



# Knowledge Level of Hepatitis B and its Prevalance in Policemen Working in Adiyaman

Servet Kölgelier<sup>1</sup>, Nazlım Aktuğ Demir<sup>2</sup>, Lütfi Saltuk Demir<sup>3</sup>, Serap Özçimen<sup>4</sup>, Ahmet Çağkan İnkaya<sup>5</sup>

## ABSTRACT

Aim of this study to investigate the level of knowledge about hepatitis B and prevalence of HBsAg carriage in police and other security staff. Hepatitis B knowledge of police and other staff working for Adiyaman police department were measured using a questionnaire. This questionnaire was prepared after a literature search and was applied to 683 subjects before an education seminar. Fully and regularly filled 437 questionnaires were selected for evaluation. HBsAg and Anti HBs values of subjects were measured. Data were recorded to SPSS 16.0 package program. Chi square test was used for data analyses. Of all the study subjects 406 (92.9%) were males and 31 (7.1%) were females. Three hundred sixty subjects (82.3%) were police staff, 60 (13.7%) were public servants, 15 (3.4%) were commissaries and 2 (0.05%) were nightmen. Mean age was  $34.5 \pm 7$ . Fifty four subjects gave correct answers to the question about transmission ways of hepatitis B. Three hundred eighty four subjects didn't have enough knowledge about transmission ways of this virus. HBsAg positivity was detected in 34 (7.7%) subjects. Three hundred twenty five (51.4%) subjects had adequate antibody level for immunity. As a result, we detected that knowledge level was inadequate and increased risk for infection in this profession. It was concluded that security staff should be educated regarding risks and screened for bloodborne diseases.

**Key words:** Police, knowledge level hepatitis B, hepatitis B seroprevalance

## Adiyaman'da Çalışan Polislerin Hepatit B Prevalansı ve Bilgi Düzeyi

### ÖZET

Bu çalışmada, polislerin ve güvenlik görevlilerinin hepatit B bilgi düzeyine ve HBsAg taşıyıcılık prevalansını değerlendirme amaçlandı. Adiyaman emniyet müdürlüğünde çalışan polis ve diğer personelin hepatit B bilgi düzeyi anket kullanılarak değerlendirildi. Bu anket literatür taramasından sonra hazırlandı ve eğitim seminerinden önce 683 hastaya uygulandı. Tam ve düzgün doldurulan 437 anket değerlendirmeye alındı. HBsAg ve anti HBs verileri değerlendirildi. Veriler SPSS programına kaydedildi. Veri analizi için ki kare testi kullanıldı. Katılımcıların 406'sı (% 92.9) erkek ve 31 i (% 7.1) kadındı. Katılımcıların 360'ı (%82.3) polis memuru, 60'ı (%13.7) memur, 15'i (%3.4) komiser ve 2'si (%0.05) gece bekçisi idi. Yaş ortalaması  $34.5 \pm 7$  idi. Ellidört katılımcı hepatit B'nin geçiş yoluyla ilgili soruya doğru cevap verdiler. Üçyüzseksendört katılımcı bu virüsün geçiş yolları hakkında yeterli bilgiye sahip değillerdi. Katılımcıların 34'ünde (%7.7) HBsAg pozitifliği tespit edildi. Üçyüzyirmibeş katılımcıda (%51.4) bağışıklık için yeterli antikör seviyesi tespit edildi. Sonuç olarak bu meslek grubunda bilgi düzeyinin yetersiz olduğunu ve enfeksiyon riskinin artmış olduğunu tespit ettik. Güvenlik görevlilerinin kan yolu ile bulaşan hastalıkların riskleri hakkında eğitilmeleri ve taranmaları gerekmektedir.

