Hepatitis B virus infection in pregnant women in Baghdad

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Abstract

Background: Globally, hepatitis B is one of the most common infectious diseases. Estimates indicate that at least 2 billion people have been infected with the hepatitis B virus (HBV), with more than 378 million people being chronic carriers. Those individuals at higher risk for acquiring HBV and transmitting disease like pregnant women should be screened for hepatitis B surface antigen (HBsAg) to prevent transmission by vaccination and operation.

Aim of study: The aim of this study was to determine the prevalence of HBsAg and its associated parameters in pregnant women who referred to antenatal clinic in Baghdad Province**.**

Methods: The 234 apparently healthy pregnant women and their families, husbands and children were selected as study subjects from among those who had attained prenatal care clinic in Baghdad province between 2010 to 2012. Serological test was done for HBV using ELISA test (Dialab REF:Z00360,LOT2052-2).

Results: Of these, 234 cases were brought into the study. Their age were ranged from 16-42 years old. Based on a different parameters , women positive for HBV and their children were negative constitute the highest percentage 85.4% and lowest one was pregnant women who lived with positive family history of HBV were 8.9%.

Conclusions: The seroprevalence of HBsAg was of moderate severity according to WHO. This finding would suggest for the introduction of routine screening for HBV to all pregnant women during the antenatal period, and that "at birth dose" vaccination is given to new born babies of mothers found to be HBsAg positive so as to reduce and prevent the spread of infection. However more data is required from larger studies to support the findings so that ultimately this can be recommended as a policy.

Key words: hepatitis, pregnant, screening.

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Introduction:

Hepatitis B is the most common serious liver infection in the world. It is caused by the hepatitis B virus (HBV) that attacks liver cells and can lead to acute liver complications like liver failure, cirrhosis or cancer of the liver later in life[1]. The virus is transmitted through contact with infected blood and body fluids. The incidence of chronic HBV infection is high in the world and more than two billion of the world's populations are infected with hepatitis B virus and approximately 305 to 400 million (about 5%) are carriers of this virus[2]. The key strategy for controlling HBV infection in Iraq is to prevent HBV transmission from mother to infant. Transmission from mother to infant takes place in uterine, during delivery, and after birth. Vaccination after birth is of efficacy in preventing infant from HBV infection during delivery and after birth, but it can not interrupt HBV intrauterine infection [3]. The incidence of HBV intrauterine infection is high when HBV DNA in newborns detected with nested PCR is used as a marker of HBV infection and it is related to HBV viremia level of mothers [4]. Most obstetrical care providers do screen pregnant women for hepatitis B and advise that newborns of hepatitis B surface HBsAg-positive mothers receive both hepatitis B immune globulin and hepatitis B vaccine, ideally immediately after birth[5]. Most HBsAg positive pregnant women have a growing awareness of maternal-infantile transmission of Hepatitis B virus and are receiving some form of preventative treatment, like combined immunization. Caesarean and bottle feeding are very common, often primarily to prevent transmission [6].

Thus, it is recommended that all pregnant women be screened for the marker of active hepatitis B, the hepatitis B surface antigen (HBsAg). In this study, we investigated the pregnant women while attending the antenatal clinic for hepatitis B and also evaluated the status of HBV infection in them with different parameters.

Methods:

The 234 apparently healthy pregnant women and their families, husbands and children were selected as study subjects from among those who had attained prenatal care clinic in Baghdad province between 2010 to 2012 .

The exclusion criteria were patients previously had prior or recent history of jaundice and other hepatic diseases. Patients who had history of HBV vaccination and auoimmune diseases or taking drugs that affect the liver were also excluded from the study.

The Ethical Committee of Al-Kindi College of Medicine, Baghdad University, approved the study and all samples were obtained with informed consent in accordance with the Al-Kindi Teaching Hospital Declaration.

SEROLOGICAL TESTS: Blood samples (5 mL) were drawn into plain vacutainers from the antecubital veins of patients. The blood was allowed to clot for 30 minutes and centrifuged at 2000g for 15 minutes for clear separation of serum. Separated serums were stored at −20°C until analyzed for hepatitis B surface antigen (HBsAg), using ELSA test (Dialab REF:Z00360, LOT:2052-2) according to manufacturer instruction .

