

Research Paper

Eight-Year Seroprevalence of HBV, HCV and HIV in Diyarbakir Training and Research Hospital

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Abstract

Distribution of HBV, HCV and HIV results of the inpatients or outpatients, who had been treated for various diagnoses in Diyarbakir Training and Research Hospital between 2005 and 2012, among years was investigated.

Files of the patients, who had been treated as inpatient or outpatient 992. to any diagnosis between 01/01/2005 and 31/12/2012 in the clinics or policlinics of Diyarbakir 581 due Training and Research Hospital, were retrospectively reviewed using patient file database. Serum samples (235.534 for HBsAg, 196.727 for Anti-HBs antibody, 98.497 for HBeAg, 97.417 for Anti-HBe antibody, 225.483 for HCV and 138.923 for HIV) of these patients, which had been processed in microbiology laboratory, were studied by chemiluminescence technique using Roche E-170 (Modular Analytics System) device.

Prevalence rates between 2005 and 2012 were as follows: 15.9%-9% for HBsAg, 32.9%-52.3% for Anti-HBs, 2.5%-1.8% for HBeAg, 30.4%-25.2% for Anti-HBe, 1%-0.7% for Anti-HCV, and 0.1%-1% for Anti-HIV. Increase in Anti-HBs prevalence is the successful outcome of routine immunization in population. This suggests that, governmental policies focused on this subject have resulted in successful outcomes and that people also take care about this.

A prevalence rate decreasing to 9% from 15.9% for HBsAg and prevalence rate increasing to 52.3% from 32.9% for Anti-HBs antibody positivity in 8-year period in our region is quite meaningful. Such favorable developments in our region are of great valuable in terms of indicating to what extent could struggle against HBV is controlled by education and awareness.

Key words: HBV, HCV, HIV, Seroprevalence.

Introduction

Infections due to human immunodeficiency virus (HIV) and Hepatitis B and Hepatitis C viruses remain as the leading health problems. Worldwide causes of viral hepatitis due to hepatitis B (HBV) and hepatitis C viruses (HCV) are also common in the geography of our country. Importance of prevention from this infection is enhanced since complete eradication of HBV, which leads to life-threatening complications such as cirrhosis, hepatic insufficiency and HCC, is unlikely with current antiviral therapies. [1] Hepatitis C is a global health problem and is the leading cause of cirrhosis and hepatocellular carcinoma.

Before 1992, when blood donors have not been screened for anti-HCV antibody, HCV, which is the most common cause of posttransfusion hepatitis, could be found anywhere in the world. It is the highest in intravenous drug users and hemophilia patients and found between 0.2% and 18% in general population according to the data from WHO. Regions with high prevalence include Far East, certain regions of Africa, Mediterranean countries, and Eastern Europe [2,3].

According to the hepatitis B surface antigen (HBsAg) positivity, countries with HBV prevalence >8% are considered high endemic regions, whereas

countries with HBV prevalence between 2% and 8% are considered moderate endemic regions and countries with HBV prevalence <2% are considered low endemic regions for HBV [4]. Turkey is among the moderate endemic regions and has the characteristics of this group. HBV seroprevalence shows variation among geographic regions, but from west to east and south-east regions, prevalence of HBV carriers is increased to 12.5- 14.3% from 6% respectively [5].

The present study aimed to investigate distribution of prevalence of HBsAg, HBeAg, Anti-HBs antibody, Anti-HBe antibody, HCV and HIV positivity among years in 8-year period, as well as the changes in population resistance against hepatitis. Thus, it was aimed to attract attention to the population prevention and highlight the extent of the risk.

Materials and Methods

Files of the patients, who had been treated as inpatient or outpatient 992.581 due to any diagnosis between 01/01/2005 and 31/12/2012 in the clinics or polyclinics of Diyarbakır Training and Research Hospital, were retrospectively reviewed using patient file database. Serum samples (235.534 for HBsAg, 196.727 for Anti-HBs antibody, 98.497 for HBeAg, 97.417 for Anti-HBe antibody, 225.483 for HCV and 138.923 for HIV) of these patients, which had been processed in microbiology laboratory, were studied by chemiluminescence technique using Roche E-170 (Modular Analytics System) device.

