

## INVESTIGATION OF HEPATITIS E VIRUS ANTIBODIES IN SERA OBTAINED FROM HEMODIALYSIS PATIENTS AND HEALTHY DONORS

### Hemodiyaliz hastalarında ve sağlıklı kan vericilerinde Hepatit E Virus (HEV) antikorlarının araştırılması

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#### Özet

**Amaç:** Hepatit E Virüsü (HEV) dışkı-ağız yoluyla bulaşmaktadır. Son yıllarda, transfüzyonel bulaşın olabileceğine dair yayınlar mevcuttur. Biz çalışmamızda hemodiyaliz hastaları ve kan donörlerinde HEV seroprevalansını araştırmayı amaçladık.

**Gereç ve yöntem:** Bu çalışmada, Erciyes Üniversitesi Tıp Fakültesi Gevher Nesibe Hastanesi Hemodiyaliz ünitesinde takip edilen 70 hasta serumu ve 60 sağlıklı kan serumunda Enzimle İşaretli Antikor Deneyi ile (ELISA) Anti HEV IgG antikorları araştırıldı. Anti HEV ELISA kit'i macro ELISA sistemi (Abbott) kullanıldı.

**Bulgular:** Hemodiyaliz hasta serumlarının 4(%5.7)ünde sağlıklı kan vericilerin 1(% 1.6)'inde Anti HEV-IgG seropozitif bulundu. Çalışmamızda Hemodiyaliz hasta serumlarında sağlıklı kan vericilerine göre anti-HEV antikorları yüksek bulundu.

**Sonuç:** Hemodiyaliz hastalarında, transfüzyonel olarak bulaşan diğer hepatit etkenlerine ilaveten Hepatit E virusünün de araştırılmasını önermekteyiz.

**Anahtar Kelimeler:** Hemodiyaliz, Hepatit E virüsü, Kan verici

#### Abstract

**Purpose:** Hepatitis E Virus (HEV) is enterically transmitted. There is a few study for transmission of Hepatitis E parenterally. In this study we aimed to search HEV seroprevalance in sera obtained from hemodialysis patients and healthy donors.

**Materials and methods:** Anti HEV IgG antibodies were investigated with Enzyme Linked Immuno Sorbent Assay (ELISA) in sera from 70 patients who were followed up in Hemodialysis Unit of Gevher Nesibe Hospital of Erciyes University and in those from 60 blood donors. Anti HEV kit was assayed using commercial ELISA kit (Abbott Macro ELISA system).

**Results:** Anti HEV IgG was found seropositive in 4(5.7%) of hemodialysis patients and in 1(1.6%) of 60 donors. In our study, positivity of Anti HEV in hemodialysis patients were significantly higher than the control group.

**Conclusion:** We conclude that hemodialysis patients must be investigated for Hepatitis E virus in addition to other hepatitis agents which are transmitted parenterally.

**Key Words:** Donor, Hemodialysis, Hepatitis E virus

Hepatitis E virus is a non-A, non-B hepatitis which is transmitted enterically. Non A and non B hepatitis viruses constitute more than half of the hepatitis cases in developing countries, and HEV is responsible for the majority of them (1). This kind of acute hepatitis can cause epidemic infections in the developing countries. It has only sporadic out breaks (2).

Epidemiologically, HEV is a virus similar to hepatitis A virus. Mainly, it reaches the drinking water after stool contamination. However, there are some reports that feecal-oral way is not the only mode of transmission and it also may be transmitted parenterally (3). Although clinical disease related to HEV can be seen at every age, it is most frequently seen between the ages of 15 and 40. No significant difference has been observed between the two sexes in terms of incidence. However compared to non pregnant women, pregnant women have higher risk of getting the disease (4). Conclusive epidemiology of Hepatitis E is still unknown due to the lack of a simple diagnostic test. Cloning of HEV recently

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made it possible to serologically determine the antibodies that are against to recombinant HEV antigens (5).

For HEV infection, education level and socio-economic conditions are the most important factors. However, it is not known which systemic disease becomes a risk factor. In this study, we searched HEV seroprevalance in sera from hemodialysis patients and donors.

**MATERIAL AND METHODS**

This study included 70 patients followed at Erciyes University Medical Faculty Hemodialysis unit; 60 blood donors constituted the control group. Serum samples of patients and control groups have been stored at -20°C until analysed. Anti HEV IgG antibodies have been used by Macro ELISA method (Abbott). Fisher's Exact Test was used for statistical analysis. P values less than 0.05 were accepted as significant.

**RESULTS**

Anti-HEV IgG positivity has been found in four of 70 patients (5.7%) who participated in the study and in one of the healthy individuals (1.6%) (Table I).

When the coincidence of anti HEV and anti HCV has been searched in anti HEV positive and anti HCV positive dialysis patients; anti HCV positive and anti HEV negative 43 patients, anti HCV negative and anti HEV negative 23 patients have been determined (Table II).

**Table I.** The distribution of anti HEV IgG in Patient and Control groups

Anti HEV IgG	Patient Number %	Control Number %
Seropositive	4(5.7%)	1(1.6%)
Seronegative	66(94.3%)	59(98.4%)
Total	70(100%)	60(100%)

P=0.373

**Table II.** Anti HEV IgG analysis in Anti HCV seropositive sera

	Anti HEV Positive	Anti HEV Negative
Positive	4	0
Negative	43	23
Total	47	23

**DISCUSSION**

HEV causes epidemics in the areas where the nonhygienic conditions exist (6). In a study carried out in and around Istanbul, anti HEV prevalence has been found as 5.3 % in normal population (7). In another study, anti HEV positivity has been found as 5.9 % in general population in our country (8). In our study anti HEV positivity has been found as 1.6 %. In Adana 7 %, in Trabzon 3.22% and in Diyarbakır 30% anti HEV positivity have been found (9). No publication about E hepatitis epidemics was found in Turkey.

In a study carried out in Istanbul University by Bozfakıoğlu and his colleagues (10) about HEV seroprevalance in dialysis patients, anti HEV IgG positivity has been found as 13.4 %. In this study, it is reported that there is not a significant difference between the healthy control group and hemodialysis patients in terms of HEV (10). Türkkan et al. have found anti HEV seropositivity in % 12.3 of hemodialysis patients (13). In our study, anti HEV positivity was 5.7 % in hemodialysis patients.

In a study performed in France about HEV seroprevalance in hemodialysis patients, seroprevalance has been found as 10.8%(2). According to Çetinkaya et al. (11) the positivity rate in blood donors ranges from 1.7% to 24% in the developed and developing countries. In our study, anti HEV seropositivity was 1.6 % in donors.

According to Çetinkaya and his colleagues (11) it is

reported that E hepatitis differs from one area to another and varies from 3% to 29% in Turkey. In the developed countries, while HEV prevalence is nearly 3% among healthy individuals this rate is much higher in our country (12). Therefore it will be useful to search for HEV especially among risk groups. It is also necessary to search for the routes of transmission of the HEV.

In our study anti HEV seropositivity has been found at the rate of 1.6 % in the control group, and 5.7 % in dialysis patients.

In conclusion a higher HEV frequency found in hemodialysis patients compared to controls may suggest that another route of transmission alternative to the fecal-oral way may exist and that paraneural transmission may be the route of transmission in these patients.

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