**Anahtar kelimeler:** Polis, hepatit B bilgi düzeyi, hepatit B seroprevalans

<sup>1</sup>Infectious Diseases Clinics, Adiyaman University, Adiyaman, <sup>2</sup>Infectious Diseases Clinics, Konya University, Konya, <sup>3</sup>Konya Health Public Directory, Konya, <sup>4</sup>Infectious Diseases Clinics, Konya Numune State Hospital, Konya

Correspondence: Nazlım Aktuğ Demir  
Infectious Diseases Clinics, Selçuk University  
Telephone: +905053510342 Email: naktugdemir@yahoo.com

**INTRODUCTION**

Hepatitis B virus (HBV) infection is the most common bloodborne, transmissible infectious disease. This disease can be transmitted via percutaneous, horizontal, perinatal, and sexual routes. Risk groups include hemodialysis patients, intravenous drug abusers, prostitutes, homosexuals, healthcare personnel, household contacts of a patient or carrier, patients using blood or blood products and people working with these products, and residents of public places (1,2). HBsAg positivity rates were reported to range between 3.2-12.5% in our country (3). Many studies carried out in order to detect HBsAg positivity in various risk groups in our country.

HBV infection causes disease presentations at a wide clinical range from asymptomatic infection to hepatocellular cancer (4). That's why educational activities to increase knowledge level, and periodic screenings are very important for security staff who are frequently get injured and exposed to blood contacts during their work to minimize infection risk, to prevent transmission, and to establish appropriate preventive measures (5,6). Literature search showed very few studies investigating knowledge level of the security staff and appropriate precautions they are supposed to exercise for the prevention of bloodborne diseases.

Aim of this study was to investigate the knowledge level of police and other security staff about hepatitis B, and prevalence of HBsAg carriers among them, and to increase their knowledge level with informative seminars.

**MATERIALS AND METHODS**

This study was carried on police and other security staff working at Adiyaman police department. Six hundred eighty three subjects, who attended to a joint educational programme organized by State Health Directorate and State Police Departments, were offered to fill in the questionnaire 30 minutes before the seminar. This questionnaire included 20 questions on topics such as professional risks, general knowledge level about hepatitis B, transmission routes of this disease, and ways of protection.

Questionnaires were returned by 601 subjects and 437 questionnaires which were appropriately and completely filled were found to be eligible for evaluation. Data were recorded to SPSS 16.0 package program. Chi square test

was used for data analysis and  $p < 0.05$  was accepted as statistically significant. HBsAg and Anti-HBs values of 437 subjects who admitted to Adiyaman State Hospital Infectious Diseases clinic were measured using Macro ELISA (Abbott AXSYM, SYSTEM, Germany). Positive cut-off values for HBsAg and anti-HBs are  $\geq 0.05$  IU/ml and  $\geq 10$  mIU/ml, respectively. These were matched with 437 subjects who appropriately and completely filled the questionnaire and their HBsAg and Anti-HBs values.

**RESULTS**

Of the 683 subjects who attended to the seminar, 601 filled in the questionnaire. 437 questionnaires were evaluated to contain adequate information and chosen for evaluation. Four hundred six (92.9%) of the 437 participants were males and 31 (7.1%) were females. Three hundred sixty (82.3%), 60 (13.7%), 15 (3.4%), and 2 (0.5%), police staff, public servants, commissaries and nightmen, respectively. Their mean age was  $34.5 \pm 7$ . 364 (83,3 %) were university, 55 (12.6%) were high school, and 18 (4,1% ) were primary school graduates (Table1).

242 (55,4%) subjects didn't think their profession was risky about hepatitis B although 195 stated that it was risky. No difference was detected between subjects who previously got or didn't get information about hepatitis B ( $p > 0.05$ ) (Table 2). To the question "Do you expose to blood during your profession?" 262 (59,9%) said "yes" and 175 (40,1%) said "no" (Table 2). To the question "what do you do for protection after you had a contact with blood?" 173 (39,5%) subjects stated that they wash their

**Table 1. Demographic features of the subjects.**

Variables	n (%)
<b>Sex</b>	
Male	406 (92.9%)
Female	31 (7.1%)
<b>Education</b>	
Primary school	18(4.1%)
High school	55 (12.6%)
College/ University	364 (83.3%)
Master/ doctoral degree	6 (1.4%)
<b>Profession</b>	
Nightman	2 (0.5%)
Police staff	360 (82.3%)
Commissary	15 (3.4%)
Public servant	60 (13.7%)
<b>Total</b>	<b>437 (%100)</b>

**Table 2.** Answers to some of the questions

	Yes n (%)	No n (%)
Do you think your profession is risky regarding hepatitis B infection?	195 (44.6)	242 (55.4)
Have you ever got information about hepatitis B?	236 (54)	201 (46)
Do you expose to blood during your profession?	262 (59.9)	175 (40.1)

hands, 160 (36.6%) stated that they wear gloves during situations with a possibility of exposing to blood and 86 (19,6%) subjects stated that they do nothing. 236 (54%) subjects stated that they previously had information about hepatitis B and 201 (46%) said they didn't (Table 2). Among previously informed subjects 130 (29.7%) did so via internet 92 (21%) via newspaper, 71 (16,2%) from a healthcare personnel, 61 (13,9%) via a seminar, and 19 (4,3%) from a friend.

