

Seroprevalence of Hepatitis B, Hepatitis C and HIV in Police School Students

Polis Okulu Öğrencilerinde Hepatit B, Hepatit C ve HIV Seroprevalansı

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SUMMARY

Introduction: Worldwide, approximately, 240 million people suffer from chronic hepatitis B virus (HBV) and 130-150 million people suffer from hepatitis C virus (HCV). In Turkey, an estimated 3 million people suffer from chronic HBV infection and approximately, 750.000 people get infected with HCV. Therefore, the present study aimed to assess the outcomes of health screening in a young adult group of police school students, belonging to different parts of Turkey. The seroprevalence of HBV, HCV, and human immunodeficiency virus (HIV) was assessed among this group. In light of the current data, necessary actions to be taken to prevent disease transmission are discussed.

Materials and Methods: Police school students, admitted to hospital for check-ups between 2015 and 2016 were included into this study. Serum samples taken from the students were tested for HBsAg, anti-HCV, and anti-HIV1/2, using microparticle ELISA method and results were analyzed.

Results: A total of 3337 subjects were enrolled into this study of which, 2933 subjects (87.9%) were males and 404 (12.1%) were females. Mean age of the subjects was (24.5 ± 2.4) years. A total of 44 subjects (1.31%) were HBsAg-positive, of which 36 subjects (81.8%) were males and 8 (18.1%) were females. None of the subjects tested positive for anti-HIV, while 1 subject (0.02%) tested positive for anti-HCV.

Conclusion: The population in the present study belonging to a young adult group included participants from all parts of Turkey. Thus can be taken as a true estimation of the seroprevalence of HBV, HCV, and HIV among this group in Turkey. Considering the age group, the seropositivity rates of HBsAg and HCV found in our study indicate an important problem in Turkey, and thus, warrants further studies on this subject. Hence, it can be concluded that hepatitis prevention requires immunoprophylaxis, education, and preventive measures in target populations.

Key Words: Hepatitis B; Hepatitis C; HIV

ÖZET

Polis Okulu Öğrencilerinde Hepatit B, Hepatit C ve HIV Seroprevalansı

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Giriş: Tüm dünyada yaklaşık 2 milyar insan hepatit B virüsü (HBV) ile infekte olup, 240 milyon insan kronik hepatit B, 130-150 milyon insan hepatit C hastasıdır. Türkiye’de yaklaşık 3 milyon insanın HBV, 750.000 insanın HCV ile infekte olduğu bildirilmiştir. Bu çalışmada Türkiye’nin farklı bölgelerinden gelen genç erişkin yaş grubundaki polis okulu öğrencilerinin sağlık taraması sonuçları değerlendirilmiştir. HBsAg, anti-HCV ve anti-HIV test sonuçları doğrultusunda ülkemizde bu yaş gruplarındaki seroprevalans güncel veriler ışığında değerlendirilmiş ve bulaşın önlenmesi için yapılması gerekenler tartışılmıştır.

Materyal ve Metod: Bu çalışmaya, 2015-2016 yılında sağlık kontrolleri için hastanemize başvuran polis okulu öğrencileri dahil edilmiştir. HBsAg, anti-HCV ve anti-HIV1/2 testleri mikropartikül ELISA (ADVIA Centaur XP Immunoassay System, Siemens ADVIA Centaur®) yöntemiyle araştırılmıştır ve sonuçlar retrospektif olarak incelenmiştir.

Bulgular: Çalışmaya 2933 (%87.8)’ü erkek, 404 (%12.9)’ü kadın olmak üzere toplam 3337 kişi alındı. Yaş ortalamaları 24.5 (SD=2.4) yıl olarak tespit edildi. Çalışmaya alınanların 44 (%1.31)’ü HBsAg pozitif saptandı. HBsAg pozitif olanların 36 (%81.8)’si erkek, 8 (%12.1)’i kadındı. Bir (%0.02) kişide anti-HCV pozitifliği saptandı. Çalışmaya alınanlarda anti-HIV pozitifliğine rastlanmadı.

