




# Seroprevalence of hepatitis and HIV in people admitted to Diyarbakır state hospital

## Diyarbakır devlet hastanelerine başvuran kişilerde hepatit ve HIV seroprevelansı

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### Abstract

**Background:** Viral hepatitis and Human Immunodeficiency Virus are highly contagious and important global health. The aim of this study was to investigate the exchange rate of HAV IgG, HBsAg, anti-HBs, anti-HCV and anti-HIV HBV, HCV and HIV seropositivity in people those admitted to Diyarbakır State Hospital between 2012- 2014.

**Material and Methods:** This study was examined retrospectively without sex discrimination, the blood sample results of 125129 patients who admitted to Diyarbakır Education and Research Hospital between January 1, 2012 and December 31, 2014. Blood samples were searched with CMLA (Chemiluminescent Microparticle Immunoassay) method (Architect İ2000 SR, USA).

**Results:** The study was analyzed HBsAg positivity in 14,176 (11,32%) of the 125129 serum samples examined for HBsAg, Anti-HBs positivity in 55803 (44,7%) of 124914 serum samples examined for anti-HBs, Anti-HBs positivity in 1013 (0,93%) of 109340 serum samples examined for anti-HCV, HAV IgG positivity in 767 (50,76%) of 1511 serum samples examined for HAV IgG, HAV IgG positivity in 51 (0,0005%) of 97501 serum samples examined for anti-HIV.

**Conclusion:** Viral hepatitis is a major health problem for city. Vaccination, infection control programs and public education can reduce the risk of new infections. Nevertheless, Anti-HIV positivity is very low in city.

**Keywords:** Hepatitis, Anti-HIV, Seropositivity

### Öz.

**Amaç:** Viral hepatitler ve HIV enfeksiyonu perinatal, parenteral ve cinsel yolla yüksek oranda bulaştırıcılık gösterir. Günümüzde bu bulaşıcı hastalıklar önemli küresel sağlık sorunlarıdır. Bu çalışmanın amacı, 2012, 2013 ve 2014 yılları arasında HAV IgG, HBsAg, anti-HBs, anti-HCV ve anti-HIV seropozitiflik oranlarının değişimini belirlemektir.

**Materyal ve Metod:** Bu çalışmada, 1 Ocak 2012 ve 31 Aralık 2014 tarihleri arasında Diyarbakır eğitim ve araştırma Hastanesi polikliniklerine başvuran 125129 hastanın kan örnek sonuçları cinsiyet ayrımı yapılmadan retrospektif olarak incelenmiştir. Alınan kan örnekleri CMLA (Chemiluminescent Microparticle Immunoassay) yöntemi ile (Architect İ2000 SR, USA) çalışılmıştır.

**Bulgular:** HBsAg açısından incelenen 125129 serum örneğinin 14176'inde (%11,32) HBsAg pozitifliği, anti-HBs açısından incelenen 124914 serum örneğinin 55803'sünde (%44,7) anti-HBs pozitifliği, anti-HCV açısından incelenen 109340 örneğin 1013'sünde (%0,93) anti-HCV pozitifliği, HAV IgG açısından incelenen 1511 örneğin 767'sinde (%50,76) HAV IgG pozitifliği, anti-HIV açısından incelenen 97501 örneğin sadece 51'inde (%0,0005) anti-HIV pozitifliği saptanmıştır.

**Sonuç:** Sonuç olarak, viral hepatitler ilimiz için önemli sağlık problemleridir. Aşılama, enfeksiyon kontrol programları ve halkın eğitimi yeni enfeksiyonların riskini azaltabilir. Anti-HIV pozitifliği ilimizde çok düşük bulunmuştur.

**Anahtar Kelimeler:** Hepatitler, Anti-HIV, Seropozitiflik

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**Introduction**

Viral hepatitis infections which are observed with liver cell inflammation can be acute or chronic (1). They are categorized as Hepatitis A, B, C and D, and are serious health problems causing mortality and morbidity all around the world, with the highest rates in Asian countries (2). Hepatitis B virus (HBV) and Hepatitis C virus (HCV) infections may cause severe clinical complications such as fibrosis and cirrhosis, and hepatocellular cancer in liver (1). HBV infection is transmitted at high rates perinatally, parenterally and sexually (3). HBV infection rates in our country are 2-7% changing from one region to another. HCV infection is usually transmitted by means of blood and blood products (2). HCV affects more than 170 million people in the world. 80% of the individuals affected by the virus may have chronic HCV infection. Thousands of people die each year in the world due to liver diseases and complications caused by HCV infection (2,4).