54 (12.3%) subjects answered correctly all questions. It was surprising that great majority of the subjects didn't know transmission routes such as sharing razor blades, sharing nail clipper, manicure-pedicure, and piercing-tattoos made in non-hygienic places, dental procedures applied under nonhygienic conditions. There wasn't a difference between previously informed and non-informed subjects ( $p>0.05$ ). 280 (64%) subjects screened and 285 (65%) subjects vaccinated for hepatitis B previously. Screening and vaccinating rates were higher in previously informed subjects ( $p=0,001$ ,  $p=0,001$ , respectively). 255 (58.4%) knew that Hepatitis B has no definite treatment but 182 (41.6%) subjects stated that it has a definite treatment. There wasn't a difference between previously informed and non-informed subjects ( $p>0.05$ ).

34 of 487 (6.9%) subjects admitted to our clinics had HBsAg positivity. 225 subjects (46.2%) had adequate antibodies protecting against hepatitis B. Subjects with positive HBsAg were undergone further examination and follow-ups. Knowledge about hepatitis B was higher in hepatitis carriers ( $p=0.001$ ). There wasn't a difference in hepatitis B knowledge level according to age, sex, unit of working, and education level ( $p>0.05$ ).

## DISCUSSION

Hepatitis B virus infection is an important disease group that has an important role in the etiology of acute and chronic liver disease. Approximately 350 million people are infected with chronic hepatitis B worldwide (2,3).

One of the most common risk factors for HBV exposure is professional contact. Security staff is among the high risk groups like healthcare staff. Risk of transmission can be decreased by utilizing preventive measures.

Awareness and being informed are important issues for prevention from diseases. We detected that 54% of the policemen were previously informed about hepatitis B and the most common way was through the world wide web. Bonoli et al (7) reported that 58.6% of police subjects got information about bloodborne diseases by specific booklets prepared for them, 47.5% verbally, and 35.2% from posters. Ocak et al (8) reported that 30.4% of police college students stated to get information about sexually transmitted diseases including hepatitis B from visual and written media, 19.8% from friends, 11.3% from school, 8.9% from family, and 8.1% from seminars and congresses. In this study only 54 (12.3%) subjects knew all the transmission routes of hepatitis B. Ocak et al (8) reported that 49.4% of police college students involved in their study knew that hepatitis B is a sexually transmitted disease.

Bonoli et al (7) detected that 27% of their study subjects knew what to do (hand hygiene) after the first contact. Same study found that during body search 44% of the subjects allways, 33% sometimes and 26 % never used gloves. In our study 173 (39.5%) subjects stated that they wash their hands after exposure to blood, 160 (36.6%) subjects said they wear gloves during situations with a possibility of exposing to blood and 86 (19,6%) subjects stated that they do nothing. Sonder et al (9) detected 112 risky injuries in last four years in Amsterdam police force and each of HBsAg and AntiHIV was positive in 4%, and Anti HCV was positive in 18% of the sources. With hepatitis B immunoglobulin application at first 44 hours no personnel transmitted hepatitis B. In our study 175 participants described exposure to blood during their professional life. From those, 173 said (39,5%) they wash their hands, 160 (36.6%) stated that they wear gloves during situations with a possibility of exposing to blood and 86 (19,6%) subjects

stated that they do nothing. In studies which conducted in different countries, hepatitis B prevalence in security staff wasn't higher than prevalence in general population (9-11). HBsAg positivity in general public has found to be between 1.7-21% in our country (12). Prevalence of hepatitis B was detected as 4.2 % in Şanlıurfa which is in the same region with our city (13). In this cohort HBsAg positivity was found to be 6.9%. HBsAg positivity rate in police college students found to be 3.17% by Demirci et al (1) , 3.4% by Sirmatel et al (14), 6.9% by Akbulut et al (15), and 2.61% by Kalayci et al (4). In the present cohort study, vaccination rate was found to be 65.2%. Our findings are consistent with the previous report by Bonoli (7).