Sonuç: Çalışmamızda değerlendirilen popülasyon, genç yaş grubu olup ülkemizin tüm bölgelerinden katılımcı mevcuttur. Bu nedenle, çalışmamız, ülkemizin genç yaş gruptaki seroprevalansı yansıması açısından değerlidir. Saptanan seropozitiflik oranları yaş grubu da göz önüne alındığında ülkemizde hem HBsAg hem de HCV seropozitifliğinin önemli bir sorun olduğunu göstermektedir ve bu konuda yapılması gereken çalışmalara hala gereksinim vardır. Sonuç olarak, hepatitlerin toplumdaki yaygınlığının önlenmesi ve mücadelesinde öncelikle bölgesel yaygınlığının bilinmesi, taşıyıcıların belirlenmesi ve takip edilmesi gerekmektedir.

Anahtar Kelimeler: Hepatit B; Hepatit C; HIV

INTRODUCTION

Approximately, one out of every three individuals is infected with hepatitis B virus (HBV), 240 million people suffer from chronic hepatitis B, and 130-150 million people suffer from hepatitis C worldwide. Hepatitis B and hepatitis C related complications such as cirrhosis and hepatic cancer cause 686.000 and 700.000 deaths each year, respectively^[1,2]. According to the studies separately conducted by the Turkish Association for the Study of the Liver (TKAD) and the Association of Fight against Viral Hepatitis (VHSD), an estimated 3 million people suffer from chronic HBV infection and approximately 750.000 people are infected with hepatitis C virus (HCV)^[3,4]. Based on the 2016 UNAIDS report of the Joint United Nations Program on HIV/AIDS, about 36.7 million people are carriers of human immunodeficiency virus (HIV) and 1.2 million people suffer death due to AIDS worldwide^[4]. A total number of 12.541 cases of HIV/AIDS have been reported in Turkey from 1985 till now^[5].

The present study, therefore, was aimed to assess the outcomes of health screening in a young adult group of police school students hailing from different parts of Turkey. Based on hepatitis B surface antigen (HBsAg), anti-HCV, and anti-HIV test results, the seroprevalence of HBV, HCV, and HIV was assessed among this group. Necessary

actions to be taken to prevent disease transmission were proposed on the basis of obtained data.

MATERIALS and METHODS

Police school students, admitted to hospital for check-ups between 2015 and 2016 were included into this study. Serum samples taken from the students were tested for HBsAg, anti-HCV, and anti-HIV1/2, using microparticle ELISA method (ADVIA Centaur XP Immunoassay System, Siemens ADVIA Centaur®) and results were analyzed, retrospectively.

RESULTS

A total of 3337 subjects were enrolled in the study, of which 2933 subjects (87.9%) were males

Table 1. Distribution of subjects by region of residence

Central Anatolia	2464
Black Sea	501
Aegean	101
Mediterranean	93
Marmara	71
Eastern Anatolia	65
Southeastern Anatolia	42
Total	3337

Table 2. Distribution of subjects by age and gender

	N	Mean	Standart deviation	Median	Minimum	Maximum
M	2933	24.5104	2.552781	25	17	37
F	404	24.87376	1.761571	25	21	28
Total	3337	24.55439	2.47314	25	17	37

Table 3. Distribution of HBsAg-positive patients by age and gender

	Positive (%)	Mean	Standart deviation	Median	Minimum	Maximum
M	36 (1.22)	25.16667	2.248809	24.5	21	29
F	8 (1.98)	25.625	1.187735	26	23	27
Total	44 (1.31)	25.25	2.092345	25	21	29

Table 4. Distribution of HBsAg-positive patients by city of residence

Ankara	13
Yozgat	8
Çorum	3
Tokat	2
Çankırı	2
Samsun	2
Kırşehir	2
Kayseri	2
Samsun	2
Kırıkkale	2
Amasya	1
Sivas	1
Diyarbakır	1
Nevşehir	1
Ordu	1
Şanlıurfa	1
Total	44

and 404 subjects (12.1%) were females. The subjects from all regions of Turkey were included into the study according to their region of residence (Table 1). Mean age of the subjects was 24.5 (\pm 2.4) years. A total of 44 subjects (1.31%) were HBsAg-positive (Table 2). Of the subjects positive for HBsAg, 36 (81.8%) were males and 8 (18.2%) were females (Table 3). None of the subjects tested positive for anti-HIV, while 1 subject (0.02%) tested positive for anti-HCV. The distribution of HBsAg-positive subjects by their region of residence is presented in Table 4.

