressed to 19.4% between 1991 and 2000 and to 11% between 2001 and 2005. The difference was considered to be statistically significant ( $p < 0.001$ ) (6). In a study performed in Eskişehir province between 1995 and 1997, Us et al. determined HDV infection in 12 (15.58%) of 77 patients with CHB (19). In our study, anti-HDV positivity was determined in 2 (1%) of 204 patients with chronic hepatitis B. A decrease was determined in seroprevalence of HDV infection in patients with CHB in our province within years consistently in accordance with all regions of our country.

In conclusion, anti-HDV positivity determined in CHB patients and inactive HBsAg carriers decreased within years in Eskişehir province. However, our country is located in an intermediate endemic area for HDV and regional data may change due to immigrations, therefore, the presence of hepatitis D infection must be definitely investigated in HBsAg carriers.

**Conflict of interest: None declared.**

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