The Occurrence Frequency of Hepatitis B, Hepatitis C and HIV in Patients Applying to İstanbul University Faculty of Dentistry

İstanbul Üniversitesi Diş Hekimliği Fakültesi'ne Başvuran Hastalarda Hepatit B, Hepatit C ve HIV Görülme Sıklığı

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ABSTRACT Objective: The health care professionals, exposed to the blood and other body fluids of patients, are under a higher risk compared to other groups. In this respect, dentists who work with blood and saliva are in the high risk group. The objective of the study is to examine the prevalence of the patients who applied to the Faculty of Dentistry and had a history of HBV, HCV and HIV. **Material and Methods:** This study included the analysis of anamnesis files of 94 753 patients aged 13 years old and over who applied to the Istanbul University, Faculty of Dentistry, Department of Oral and Maxillofacial Radiology for clinical examination between 01.08.2007 and 31.08.2011 with a retrospective perspective. By using standard surveys, patients who gave anamnesis for themselves or healthy anamnesis taken from a relative of the patient were included the study group. The patients who did not know which type of viral infection they had were not taken into consideration. For the statistical analysis, t test for independent samples was used. **Results:** Within the study, anamnesis files of 94753 patients were examined and among them, patients carrying the HBV, HCV and HIV viruses were determined as 1640 (1.730%), 283 (0.298%) and 16 (0.016%) respectively, with a total of 1939 patients (2.04%). **Conclusion:** Due to the prevalence of HBV, HCV and HIV in patients who refer to dentistry clinics is not low, the recommended protection procedures should be completely fulfilled.

Key Words: Hepatitis; dentistry; HIV

ÖZET Amaç: Hastanın kan ve vücut sıvıları ile temasta olan sağlık personeli diğer gruplara göre daha yüksek risk altındadır. Bu açıdan kan ve tükürük ortamında çalışan diş hekimleri yüksek risk grubu arasında sayılır. Çalışmamızın amacı, İstanbul Üniversitesi Diş Hekimliği Fakültesi'ne başvuran hastalardaki HBV, HCV, HIV görülme oranını belirlemektir. **Gereç ve Yöntemler:** Bu araştırma, 01.08.2007-31.08.2011 tarihleri arasında İstanbul Üniversitesi Diş Hekimliği Fakültesi Ağız, Diş ve Çene Radyolojisi Anabilim Dalına muayene amacıyla başvuran 13 yaşında ve daha büyük 94 753 hastanın anamnez dosyalarının incelenmesi yoluyla retrospektif olarak yapılmıştır. Kendilerinden veya yakınlarından sağlıklı anamnez alınmış kişiler çalışmaya dahil edilmiştir. Çalışmaya hangi viral enfeksiyonu taşıdığını bilmeyen hastalar dahil edilmemiştir. İstatistiksel analizde bağımsız örneklemler için t testi kullanılmıştır. **Bulgular:** Çalışma için toplamda 94 753 kişinin anamnez dosyası incelenmiş ve HBV, HCV ve HIV virüslerinden herhangi biriyle enfekte olduğunu belirten hasta sayıları sırasıyla 1640 (%1,730), 283 (%0,298) ve 16 (%0,016) olmak üzere toplamda 1939 hasta tespit edilmiştir. **Sonuç:** Diş hekimliği kliniğine başvuran hastalarda görülen HBV, HCV ve HIV prevalansı düşük olmadığından dolayı gerekli korunma yöntemlerinin uygulanması oldukça önemlidir.