Results

Between 2005 and 2012; HBsAg was studied in 31.586 of 31.586 patients (13.4%), anti-HBs antibody was studied in 85,727 of 196.727 patients (43.5%), HBeAg was studied in 2588 of 98.497 patients (2.6%), Anti- HBe antibody was studied in 33.044 of 97.417 patients (33.9%), anti-HCV antibody was studied in 2871 of 225.483 patients (1.2%), and anti-HIV antibody was studied in 407 of 138.923 patients (0.29%) (Table 1).

Between 2005 and 2012, prevalence of HBsAg positivity according to the years was found to be 2950 (15.9%), 3629 (15.3%), 5185 (13.7%), 4662 (11.8%), 5350 (13.3%), 4937 (14.1%), 2922 (14.9%), and 1951 (%9) respectively; prevalence of HBeAg positivity was in turn 112 (2.5%), 182 (1.8%), 521 (2.4%), 533 (%2), 621 (3.2%), 391 (%3.9), 214 (2.7%), and 14 (1.8%); prevalence of anti-HBe antibody positivity was in turn 1388 (30.4%), 4042 (42%), 7182 (33.5%), 7576 (30.1%), 6034 (32.6%), 4063 (42.5%), 2524 (32.6%), and 235 (25.2%); prevalence of anti-HBs antibody positivity was in turn 4456 (32.9%), 8345 (40.3%), 15162 (44.8%),12944 (42.5%), 12.497 (39.7%), 12.947 (43.9%), 8689 (51%), and 10687 (52.3%) ; prevalence of anti-HIV antibody positivity was in turn 15 (0.1%), 56 (0.7%), 120 (0.6%), 127 (0.4%), 15 (0.05%), 16 (0.06%), 52 (0.3%), and 6 (1%); prevalence of anti-HCV antibody positivity was in turn 181(1%), 388 (2.1%), 704 (2.2%), 559 (1.5%), 397 (1%), 349 (1.5%), 161 (1.9%), and 132 (0.7%) (Table 2).

Table 1. Overall prevalence rates of HBV, HCV and HIV seropositivity between 2005 and 2011 and gender distribution

HBsAg		Anti-HBs		HBeAg		Anti-HBe		Anti-HCV		Anti-HIV	
31.586/235534		85727/196727		2588/98.497		33.044/97.417		2871/225.483		407/138.923	
%13.4		%43.5		%2.6		%33.9		%1.2		%0.29	
Kadın	Erkek	Kadın	Erkek	Kadın	Erkek	Kadın	Erkek	Kadın	Erkek	Kadın	Erkek
%48.3	%51.7	%47.8	%52.2	%48.1	%51.9	%49.1	%50.9	%48.6	%51.5	%48.5	%51.5

Table 2. Distribution of prevalence of HBV, HCV and HIV seropositivity among years

	HBsAg	Anti-HBs	Anti_HCV	HBeAg	Anti-HBe	Anti-HIV
2005	2950/18496 %15,9	4456/13513 %32,9	181/18089 %1	112/4458 %2,5	1388/4564 %30,4	15/13419 %0,1
2006	3629 /23590 % 15,3	8345 /20671 % 40,3	388 /18242 %2,1	182 /9756 %1,8	4042 /9602 % 42	56 /7148 %0,7
2007	5185 /37842 % 13,7	15162 /33779 %44,8	704 /31641 %2,2	521/215527 %2,4	7182/ 21382 % 33,5	120 /18868 %0,6
2008	4662 /39440 % 11,8	12944 /30424 %42,5	559 /36093 % 1,5	533 /25536 %2	7576 /25157 %30,1	127 /31724 %0,4
2009	5350 /40.179 % 13,3	12.497/31.445 %39,7	397 /36.827 % 1	621/18.824 % 3,2	6034 /18.500 %32,6	15 /29.118 % 0,05
2010	4937/34.987 %14,1	12947/29468 %43,9	349/22162 %1,5	391/9812 %3,9	4063 /9541 % 42,5	16 /23.601 %0,06
2011	2922/19543 %14,9	8689/17023 %51	161/8432 %1,9	214/7813 %2,7	2524/7739 %32,6	52/14,058 %0,3
2012	1951/21,457 %9	10,687/20,404 %52,3	132/17,666 %0,7	14/771 %1,8	235/932 %25,2	6/580 %1

Discussion and Conclusion

Hepatitis B is one of the most prevalent infectious diseases all over the world. Prevalence of chronic hepatitis B (HBV) virus infection shows variation among regions. In the world, Africa and a part of Asia are high endemic regions for HBsAg ($\geq 8\%$), whereas Southern Europe and North and South America (Except for some regions of Amazon, Brazil and Peru) are considered low endemic regions ($< 2\%$) [6]. The most common way for transmission changes according to the endemicity of HBV infection. Perinatal transmission is the primary way of transmission of HBV in high endemic regions, whereas sexual intercourse between high risk adults and shared needles among intravenous drug users are the main ways of transmission of HBV in low endemic regions [7]. Moreover, prevalence of HBV and HCV carriers changes according to the age, socio-economic status and occupational groups.