Each year, 10 millions of people are infected by Hepatitis A virus (HAV). HAV is seen in three forms; asymptomatic, subclinic and symptomatic (4). Human Immunodeficiency Virus (HIV) infection is transmitted by similar means to those of viral hepatitis infections. HIV infection, though seen asymptotically, can lead the way to terminal illnesses. HIV may go with AIDS (Acquired Immune Deficiency Syndrome), viral, e.g. pulmonary tuberculosis, bacterial and parasitic opportunistic infections, cancers like kaposi sarcoma, or non-Hodgkin lymphoma (5).

In this study, we evaluated to examine retrospectively in the people admitted to Diyarbakır Training and Research Hospital the serological indications of HAV, IgG, HBsAg,

anti-HBs, anti-HCV and anti-HIV belonging to these diseases, which are important for social health and cross-infection in dentistry.

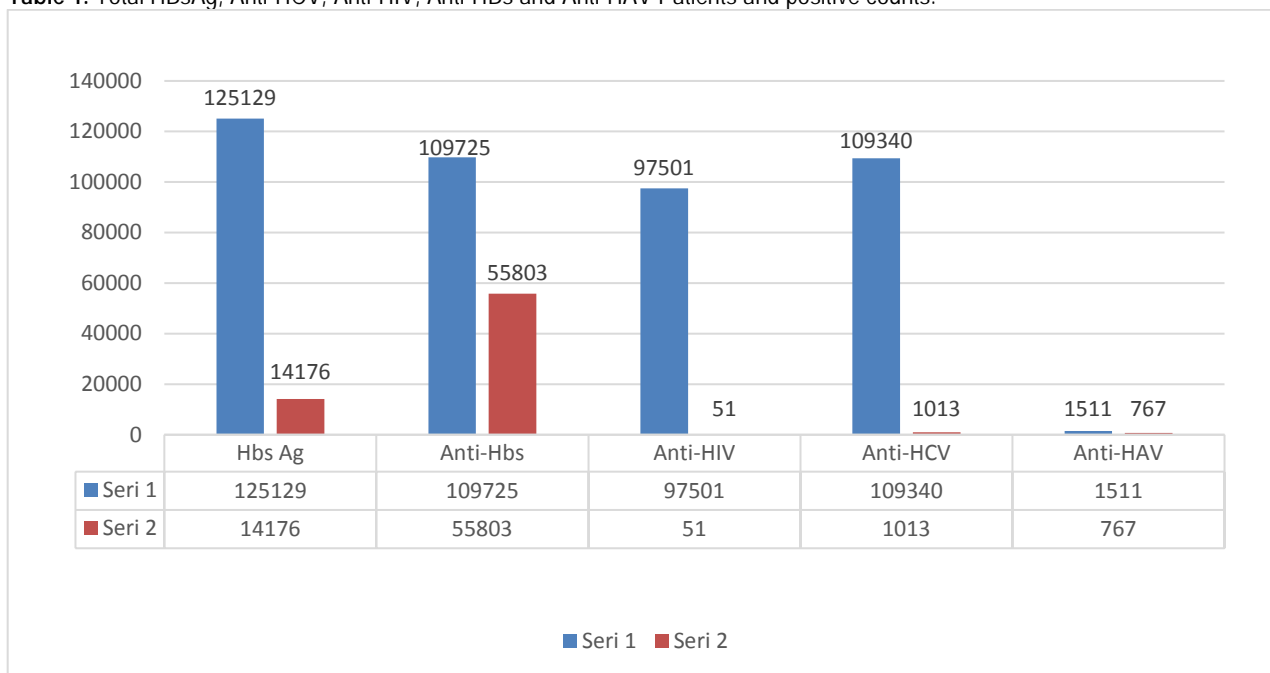
**Material and Methods**

In this study, people who applied to Diyarbakır Training and Research Hospital for several complaints between January 2012 and December 31, 2014 and whose HBV, HCV, HAV, HIV1,2 serological indications are analyzed in our laboratories are examined. Before the start of the study, taken with permission of Directorate Public Health. HBV, HCV, HAV, HIV1,2 serological values are tested in the Architect i2000 SR(Abbott USA) device using CMLIA(Chemiluminescent Microparticle Immunoassay) method. People who are detected as HIV positive in repetitions are directed to Dicle University Medical Faculty Hospital.

**Results**

Among the patients who applied to all the polyclinics in Diyarbakır Training and Research Hospital between January 2012 and December 31, 2014, 125129 patients are examined for HBsAg, 109725 for anti-Hbs, 1511 for anti-HAV, 109340 for anti-HCV, and 97501 for HIV. In our study, HBsAg is found to be positive at the rate of 11,32%, anti-Hbs50,86%, anti-HAV 50,76%, anti-HCV 0.93% and anti-HIV 0.0005%. Exemplar numbers and positivity rates according to years are shown in Table1 and Table2.

**Table 1.** Total HBsAg, Anti-HCV, Anti-HIV, Anti-HBs and Anti-HAV Patients and positive counts.



**Table 2.** HBsAg, Anti-HCV, Anti-HIV, Anti-HBs and Anti-HAV evaluation according to years.

		Total	Seropositive Number	Positive%
HBsAg	2012	44670	5127	11,48
	2013	48760	5494	11,27
	2014	31699	3555	11,21
	Total	125129	14176	11,32
Anti-HCV	2012	34112	364	1,06
	2013	44146	354	0,8
	2014	31082	295	0,95
	Total	109340	295	0,93
Anti-HIV	2012	30063	20	0,066
	2013	39700	24	0,060