Anahtar Kelimeler: Hepatit; diş hekimliği; HIV

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The infection transmission to the healthcare professionals from the patients is likely to occur. The health care professionals exposed to the blood and other body fluids of patients are under a higher risk

compared to other groups. The dentists suffer from the exposure of infections through the transmission routes, which are known as direct contact, indirect contact, droplet infection, and inhalation/aerosol.[1]

The main transmission routes of chronic viral hepatitis are parenteral, perinatal, sexual and horizontal routes. While Hepatitis B virus (HBV) can be transmitted through all these routes, Hepatitis C virus (HCV) is generally transmitted by the parenteral route.[2]

In Turkey, which is classified as a low endemic region in terms of Hepatitis C carriage, studies carried out on the blood donors showed that the occurrence frequency of HCV varies from 0.3% to 1.8%.[3] While the prevalence of HCV cases in haemodialysis patients in different countries was between 5% and 50%, it has been reduced in the recent years but is still an important problem.[4] The main cause of transfusion transmitted hepatitis is HCV and approximately 85% of cases of hepatitis C infection becomes chronic.[5]

HBV is the most common encountered agent among the viral hepatitis infections to which the healthcare professionals are exposed.[3] According to the reports published by the World Health Organization (WHO) in 2004, the number of deaths caused by HBV infection was accounted for 0.2% of the total number of deaths. While the ratio of positive Hepatitis B virus surface antigen (HBsAg) is around 0.1-0.2% in United States of America (USA) and the Northern European countries, it is about 10-15% in Africa and East Asia.[6] Turkey is classified as medium-to-high endemic region in terms of HBV occurrence.[3] In the studies conducted in various blood centers in Turkey, the positivity of Hepatitis B virus surface antigen has been observed as between 1.8-4.33%.[7] The major transmission routes of HBV infection have been indicated respectively as surgical procedures, interfamily contacts and blood transfusion.[2] The healthcare professionals such as surgeons and dentists, who have direct contact with blood, are at a more elevated risk of HBV exposure. The contact of infected body fluids such as saliva may also cause infection as well.[8]

HIV/AIDS, first recognized in 1981, caused 2 million deaths in 2004, which constituted 3.5% of the total number of deaths within the year.[6] Having had a progressively increasing incidence between the years of 2002 and 2010, the HIV incidence in 2010 was reported as 0.76/100.000. According to the studies conducted, the risk of health care professionals to be exposed to the HIV-infected blood percutaneously is 0.3%.[9]

The objective of the study is to examine the prevalence of the patients applied to our dental faculty with an anamnesis history of hepatitis and HIV.

MATERIAL AND METHODS

This study was carried out by evaluating anamnesis files of 94753 patients who were 13 years or older retrospectively, and who applied to Istanbul University Faculty of Dentistry Oral and Maxillofacial Radiology Department for clinical examination between 01.08.2007 and 31.08.2011. By using standard surveys, patients who gave anamnesis for themselves or healthy anamnesis taken from a relative of the patient were included the study group. Patients who had viral hepatitis and had immunity or patients who didn't know their type of viral hepatitis were not taken into consideration. Also patients who had both HBV and HCV were excluded from the analysis for a better interpretation. In this study, patients who had HBV, HCV or HIV viruses were investigated in order to find differences on frequencies of diseases according to their gender. For statistical analysis, t-test for independent samples was used.

RESULTS

Among 94753 patients who were included in the study group, it was determined that 1939 (2,04%) patients were carrying at least one of the HBV, HCV and HIV viruses. Patients carrying the HBV, HCV and HIV viruses were determined as 1640 (1.730%), 283 (0.298%) and 16 (0.016%) respectively, with a total of 1939 patients (2.04%). Frequencies of each disease are shown in Table 1.

According to Table 1, HBV patients were 5 times more than the sum of rest of the patients. Yet, HIV infected patients consisted of very little

TABLE 1: Frequency distribution for Hepatitis B, Hepatitis C and HIV carriers.

	Frequency	Percent
Hepatitis B	1640	1.730%
Hepatitis C	283	0.298%
HIV	16	0.016%
Total Infected	1939	2.04%
Total	94753	

TABLE 2: Crosstab between diagnosis for gender.

		Sex		
Count		Male	Female	Total
Diagnosis	Hepatitis B	776	864	1640
	Hepatitis C	112	171	283
	HIV	10	6	16
	Total	898	1041	1939

part of the infected patients. It is seen that number of males and females differed from each other since dataset consisted of 59497 female and 35256 male individuals. But on the other hand, when looked at the infected patients, the proportion of males and females approached to Turkey average: 46.6% male (898 people) and 53.4% female (1041 people).