Statistical analysis: Data was analyzed statistically using descriptive analysis, the calculation of frequency and percentage rates was conducted**.**

Results:

Out of these, 234 cases were brought into the study. Their age were ranged from 16-42 years old. Based on a different parameters , women positive for HBV and their children were negative constitute the highest percentage 85.4% and lowest one was pregnant women who lived with positive family history of HBV were 8.9% as shown in table-1

Table 1-Demographic data of pregnant women with hepatitis B virus infection.

<table>
<tr><td colspan="6">Pregnant female
No.=234</td></tr>
<tr><td colspan="6">Women positive for HBV</td></tr>
<tr><td colspan="2">Women with Previous Operation
Cesarean section Positive HBV

No. %</td><td>Lived with positive family history For HBV

No. %</td><td>Lived with their partner positive history For HBV

No. %</td><td>Blood transfusion Positive

No. %</td><td>Positive for HBV And their children were negative

No. %</td></tr>
<tr><td colspan="2">52 22.2</td><td rowspan="3">21 8.9</td><td rowspan="3">32 13.6</td><td rowspan="3">57 24.3</td><td rowspan="3">83 85.4</td></tr>
<tr><td>Outside Iraq
No. %</td><td>Inside Iraq
No. %</td></tr>
<tr><td>15 28.8</td><td>37 71.1</td></tr>
</table>

Discussion:

In this study, 234 of the pregnant women were investigated for HBsAg and the rate of positive serum surface antigen in pregnant women was positive for HBV and their children were negative constitute the highest percentage 85.4% and lowest one was pregnant women who lived with positive family history of HBV were 8.9% as demonstrated in table-1-. This indicate a good vaccination and immunization program for children in our country that those children did not affected by transmission of the virus from their mother by body fluids or breast feeding. Women with blood transfusion had 24.3%, which is more than women with their partner positive are for HBV, indicting that blood is more important factor for transmitting the disease. Women who had cesarean operation

inside Iraq represent 71.1%, which is more than outside Iraq, indicating sterilization to instruments, were not effective. Researches in other parts of world showed different results. The results of studies conducted by Yadegari and Doaei in Zanjan included the frequency of 0.2% (7) while Tabasi et al reported the frequency of 0.3% in Kashan(8). The percentage of hepatitis B virus infection in pregnant women was 5.872% ± 4.984 in Pakistan (9). However, results from other studies in Iranian pregnant women are as following: 1.3% In Rafsanjan (10), 7.1% in Ahwaz (11), 6.5% in Zahedan (12), 6.5%in Sudan (13), 6.4% in Nigeria (14). Other studies conducted in areas with high prevalence such as China, Congo, Cameroon, Senegal and Indonesia, the rate has been calculated about 4% to 13.8%. In low prevalence countries such as Canada, Switzerland, France and Germany the prevalence rate was 0.12% to 1.1 %(13) . The above-mentioned results were not in accordance with the present study; this was due to differences in the number of samples, criteria of sampling type, extent and geographical region and the method used in detection HBV. In a study conducted by Teo and Lok the results showed that transmission through sexual contact was one of the important ways of hepatitis transmission, especially in developed countries. It also revealed the fact that 39% of hepatitis cases in America have been due to transmission through illegitimate sexual contact between men and women(2) while in our study reported about 13.6%.

Therefore, planning such as vaccination individuals at higher risk group, observing sterilizing processes in Operation Theater have to be done. On the other hand, it still seems logical from the statistical analysis to screen for HBV in pregnant women who attending the antenatal clinic in order to pay attention about prevention the transmission of the virus to baby (15).

Conclusions:

The seroprevalence of HBsAg was of moderate severity according to WHO. This finding would suggest for the introduction of routine screening for HBV to all pregnant women during the antenatal period, and that “at birth dose” vaccination is given to new born babies of mothers found to be HBsAg positive so as to reduce and prevent the spread of infection. However more data is required from larger studies to support the findings so that ultimately this can be recommended as a policy.

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