

Brief Original Article

Analysis of HbsAg positivity rate before and after vaccination in Turkish and Syrian refugee pregnant women

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Abstract

Introduction: In this study, we aimed to investigate the vaccination rate in Turkish and Syrian pregnant women who gave birth in our hospital, research the difference before and after vaccination, compare these results with other studies conducted in our country and be beneficial to physicians in the follow up of this patient group, who we started to encounter rather frequently in recent months.

Methodology: The data of pregnant women who were referred to Kanuni Sultan Suleyman Education and Research Hospital between January and December 2015 were retrospectively investigated.

Results: A total of 4186 pregnant women, 2158 of Syrian and 2028 of Turkish, were included in this study. The rate of hepatitis B surface antigen (HbsAg) positivity was 1.4% among all pregnant women. This value was found to be 1.8% among Turkish women and 1.1% among Syrian women. Evaluation of age distribution showed that there were 30 Turkish pregnant women born after the inclusion of vaccine into the program (1998 and later), of which one was HbsAg positive. While out of 958 Syrian women born in 1991 and later, 10 were HbsAg positive.

Conclusion: This study shows that the surveillance of hepatitis among pregnant women, including refugees and locals is important to protect fetus and guide in planning of preventive measures such as administration of vaccines and immunoglobulins. Timely prevention may decrease morbidity and mortality caused by hepatitis viruses.

Key words: HBV; pregnant; vaccine.

J Infect Dev Ctries 2017; 11(10):815-818. doi:10.3855/jidc.8162

(Received 25 January 2016 – Accepted 05 September 2016)

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Introduction

Viral hepatitis is still an important public health issue and approximately two million people in the world are reported to be infected with HBV. The rate of HBV carriership varies, and recently, regional distinction has been made in order to determine the prevalence of this infection [1].

Positivity rate of HBsAg in pregnant women varies according to geographical area and ethnicity. In pregnancy, HBV DNA levels may change due to hormonal effects and mother-to-baby transmission may be seen in utero, during birth or after birth. The perinatal transmission of HBV causes complications such as chronic infection and cirrhosis; and chronicity rates are much higher. The results of liver function test and HBV DNA levels must be monitored closely during pregnancy in order to determine the progress of the liver disease in HBV infected patients [2].

Migrations due to wars in the world cause the death of many, increase poverty, ease the spread of disease

and increase health problems. Clashes in Syria cause people to flee the country and take refuge in Turkey and other countries. Along with many problems, issues arise in healthcare services, which firstly affect women in reproductive age, pregnant women and newborns [3].

According to Syrian data, prevalence of HBV was 5.62%. Hepatitis B vaccine was first included in the Extended Vaccination Program (EVP) in 1998 in Turkey and in 1991 in Syria. Syria was one of the first countries in middle east to include Hepatitis B in their vaccination program; however, comparing the rate of adult vaccinations with children, it is seen that the success achieved is not the same [4-8].

In this study, we aimed to investigate the vaccination rate in Turkish and Syrian pregnant women who gave birth in our hospital, research the difference before and after vaccination, compare these results with the other studies conducted in our country and be beneficial to physicians in the follow up of this patient

group, who we have started to encounter rather frequently in the recent months.

Methodology

In this study, the data of pregnant women who were referred to Kanuni Sultan Suleyman Education and Research Hospital between January and December 2015 were retrospectively investigated. 4186 pregnant women were included in the study. The patients were divided into two groups based on their nationalities: Turkish and Syrian pregnant women. Also, taking into consideration the inclusion date of HBV vaccine into the vaccination program, the Syrian pregnant women were divided into two groups as those born before and after 1991 and the Turkish women were divided into two groups as those born before and after 1998. Hepatitis B surface antigen in the patients’ sera were determined with enzyme immunoassay method (ELISA) using Roche Cobas E-411 (Roche Diagnostics, Mannheim, Germany) equipment, in accordance with the automatic procedure suggested by the manufacturer.

Results

A total of 4186 pregnant women, 2158 of which were Syrian and 2028 of which were Turkish, were included in this study. Overall rate of HBsAg positivity was 1.4%. This value was found to be 1.8% among Turkish women and 1.1% in Syrian women (Table 1).

Evaluation of the age distribution showed that there were 30 Turkish pregnant women born after the inclusion of the vaccine into the program (1998 and later), of which 1 was HBsAg positive, and 958 Syrian women born in 1991 and later, of which 10 were HbsAg positive (Table 2).