	2014	27738	7	0,25
	Total	97501	51	0,0005
Anti-HBs	2012	36702	18841	51,34
	2013	42042	22573	53,69
	2014	30981	14389	46,44
	Total	109725	55803	50,86
Anti-HAV	2012	252	10	3,97
	2013	711	232	32,63
	2014	548	525	95,80
	Total	1511	767	50,76

## Discussion

Although known for centuries, viral Hepatitis is a major social health problem both in our country and the world since it creates high morbidity and mortality rates, and causes great economic losses. In spite of the increase in life standards, the spread of vaccination programs, the rise in social consciousness, and having enough awareness, HBV, HCV and HIV infections are still serious issues today (1,6).

In recent years, some important epidemiological studies have been carried out covering the whole of our country. In study conducted by the Association of Turkish Liver Surveys (TKAD) between 2008 and 2011 reached 5471 individuals over 18 years of age. When the results were evaluated, HBsAg positivity was 4%, anti-HBc total positivity was 30.6% and anti-HBs positivity was 32%. According to study, HBsAg positivity was found to be lower in the western regions but significantly higher in Central Anatolia, Eastern and Southeastern Anatolia regions. In study, HBsAg positivity has also been determined that increases with age. (7,8) In our study, in obtained data, HBsAg was found as 11:32%, anti-HBs were found to be 50.86%.

Seroprevalence of HBsAg varying between regions in our country is found between 3.9-12.5% and anti-HBs seroprevalence is between 20.6-52.3%. (9) In other epidemiological study, In our country, HBsAg positivity is said to be between 1.7-21%, and the highest rate of 4.1% is found in Southeastern region, whereas Black Sea region has the lowest rate, 1.7% (6). Among the studies in our country aiming to research HBV seroprevalence, Çetinkol(1) reports HBsAg positivity as 4.6%, Kalaycı et al. (10) as

1.9%, Demirpençe et al.(11) as 12.6%, Pehlivanoğlu et al. (12) as 3.27%, and Demirtürk et al. (13) as 6.6%. Dursun et al. (14) reports HBsAg positivity as using cluster sampling method 7% in 2888 exemplars in Southeastern region. In a study conducted in Siirt, HBsAg seropositivity is found to be 10% in 10630 exemplars (15), in a study in Batman 12.6% (11), in a study in Şanlıurfa 9.6% (14). In a study conducted on healthcare personnel, HBsAg seropositivity is determined to be %0.9.( 16) In our study, HBsAg was found to be positivity in 14,176 (11,32%) of the 125129 serum samples examined for HBsAg.