The incidence of hepatitis B defined by the World Health Organization for the European Union countries is 1.49 per 100000 people, whereas the incidence of HCV is 8.7 per 100000 people [8].

In the national studies on HBsAg positivity, prevalence of HBsAg positivity was found to be 2.9% in a 4-year study conducted in Ankara; 8.3% in a 8-month study and 3.27% in a 2-year study conducted in Istanbul; 10% in one-year study conducted with 10630 patients in Siirt; 15% in one-year study conducted in 5334 serum samples from Malatya; 6.6% in 2-year study conducted in 1320 serum samples from Afyon; 4.7% in 4-year study conducted in a total of 9420 women from Adiyaman; and 9.6% in 9882 subjects from Şanlıurfa [9,10,11,12,13,14,15].

In Diyarbakır, prevalence of HBsAg positivity was 6.2% in urban area and 8.2% in rural area out of 2888 subjects. A retrospective study from Kars found the prevalence of HBsAg positivity to be 4.6% in 12,965 subjects, whereas it was reported to be 3.6% in 62,607 women from Şanlıurfa, 4.22% in Tunceli, 2.5% in Isparta, and 5.5% in Tokat [16,17,18, 19,20,21].

In Mersin, the prevalence of HBsAg positivity was found to be 13.6% by Delialioğlu et al., whereas Kandemir et al. found it to be 4.1% in 2800 subjects aged over 15 years, who presented to primary health care units for any reason except hepatitis [22,23].

We found the prevalence of HBsAg seropositivity to be 10% in a total of 276,212 serum samples in 8-year period. Prevalence of HBsAg positivity showed no regional difference, but was higher than that in other geographical regions of the country. Contrary to the higher prevalence rates in the eastern regions of this country, there are studies suggesting a decrease in western regions. High prevalence rates reported from

Mersin and Istanbul (8.3%, 13.6%) is conspicuous, and relevant authors attribute this to the migration from Southeastern Anatolian region to Istanbul. Another condition that should not be overlooked with regard to the high prevalence as 10% found in the present study is the fact that this study consists of all clinical forms, active, chronic and carrier, of hepatitis B. Various studies investigating prevalence of HBsAg in Turkey have reported that South Eastern Anatolian Region has remarkably the highest seropositivity [10].

With respect to the studies conducted in other countries.

In a retrospective study conducted between 2005 and 2006 in Korea, the prevalence rate was reported to be 12.7%. In 2010 in Romaine, the prevalence rate was found to be 5.59% in low risk group consisted of 2540 subjects among four groups created according to the risks; with regard to provinces, it was 4.04% in Bucharest, 7.14% in Craiova and 6.47% in Constanta [24,25].

In an 11-year surveillance study conducted in Pakistan, prevalence of HBsAg positivity was found to be 2.5% in 47,043 patients, whereas it was found to be 8.1% in 2,995 subjects from Dhaka, Bangladesh [26,27].

In China, the prevalence was found 5.84% in randomly selected 8,762 subjects, whereas it was found to be 5.40% in 1352 subjects in the Mianyang state of Sichuan, China and 4.81% in Gansu state of China [28,29,30]. Prevalence rates of HBsAg positivity in China do not show difference among states and are between normal limits. Prevalence rate found in Romaine is interesting, and high percentages in Bangladesh and Korea is conspicuous.

Prevalence of HBV was found to be 11.2% in Andean plateau region of Latin America, which is considered as low risk region; similar rate, however, was found (11.6%) in two high-risk groups, homeless and prostitutes, in Cochabamba [31]. This similarity between two different risk groups has been considered interesting by the authors; we as well share this opinion.

Prevalence of HBsAg positivity was found to be 1% in different regions of Italy; this rate is distributed as 0.8% for Italians and as 6.4% for immigrants [32]. Importance of disease control and immunization against HBV infection is understood when distribution of prevalence in Italy is taken into account.

