

THE PREVALANCE OF HEPATITIS B IN BLOOD DONORS IN THE MIDDLE REGION OF JORDAN

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Gülhane Tıp Dergisi 45 (2) : 153 - 155 (2003)

ÖZET

Ürdünün Orta Bölgesindeki Kan Donörlerinde Hepatit B Prevalansı

Bu çalışmanın amacı Ürdün popülasyonundaki kan donörlerinde hepatit B yüzey antijeninin (HBsAg) seroprevalansını değerlendirmektir. Bu amaçla 1999 yılında Queen Alia Military Hospital'da retrospektif bir çalışma yapıldı. Ürdünün orta bölümünde yaşayan 18000 uygun kan donörü HBsAg için tarandı. Dataları Queen Alia Military Hospital'dan toplandı. Bütün donörlerden taze kan örnekleri alındı. Serumlar ayrıldı ve test yapılana kadar -20°C'de saklandı. HBsAg, Hemoaglutinasyon testi (Hepanosticon 3 Boxtel Holland) ile saptandı. Pozitif örnekler ELISA testi (Vironostika "HIV Uni-form II Pulso Organon Teknika") kullanılarak doğrulandı.

Toplam 18000 kan donörü (16750 erkek, 1250 kadın) HBsAg için tarandı. Çalışma popülasyonu içerisinde HBsAg seropozitif olguların prevalansı % 1.7 ve erkek ve kadınların prevalansları ise sırası ile % 1.8 ve % 0.6 bulundu. HBsAg pozitif donörlerin pik yaş aralığı 30-39 yaştı.

Donörlerimizde seropozitiflik oranının belirgin olarak yüksek olduğu kararına vardık. Bu yüzden, genişletilmiş immünizasyon programları bütün yaş gruplarına uygulanmalıdır. Hepatit B markirlarının ölçümünde daha sensitif tarama metodları kullanılarak, daha geniş popülasyonlarda hepatit B prevalansının saptanması için başka çalışmalar gereklidir.

Anahtar Kelimeler: Hepatit B, Kan Donörleri.

SUMMARY

The aim of this study was to study the sero prevalence rate of hepatitis B surface antigen (HBsAg) in Jordan population among blood donors. A retrospective study carried out at Queen Alia Military Hospital over one year period in 1999. 18000 eligible blood donors in the middle region of Jordan were screened

screened for HBsAg. Their data were collected from Queen Alia Military Hospital. Fresh blood samples were drawn from all donors. Serum was separated and stored at -20 °C until it was tested. HBsAg was detected using the Hemoagglutination test (Hepanosticon 3 Boxtel Holland). Positive samples were confirmed by using ELISA test (Vironostika "HIV Uni-form II Pulso Organon Teknika").

A total of 18000 (16750 males, 1250 females) blood donors were screened for HBsAg. The prevalence of HBsAg seropositives among the study populations was 1.7% and the prevalence in males and females were 1.8% and 0.6% respectively. The peak age range of positive HBsAg donors was from 30-39 year. We concluded that seropositivity in our donors is still significant. Therefore, expanded immunization programme must be introduced taking into account all age groups. Future studies are needed to determine the prevalence of hepatitis B in more common populations by using more sensitive screening methods for hepatitis B markers.

Key Words: Hepatitis B, Blood Donors.

INTRODUCTION

The hepatitis B virus (HBV) is a hepatotropic virus that can produce a variety of clinical syndrome in patients ranging in age from infants to elderly adults. Worldwide, it is among the leading causes of fulminant hepatic failure, cirrhosis and hepatocellular carcinoma(1).

It infects 200-300 million persons worldwide(2). HBV is present in high concentration in blood, serum, serous exudates and in moderate concentration in saliva, vaginal fluids and semen. For these reasons, efficient transmissions occur through blood exposure and sexual contact. The incubation period range from 45- 160 days, with a mean of about 120 days(3). In developing countries, the principal modes of HBV transmission are from mother to infant and through sexual exposure(2).

Recent advances have led to effective antiviral treatments using interferon and nucleoside analogues. Highly effective vaccinations also are used widely and ultimately may lead to eradication of this life threatening virus(1).