In conclusion, there were a few studies searching the knowledge level of police about transmission routes of hepatitis B and post-contact preventive measures. In our study it was observed that knowledge level of these professional groups about bloodborne diseases was inadequate. We believe that security staff should be educated about professional risks and they should be screened for bloodborne diseases.

#### REFERENCES

1. Demirci M, Tünger A, Gökdoğan Hİ, Ayhan Y. Investigation of HbsAg, anti-HCV and anti-HIV seroprevalence in students of policeman school (Turkish). *Microbiol Bult* 1999;33: 313-8
2. Yenen OŞ. Acute viral hepatitis. In Wilke Topçu A, Söyletir G, Doğanay M, editors. *Infectious Diseases and Microbiology*. 3.th edition, Istanbul: Nobel Tıp Kitapevi 2008: 1148-89
3. Taşyaran MA. Epidemiology of HBV Infection. In. Tekeli E, Balık İ, editors. *Viral Hepatit 2003*. Istanbul: Deniz Ofset, 2003: 121-8
4. Kalaycı R, Özbek E, Temiz H, Muratoğlu S, Çelen MK. HBV, HCV, HIV and Syphilis Screening Test Results Evaluation in Police School Students (Turkish). *Viral Hepatit J* 2010; 15: 22-25
5. Ustaçelebi Ş, Ergünay K. Hepatit B virüsü Moleküler Virolojisi. In: Tabak F, Balık İ, Tekeli E, editors. *Viral Hepatit 2007 (Turkish)*. Viral Hepatit Savaşım Derneği. 1. Baskı, 2007. P. 96-107
6. Dunleavy K, Taylor A, Gow J, Cullen B, Roy K. Management of blood and body fluid exposures in police service staff. *Occupational Medicine* 2010; 60: 540-5
7. Bomoli F, Poissonnet CM. Biological hazards among police workers: a hospital-based prevention programme. *J Hosp Infect* 2009; 72: 189-90
8. Ocak S, Turhan E, Çetin M. Evaluation of Sexually Transmitted Diseases Information on the Hatay Police High School Students. *Turkish HIV/AIDS J* 2005; 8: 135-42
9. Sonder GJB, Bovee LGJB, Coutinho RA, Baayen D, Spaargaren J, Hoek AVD. Occupational Exposure to Bloodborne Viruses in the Amsterdam Police Force, 2000-2003. *Am J Prev Med* 2005; 28: 169-74
10. Rischitelli G, Harris J, McCauley L, Gershon R, Guidotti T. The risk of acquiring hepatitis B or C among public safety workers: a systematic review. *Am J Prev Med* 2001; 20: 299-306
11. Averhoff FM, Moyer LA, Woodruff BA, Deladisma AM, Nunnery J, Alter MJ, Margolis HJ. Occupational exposures and risk of hepatitis B virus infection among public safety workers. *J Occup Environ Med*. 2002; 44: 591-6
12. Özdemir D, Kurt H. Epidemiology of Hepatitis B Virus Infections. In: Tabak F, Balık İ, Tekeli E, editors. *Viral Hepatit 2007*. Viral Hepatit Savaşım Derneği 2007 1. Baskı. P.108-17
13. Tekin Koruk S, Koruk İ, Gürsoy B, et al. Hepatitis B and Hepatitis C Seroprevalence in the Center of Şanlıurfa Province From Southeastern Anatolia Region and Related Risk Factors. *Balkan Med J* 2010; 27: 367-372
14. Sirmatel F, Balcı İ, Karaoğlu İ, Karataş M. Hepatitis B surface antigen carriage in different society (Turkish). *Viral Hepatit J* 1996; 2: 89-91
15. Akbulut A, Kalkan A, Karagöz K, Akbulut HH, Felek S, Kılıç SS. Investigation of HBs Ag carrier in police school students (Turkish). *Viral Hepatit J* 1995; 1: 97-100.