It should be borne in mind that, prevalence rate is decreased as living conditions are improved and power of immunization, as is in Italy sample, should not be overlooked. In Mersin, Turkey, the prevalence was found to be 3.6% in urban area and 6.8% in rural area, showing statistically significant difference. In urban area, the prevalence rate was 2.9% in the pop-

ulation with high socioeconomic status, 2.8% in the population with moderate socioeconomic status and 6.7% in the population with poor socioeconomic status [23].

It was observed that the prevalence of HBsAg positivity is not different in various regions of the world from that in Turkey. Studies revealed a prevalence rate ranging between 0.8% and 14.3% for HBsAg seropositivity [11].

Nation-wide studies reveal a prevalence rate changing between 20.6% and 52.3% for Anti-HBs antibody seropositivity [10].

We found the prevalence of anti-HBs antibody seropositivity to be 52.3% in our region, which explains the impact of routine HBV immunization in this region with high prevalence of HBsAg positivity. Comparing with nation-wide prevalence rates; prevalence of anti-HBs antibody seropositivity was 48% in 29,227 patients from Siirt, 27.2% in 1320 subjects from Afyon between 2002 and 2004, 38.4% in females admitted between 2008 and 2011 in Adıyaman, 12.1% in Tokat, 16.2% in Isparta, 33% in Malatya, and 46.1% in Şanlıurfa [11,12,13,14, 15, 20,21].

Prevalence of anti-HBs antibody seropositivity was found 36.7% in Mersin and 36.4% in Ankara [9,22] (Table 3).

In a period of three years, prevalence of anti-HBs antibody positivity was found 29.1% in a total of 62,607 pregnant and non-pregnant women from Şanlıurfa; it is conspicuous that the prevalence was 44.9% in non-pregnant women but 25.0% in pregnant women [18]. Prevalence rate of Anti-HBs antibody positivity increasing from west to east as was HBsAg positivity indicates increased likelihood of HBV exposure.

With regard to the studies from other countries; prevalence of anti-HBs antibody positivity was 41.31% in 8,762 people from China [28], 28.7% in 1977 samples from Gansu province, China [30], and 61.3% in Mianyang [29]. In Italy, prevalence of anti-HBs antibody, anti-HBs+/anti-HBc+, anti-HBc antibody positivity was found 23.8%, 8.4%, and 4.2% respectively [32]. Again, another study from Italy found the isolated anti-HBs antibody positivity to be 2.2% in 1991, 21.4% in 1999 and 42.9% in 2008 and reported that prevalence rates were increased by immunization [33]. Importance of disease control and immunization against HBV, the fact that prevalence rates are decreased as the living conditions are improved, and power of immunization, as was in Italy sample, should not be overlooked.

Studies have proven that prevalence of anti-HBs antibody positivity increases in years. In Mersin, Turkey, prevalence of anti-HBs antibody positivity in urban area was 17.6% for the areas with good socio-

economic status, 22.2% for the areas with moderate socioeconomic status, and 6.0% for the areas with poor socioeconomic status; the difference was found significantly high in favor of the regions with good and moderate socioeconomic status [23]. Many studies have revealed similar results on this subject.

The most important problem due to hepatitis C, one of the agents of viral hepatitis, is the chronicity rate of 85% and being usually asymptomatic. World-wide 170 million people have been infected with this virus [34]. In Turkey, prevalence of anti-HCV antibody positivity is 1-2.4% [35].

In this retrospective study conducted in 225,483 people between 2005 and 2012, prevalence of anti-HCV antibody positivity was found 1.2%. Comparing this data with other studies from different regions of our country, we observed that, Akça et al. found the prevalence of anti-HCV antibody positivity to be 0.52% in 188,106 people between 2001 and 2008 in Zonguldak [36], Kölgelir et al. found it to be 0.2% in 9420 females admitted between 2008 and 2011 in Adıyaman [15], and Çetinkol et al. found it to be 1.5% in 11,763 people in a retrospective study performed in Kars between 2007 and 2008 [17].