Demirpençe et al. (11) report anti-HBs positivity as 48.06%. In Siirt, between 2008 and 2009 a positivity rate of 48% is reported for 5659 exemplars (15). In our study, anti-HBs positivity was found 50.86% between 2012 and 2014.

HCV prevalence is lower than 1% in Northern Europe where the presumed prevalence is the lowest. Asian and African countries are among the areas with high prevalence. HCV Hepatitis is seen less common than HBV Hepatitis in Turkey, yet it may have a higher risk of chronicity. HCV frequency in our country range between 1% and 2.4%. Various studies find seropositivity as 0.4% in Hatay (17), 0.9% in Artvin (18), 1.5% in Kars (1), 0.3% in Yozgat (19), 0.6% in Siirt (15), 1.9% in Batman (11) and 2.6% in Şanlıurfa (14). In our study, anti-HCV positivity is discovered to be 0.93%.

In several studies conducted in our country, Çetinkol (1) finds anti-HIV positivity as 0.009%, and Demirpençe et al. (11) as 0.015%. In our study, it is found to be 0.0005%.

This result is thought to be similar to other results.

In a study carried out in Batman region, a HAV IgG positivity of 93.9% is reported (11). In our study anti-HAV positivity is found as 50.76%

The major risk group for HBV is the health care personnel. These include dentists, maxillofacial surgeons, followed by nurses, dental technicians, laboratory workers, medical, dental and nursing students. The average lifetime risk of any person getting HBV is 5.0%, while for dentists this rate increases to 13-28%. (20)

In our study, seroprevalence values detected for HBV, HCV and HIV show similarities to those of our country. Complications due to Hepatitis and HIV infections are serious health issues all around the world. Therefore, in terms of social health, it is important in the protection against infections to detect infected people, educate the society and raise awareness of the ways of contamination, increase vaccination ratios throughout the country, and avoid unnecessary blood transfusions. In addition to, all healthcare personnel should be screened for seropositivity, and immunized against hepatitis B and hepatitis A should be included in the vaccination program. It is important to follow up and treat infected personnel with HBV, HCV. Healthcare personnel are confronted with many risks and dangers professionally. The most important of these are drill-cutting tool injuries. In addition, it is thought to be important for dental hospitals and operating rooms carrying out interventional operations to be more careful about cross-infection not to increase illness seroprevalence.

As a result, infections due to viral hepatitis, like most viral diseases, have no definitive treatment. For this reason, blocking the transmission of these viruses is the most important issue. In protecting against viral hepatitis, the ultimate goal is to educate and vaccinate those who weaken or do not immunize.