Discussion

Due to the clear determination of the factors of viral hepatitis, these infections can safely be followed up and diagnosed. Prevalence varies in different geographic regions; and due to HBV vaccinations, diseases related to HBV are decreased even in areas of high prevalence. HBV may be transmitted by body fluids, but vertical transmission from mother to babies is more common in endemic countries [1].

National Vaccination programs vary during the year and from country to country. Epidemiological conditions of the disease in a country are among the affecting factors. The national data as well as the recommendations of the World Health Organization are effective in creating the vaccination programs. In Turkey, this vaccine was first included in EVP in 1998. It is a part of the national vaccination programs in 83% of the countries around the world [4].

In majority of the Middle Eastern countries, hepatitis B virus (HBV) infection is still an important public health issue. According to Syrian data [6], the general prevalence of HBV is 5.62%, while the city of Aleppo has the highest infection rate with a prevalence of 10.6%. The Hepatitis B vaccine has been included in the Extended Vaccination Program of Syria in 1991. In Muselmani *et al.*’s [7] study on 3896 blood donors in 2014, 66 were found to be HBsAg positive, while 402 of 3896 donors (10.32%) were HBsAg-negative and anti-HBc positive.

The transmission risk of HBV to the fetus is low because of the placental barrier. Vertical transmission is more likely to be seen during birth. Early membrane rupture, spontaneous abortions and contact with the mother’s vaginal secretions increase the vertical transmission risk of HBV. HBV DNA levels in

Table 1. HbsAg positivity rates of Turkish and Syrian Pregnant Women.

	Turkish pregnant women (n = 2028)		Syrian pregnant women (n = 2158)		Total (n = 4186)	
	n	%	n	%	n	%
HBsAg Positive	36	1.8	24	1.1	60	1.4
HBsAg Negative	1992	98.2	2134	98.9	4126	98.5

Table 2. HbsAg positivity rates between Turkish and Syrian Pregnant Women before and after Vaccination.

	Turkish pregnant women			Syrian pregnant women		
	Those born in 1998 and later	Those born in 1997 and before	Total	Those born in 1991 and later	Those born in 1990 and before	Total
Total	29	1999	2028	948	1210	2158
HBsAg Positive	1	35	36	10	14	24

Table 3. Literature Review of Turkish studies on the prevalence of HbsAg in pregnant women.

Study	Year	Center	Rate of HBsAg(+) (%)
Kuru <i>et al.</i> [11]	1996	İstanbul	4.2
Gül <i>et al.</i> [12]	1998	Van	4.1
Sırmatel <i>et al.</i> [13]	1999	Gaziantep	9.3
Madendağ <i>et al.</i> [14]	2007	Ankara	2.1
Kölgeliler <i>et al.</i> [15]	2009	Adıyaman	4.7
Atılğan <i>et al.</i> [16]	2009	Rize	2.6
Uyar <i>et al.</i> [17]	2009	Samsun	2.1
Api <i>et al.</i> [18]	2009	İstanbul	3.9
Eser Karlıdağ G. <i>et al.</i> [19]	2011	Elazığ	1.9
Araz <i>et al.</i> [20]	2011	Gaziantep	2.1
Coşkun <i>et al.</i> [21]	2011	İstanbul	8.7
Deveci <i>et al.</i> [22]	2011	Mardin	2.9
Çakmak <i>et al.</i> [23]	2012	Kocaeli	2.2
Özlü <i>et al.</i> [24]	2013	Bolu	1.8
Dağ <i>et al.</i> [15]	2015	Kırıkkale	3.4
Aynoğlu <i>et al.</i> [26]	2015	Zonguldak	4

maternal serum are the most important indicator and risk factor for transmission [9].

Many problems arise with the increasing number of refugees both in our country and around the world. Many people were forced to leave their country or migrate to other cities within the country due to ongoing war in Syria for the last 4 years. Along with many other problems, infection and malnutrition have become major issues for these people [10].

In our study, the HBsAg rate in total and among Turkish and Syrian pregnant women were determined to be 1.4%, 1.8% and 1.1% respectively; and these rates were seen to be close to the results of other studies, albeit slightly lower. We believe that this may be caused by regional differences and the differences in the ratios of vaccinated groups. The rates are seen to vary by region in some of the studies conducted in our country. The results of some of these studies are presented in Table 3.

Conclusions

As a result, taking into consideration the increasing number of Syrian refugees, we believe it is important to know the prevalence of hepatitis among pregnant women, including refugees and locals, to protect the babies to be born, plan initiatives such as the vaccines and immunoglobulins to be administered after birth and decrease the morbidity and mortality these viruses may cause.

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Conflict of interests: No conflict of interests is declared.