Tunç et al. found the prevalence of anti-HCV antibody positivity to be 0.62% in 29,227 patients from Siirt [11]; whereas, Pehlivanoglu et al. found it 0.65% in 37,675 patients from Istanbul between 2008 and 2010 [3], Demirtürk et al. found it 2.2% in 1320 subjects from Afyon between 2002 and 2004 [13], and Aslan et al. found it 2.6% in Şanlıurfa [14]. It was found to be 1.0% [20] by Akçam et al. from Isparta and 2.1% by Yıldırım et al. from Tokat [21]. Çiçek et al. found the prevalence of anti-HCV antibody positivity to be 0.8% [18] in 62607 women from Şanlıurfa. In Mersin, the prevalence was 1.1% in general population [23]. Again in Mersin, Delialioğlu et al. determined a positivity rate of 3.9% [22] (Table 3).

Similar studies from other countries demonstrated that prevalence of HCV was 18.2% in Korea between 2005 and 2006 [24]. Lu J et al. found it to be 0.39% in 9538 serum samples from 6 different regions of China; the distribution of the prevalence rate 0.1% to 0.74% among regions was as follows; 0.23% in Beijing, 0.74% in Heilongjiang, 0.26% in Shandong, 0.1% in Ningxia, 0.44% in Gansu and 0.44% in Sichuan [37].

Prevalence of anti-HCV antibody positivity was found to be 0.37% by Zhang et al. in Mianyang, China and 0.46% by Zhonghua Shi et al in 1977 samples from Gansu province, China [29,30]. It was found to be 0.58% in randomly selected 8,762 people from 6 different regions of China [28].

Prevalence of anti-HCV antibody in Uzbekistan was 2.2% in low-risk group [38]; whereas, it was found to be 5.4% in 2,995 people from Dhaka, Bangladesh

[24,26], and 4.56% in Romaine showing an urban distribution as 3.05% in Bucharest, 3.27% in Craiova and 6.37% in Constanta, and high rate in Constanta has been considered significant [25]. Again in the same region in Italy, prevalence of anti-HCV antibody positivity was found 2.6% [32]. Prevalence of anti-HCV antibody positivity in Pakistan was found 4.8% in 11-year surveillance study performed in 47,043 patients [27].

High prevalence of anti-HCV antibody positivity in Korea, Romaine, Pakistan and Bangladesh, which is similar in different regions of the world, is meaningful.

According to the 2011 year-end estimation of the World Health Organization, there are 34 million people infected with HIV all over the world. Newly infected 2.5 million people have been detected in 2011, and a total of 1.7 million people were reported to have died of AIDS [WHO, 2012].

According to the data from Ministry of Health, a mean of 500 people have been annually diagnosed with HIV within the last four years in Turkey. However, this rate has been reached in the first six months of 2012 and it was reported that spread rate of the disease has reached to the highest level in the last one year.

According to the data from Ministry of Health, number of registered HIV/AIDS cases in Turkey is 590 in 2010, whereas the number of newly diagnosed cases increased up to 726 in 2011. However, it is conspicuous that the number of cases reached to 524 in only the first six months of 2012. According to the data in June 2012, number of registered HIV/AIDS cases in Turkey is 5740 [The Ministry of Health Republic of Turkey].

Since the present study comprised the patients admitted to the clinics and polyclinics, results of donors could not be evaluated in the discussion section of this study. In the retrospective evaluation of the prevalence of anti-HIV antibody positivity, we found it 0.1-1% between 2005 and 2012. These data, which was detected by ELISA method, have not been confirmed by western blot method.

Depending on the researches performed using ELISA method, Çetinkol et al. found anti-HIV antibody to be positive by 0.009% in only one case between 2007- 2008 in Kars [17]. All patients in Mardin were found negative by Tekin et al. in 2-year period [40]. Tunç et al. conducted a study in Siirt in 29227 patients and found the prevalence of anti-HIV antibody seropositivity to be 0.08% [11].

Anti-HIV antibody positivity was not detected in any of 2629 females investigated in Ankara, whereas, only one out of 1567 males showed positivity by

0.06% [9]. None of the 1832 patients that underwent anti-HIV antibody testing in Van showed positivity [41]. These nation-wide studies demonstrated similar outcomes to the results of our study.

Although no difference is assumed between genders in terms of prevalence of viral hepatitis, it was observed to be higher in males.

In the present study, of the cases with AVH, 42.7% were female and 57.2% were male. In the relevant studies, Yaşar et al. found that 59% of the cases with HBsAg positivity (8.3%) were male [10]. In 2005, Türkdoğan et al. found chronic hepatitis B infection to be three times more prevalent in males [42]. Kaçmaz determined the prevalence of HBsAg positivity to be 4.7% in males and 1.9% in females; whereas, prevalence of anti-HBs antibody positivity was found similar (36.4%) in both genders; prevalence of anti-HCV antibody, however, was found 0.6% in males and 0.3% in females [9].