DISCUSSION

In Turkey, seropositivity rates for hepatitis B, hepatitis C, and HIV are 0.52-4.19%, 0.1-1%, and 0-0.1%, respectively. Endemicity is moderate for HBV and low for HCV. HIV seroprevalence is, however, ever-increasing^[3,6]. It was demonstrated that HBV prevalence is highest in Turkey and Greece, and Italy has the highest HCV prevalence based on an evaluation of data from European countries^[7].

In a study conducted in Turkey in 2009, 5460 subjects were screened and one in every 3 subjects was found to be exposed to HBV. In this study, the proportion of subjects positive

for HBsAg and anti-HCV was 4%, and 1%, respectively. In this study, it was also found that the rate of HBsAg positivity was lower in western regions, but markedly high in Central, Eastern and Southeastern Anatolia regions. HBsAg positivity was observed to increase with age^[3].

In another large-scale epidemiological study conducted in our country between 2007 and 2011, the mean percentage of subjects positive for HBsAg was 3.5% among 100.000 subjects^[8].

The population in our study belongs to young age group and includes participants from all parts of our country. Therefore, our study is valuable in that it reflects the seroprevalence among the young age group in our country.

In our study, the proportion of subjects positive for HBsAg and anti-HCV was 1.31%, and 0.02%, respectively. Our rates are lower when compared to the studies screening general population. The low rates in our study which screened the young age group may reflect the success of the immunization program, considering that hepatitis B vaccine was included in the routine immunization schedule in 1998. It is important to know the regional prevalence of hepatitis in the community to detect and treat carriers^[9]. Our study found that HBsAg seroprevalence was higher in Central and Eastern Anatolia regions when compared to the other regions. The regional distribution found in our study is similar to other studies.

In a study conducted by Demirci et al. in 1999, 629 police academy students from different regions were screened and the rate of HBsAg and anti-HCV positivity was 3.17% and 0.47%, respectively^[10]. Comparing this 18-year-old study with our current study that assesses subjects with similar demographic features suggests that we are on the right track in fighting hepatitis B.

In the technical report of European Centre for Disease Prevention and Control dated September 2010, the prevalence of HBsAg seropositivity was 0.2% in Finland, 0.6% in Germany, 0.7% in Spain and 1% in Italy^[7]. In the light of these data, it is clear that more and more rigorous studies should be conducted to fight hepatitis B in our country.

In a study by World Health Organization, HCV prevalence in Turkey has been reported be 1.5%^[11]. Another study reported a HCV prevalence of 1% among blood donors^[12]. In our study, only 1 subject (0.02%) tested positive for anti-HCV and our rates are much lower when compared to other studies. No subject tested positive for anti-HIV in our study.

A limitation in our study was that we only used HBsAg, anti-HCV and anti-HIV tests and not anti-HBs or anti-HBc total as screening tests. The reason for this limitation is that the tests were ordered without consultation with the Infectious Diseases and Clinical Microbiology Clinic. This indicates the need for training and informing on screening tests of the other divisions where patients may be seen.

In conclusion, in our study, both HBsAg and anti-HCV positivity rates were low but still not at desirable levels. Preventing hepatitis requires immunoprophylaxis and educating on disease and prevention measures of target populations including nursing home residents and particularly people living in communal life such as in military units, police schools, boarding schools and prisons where there is a young adult population. Moreover, since patients with chronic HBV and HCV infections and HIV carriers are mostly asymptomatic, screening of risk groups using serological tests, disease diagnosis and administration of antiviral treatment are important both in changing the disease course and in decreasing transmission rates.

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