Table 2 shows gender distribution of patients who had HBV, HCV and HIV.

Independent samples t-test results are given on Table 3 for gender. Looking at the p-values, it can be stated that while number of HBV infected patients and HCV infected patients showed differences among gender ($p<0.05$), no such relationship could be determined for HIV infected patients ($p>0.05$) (Table 3).

DISCUSSION

Reducing the contact with blood and other body fluids is an important challenge for all healthcare professionals. Dentists using sharp instruments are at high risk of getting infected by HBV, HCV and HIV.[10]

Baddura et al. reported that the most frequent transmission routes for HBV and HCV were blood transfusion, hemodialysis and gastrointestinal endoscopy and reported blood transfusion in 71.6% of these patients and the history of dental treatment in 65.4% of the cases.[11] Hepatitis B is a virus causing chronic infections in 350 million people and annually 500 thousand-1.2 million deaths worldwide. The number of people who have been exposed to HBV all around the world is 2 billion.[2] The risk of HBV transmission from the saliva of the infected patients or from bleeding during medical treatments to dentists and dental assistants is very high.[10]

According to the statistics of the Turkish Ministry of Health, HBV incidence rate in 2010 is 4.2 per 100.000. Same statistics reveal a decrease in HBV incidence between the years 2006-2010 while an increase between the years 2002-2006.[9] In our study, the incidence of HBV carriers has been determined as 1.73%. This low rate in our study does not necessarily mean that our patients were not infected. Some patients might conceal their medical history regarding the infection since they believe that this information might hinder their medical treatment, while some infected patients may not be aware of their conditions.

HBV and HCV carrier rate has been found as 1.79% in a similar study on 1002 people conducted

TABLE 3: T-test results for gender.

	Sex	Mean	Std. Deviation	t-value	Sig (p value)
Hepatit_B	Male	0.86	0.343		
	Female	0.83	0.376	2.093	0.036
Hepatit_C	Male	0.12	0.331		
	Female	0.16	0.371	-2.483	0.013
HIV	Male	0.01	0.105		
	Female	0.01	0.076	1.274	0.203

by the Dental Sciences Center of Gülhane Military Medical Academy.[12] In another study carried out by Yeditepe University, HBV rate has been observed as 2.3% and the HCV is 0.1%.[13] This proves the similarities between the sample groups.

The occurrence frequency of HCV varies from 0.3% to 1.8% in Turkey which is classified as a low endemic region.[3] HCV incidence rate in our study group (0.298%) is similar to that of Turkey.

In order to prevent the transmission of blood transfusion related viral diseases, HbsAg, Anti-HCV, Anti-HIV and syphilis are routinely screened in blood banks in Turkey. Although the reliability of these tests is very high, they may not give the certain results. The risk of HCV transmission through a screened blood sample is 1/100.000. For every recipient taking blood and blood product, the risk of HBV transmission after transfusion is 2/10.000. For these reasons, there is a slight possibility of carrying HBV and HCV for the individuals who had blood transfusion. Since there were not any mandatory anti-HCV screening tests in blood banks before 1990, the blood transfusions in this period caused many HCV transmissions.[7] It is required to pay special attention to the risk of HCV in the patients who had declared blood transfusions before 1990 in their anamnesis.

The number of HIV carriers has been steadily increasing day by day on a worldwide basis and the number of HIV/AIDS cases is estimated around 31.6-35.2 million.[14] According to the data provided by the Turkish Ministry of Health, the incidence of HIV+ cases has been increased from 0.22 to 0.76 per 100.000 from 2002 to 2010.[10] In our study, 16 HIV carriers (0.016%) have been determined.

CONCLUSION

The increased awareness of the viral infectious diseases among patients, dentists and dental assistants will reduce the risk of transmission related with direct and cross infection. The result of our study shows that it is inevitable to avoid the dramatic increase in the number of infected patients unless the infection control protocols are strictly followed in the major medical centers.

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