Pehlivanoğlu et al. reported that 62% of the cases with positive HBsAg and 54% of the cases with positive anti-HCV antibody were male [3]. Akça et al. found the prevalence of HBsAg positivity to be 66.7% in males and 33.3% in females and the prevalence of anti-HBs antibody positivity to be 58.6% in males and 41.4% in females [36].

Similar with the present study, in a study conducted in Antakya to explore seropositivity for hepatitis A and B, prevalence of HBsAg positivity was found 3.2% in 2439 preoperative cases aged between 6 months and 90 years, being 4.1% in males and 2.1% in females [43]. Studies from Dhakka, Bengladesh and Pakistan reported higher prevalence rates in males versus females [26,27].

In the present study, males accounted for 61% of HBsAg positivity, 56% of anti-HBs antibody positivity, 45% of anti-HCV antibody positivity and 50% of anti-HIV antibody positivity. These rates suggest that middle-age-group males and females of our region are at great risk for hepatitis B virus infections. Number of male patients being higher in these studies is attributed to the fact that males are more exposed to risky behaviors in terms of parenterally-transmitted hepatitis infections. Özkurt et al. seem to support this suggestion [44].

A prevalence rate decreasing to 9% from 15.9% for HBsAg and prevalence rate increasing to 52.3% from 32.9% for Anti-HBs antibody positivity in 8-year period in our region is quite meaningful. Such favorable developments in our region are of great valuable in terms of indicating to what extent could struggle against HBV is controlled by education and awareness.

Table 3. Prevalence of HBsAg, Anti-HCV antibody and Anti-HIV antibody positivity in different studies from Turkey

	HBsAg	Anti-HBs	Anti-HCV
Tunç et al. in Siirt	10%	48%	0.62%
Demirtürk et al.in Afyon.	6.6%	27.2%	2.2%
Çetinkol et al. in Kars	4,6%	-	1,5%
Pehlivanoglu et al in İstanbul	3.2%	-	0.65%
Çiçek et al. in Şanlıurfa	3,6%	29,1 %	0,8%
Kandemir et al. in Mersin	4.1%	19.9%	1.1%
Aslan et al. in Şanlıurfa	9.6%	46.17%	2.6%
Yıldırım et al. in Tokat	5.5%	12.1%	2.1%
Kölgeliler et al. in Adıyaman	4,7 %	-	0,2%
Tekerekoğlu et al. in Malatya	15%	33%	-
Kaçmaz İn Ankara	2.9%	36.4%	0.6%
Aşan et al. Tunceli	4.22%	-	0.95%
Mehmet et al.in Diyarbakır	6.2%	-	-
Akçam et al. in Isparta	2.5%	16.2%	1.0%
Delialioğlu et al. in Mersin	13.6%	36.7%	3.9%

Table 4. Seroprevalence of Anti-HDV 3 years

	Anti-Delta IgM		Anti-Delta IgM	
	Sayı	%	Sayı	%
2006	38/5018	0,7	216/5022	4,3
2007	40/1541	2,5	118/1550	7,6
2008	65/1420	4,5	202/1426	14,1

Table 5. Hepatitis seroprevalence by age (0-99)

	0-14	15-30	31-45	46-60	60
HBsAg	842/10391 %8,1	16040/103870 %15,4	10172/69106 %14,7	4292/36349 %11,8	1082/26209 % 4,4
Anti-HBs	3560/10391 %34,2	30619/81191 %37,7	21794/53026 %41,1	14810/31378 %47,1	15295/31132 %49,1
HBeAg	222/10391 %2,1	1833/39171 %4,6	4351/28040 %1,5	102/12861 %0,7	218/18395 %1,1
Anti-HBe	620/10391 %5,9	9556/41158 %23,2	7026/17929 %39,1	5782/13812 %41,8	10680/24517 %43,5
Anti-HCV	53/10391 %0,5	%528/93869 %0,5	667/43050 %1,5	838/30089 %2,7	838/58475 %1,4
Anti-HIV	-	81/73415 %0,1	100/37053 %0,2	62/21477 %0,2	164/6978 %2,3
HBcIgM	-	120/20481 %0,5	83/22147 %0,3	42/21726 %0,1	142/104259 %0,1

Competing Interests

The authors have declared that no competing interest exists.

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