## References

1. Çetinkol Y. Kars Devlet Hastanesi'ne Başvuran Hastalarda HBsAg, Anti-HCV ve AntiHIV Seroprevalansı. *Viral Hepatit Derg.* 2012; 18(2): 76-80.
2. Riaz M, Idrees M, Kanwal H, Kabir F. An overview of Triple infection with Hepatitis B, C and D viruses. *Virol J.* 2011; 8: 368
3. Walter SR, Thein HH, Amin J, Gidding HF, Ward K, Law GM, et al. Trends in mortality after diagnosis of hepatitis B or C infection:1992–2006. *J Hepatol.* 2011; 54: 879-886.
4. Demirpençe Ö, Şahin H, Gümüş A, Kormaz E, Hakim F, Uysal F. HbsAg and antiHCV seroprevalence in an Eastern province of Turkey. *CMJ.* 2016;38(1):29-34.
5. Girard MP, Osmanov S, Assossou OM, Kieny MP. Human immunodeficiency virus (HIV) immunopathogenesis and vaccine development: A review. *Vaccine.* 2011; 29: 6191-218.
6. Özdemir D, Kurt H. Hepatit B Virusü Enfeksiyonlarının Epidemiyolojisi. *Viral Hepatit* 2007;1: 108-117.
7. Tosun S. Viral hepatitlerin ülkemizdeki değişen epidemiyolojisi. *Ankem Derg.* 2013; 27(2):128-134.
8. Tozun N, Ozdogan O, Cakaloglu Y, Idilman R, Karasu Z, Akarca U, et al. Seroprevalence of hepatitis B and C virus infections and risk factors in Turkey: a fieldworkTURHEP study. *Clin Microbiol Infect.* 2015;21(11):1020-1026.
9. Duran F, Kaya A, Zararsız A, Şahin İO, Aldemir BA, Bostancı PK, Cura C. Hastanemize Başvuran 0-18 Yaş Arası Çocuklarda Hepatit B, Hepatit C ve Hepatit D Seroprevalansı. *J Pediatr Inf* 2017; 11: 1-6
10. Kalaycı R, Balcı H, Akdemir Y, Altındiş M. Halk Sağlığı Laboratuvarına Başvuran Portörlerde HBsAg Sıklığı. *Viral Hepatit Derg.* 2012; 18(1): 57-59.
11. Demirpençe Ö, Işık Tezcan S, Değirmen E, Mert D, Gümüş A, Çelen MK. Batman Devlet Hastanesine Başvuran Kişilerde Hepatit ve HIV Serolojisinin Sonuçları. *Viral Hepatit Derg.* 2012; 18(1): 6-10.
12. Pehlivanoglu F, Kart Yaşar K, Şengöz G. Ameliyat Olmak Üzere Başvuran Hastalarda Hepatit B ve Hepatit C Seroprevalansı. *Viral Hepatit Derg.* 2011; 17(1): 27-31.
13. Korkmaz P, Çevik-Çağlan F, Aykın N, Alpay Y, Güldüren HM, Doğru-Yaşar Z, ve ark. Bir devlet hastanesindeki sağlık çalışanlarında hepatit A, B, C ve HIV enfeksiyonu seroprevalansı. *Klinik Derg.* 2013;26(2): 64-67.
14. Demirtürk N, Demirdal T, Toprak D, Altındiş M, Aktepe OC. Hepatitis B and C virus in West-Central Turkey: Seroprevalence in healthy individuals admitted to a university hospital for routine health checks. *Turk J Gastroenterol.* 2006; 17: 267-272.
15. Mehmet D, Meliksah E, Serif Y, Gunay S, Tuncer O, Zeynep S. Prevalance of hepatitis B infection in the Southeastern region of Turkey: Comparison of risk factorsfor HBV infection in rural and urban areas. *Jpn J Infect Dis.* 2005; 58: 15-19.
16. Tunç N, Eraydın H, Çetinkaya E, Oduncu MK, Toy Ş. Siirt Devlet Hastanesi'ne Başvuran Hastalarda HBsAg, Anti-HBs, Anti- HCV ve Anti-HIV Seroprevalansı. *Viral Hepatit Derg.* 2011; 17: 7-11.
17. Köksaldı Motor V, Evingen Ö, Aksakal M, İnci M, Önen Y, Ocak S. Hatay Doğum ve Çocuk Bakımevi Hastanesi'ne başvuran kadınlarda Hepatit B ve Hepatit C seropozitifliği. *Viral Hepatit Derg.* 2010; 16(2): 53-56.
18. İnci A, Okay M, Güven D. Artvin Devlet Hastanesi'ne başvuran hastalarda HBsAg, Anti-HBs, Anti-HCV ve Anti-HIV seroprevalansı. *Viral Hepatit Derg.* 2013; 19(1): 41-44.
19. Yeşilyurt M, Öztürk B, Gül S, Kayhan CB, Çelik M, Uyanık M. Yozgat'ın Sorgun ve Yerköy İlçelerinde HBsAg, Anti-HBs ve Anti-HCV prevalansı. *Viral Hepatit Derg.* 2010; 15(1): 31-34
20. Akca G. Diş Hekimliğinde Kan Yoluyla Bulaşan Viral İnfeksiyonlar ve Önemi. *Hastane İnfeksiyonları Dergisi,* 2008; 12:5-10.