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Kabul Tarihi: 31.3.2003

METHOD AND SUBJECTS

18000 eligible blood donors who deemed statistically to represent the population in the middle region of Jordan were screened for HBsAg. These data were collected from Queen Alia Military Hospital in the middle region of Jordan. Eligibility of donors were based on age (>18year, <60), weight (>50 kg), Hct >40%, negative history of blood transfusion, negative history of jaundice, negative history of intravenous drug abuse and normal physical examination. Fresh blood samples were drawn from all donors. Serum was separated and stored at -200C until it was tested. All blood samples were tested in the immunology laboratory of Queen Alia Military Hospital. HBsAg was detected using the hemoagglutination test (Heapanosticon 3 Boxtel, Golland). Positive samples were confirmed by using ELISA test (Vironostika "HIV Uni-form II Pulso Organon Teknika").

RESULTS

None of donors showed signs or symptoms of liver disease. A total of 18000 (16750 males, 1250 females) blood donors were enrolled in our study table 1 shows the age and sex distribution of all screened donors the prevalence of HBsAg seropositives among the study populations was 1.7% and the prevalence in males and females were 1.8% and 0.6% respectively (table 2) the peak age range of positive HBsAg donors was from 30-39 year (table 3).

TABLO - I
Age and Sex Distribution Of All Donors

Age	Total No	Male	Female
18-29	7869	7146	724
30-39	6857	6374	483
40-49	3086	3046	39
50-60	188	184	4
Total	18000	16750	1250

TABLO - II
Prevalence of HBsAg Positive Cases According To Gender

Gender	No	HBsAg + (positive)	Prevalence %
Males	16750	280	1.8
Females	1250	8	0.6
Total	18000	310	1.7

TABLO - III
Age Range of Donors With Positive HBsAg

Age	No. positive cases	Percentage %	Male	Female
18-29	125	40.3	124	1
30-39	146	47.1	144	2
40-49	29	9.4	28	1
50-60	10	3.2	6	4
Total	310	100	302	8

DISCUSSION

Post-transfusion hepatitis B remains a risk for recipient of HBsAg screened blood. Because the information is scarce on the prevalence of hepatitis B among voluntary blood donors in the middle region of Jordan we conducted this retrospective study

The prevalence of hepatitis B virus in healthy carriers varies, being as low as 0.1% to 1% in blood donors in the UK. and U.S.(4) and as high as 15% in Southeast Asia and the far East(5).

The prevalence of positive HBsAg cases in our blood donors' population studied was 1.7%. This prevalence is lower than that found in studies from other countries; Vietnam 10-14%, Mauritania 20.3%, and moldavia 3.8%(6,7,8). Whereas, the prevalence of positive HBsAg in our donors is higher than that found in countries such as in Austrias (0.28%)(9) and Mexico City (0.11%)(10).

Koulentaki et al(11) found that a greater number of males than females were hepatitis B positive (0.41% vs. 0.28%, respectively) which is almost consisted with the findings in our study where males outnumbering females at 1.8% and 0.6% respectively.

Persistent infection occur in 5-15% in adults after acute hepatitis and in 90% of babies who acquire infection at birth(12).

Seroprevalence in our study was significantly higher among young and middle-aged groups at 40% and 47% respectively than in other age groups (table 3). This carrier state may be attributed to that our donors acquired infection during their early childhood.

In the present study HBsAg positivity was evaluated by utilizing a commercial kit based upon hemaagglutination technique. Although the ELISA is known as more sensitive thus more effective method for detection of HBsAg positivity, we preferred a hemagglutination technique due to adequacy of the method for scanning purposes, as well as financial reasons.

We concluded that seropositivity in our donors' still significant. Therefore, expanded immunization programme must be introduced taking into account

all age groups. Future studies are needed to determine the prevalence of hepatitis B by determining hepatitis B markers. Physicians should take the probability of HBsAg seropositivity of the samples into consideration while making the decision of blood transfusion, and this treatment was to be preferred merely for life saving reasons.

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