FREQUENCY OF HEPATITIS B VIRUS AMONG PREGNANT WOMEN ATTENDING MILITARY HOSPITAL RAWALPINDI

Rabiah Anwar, Kashif Razzaq, Ayesha Imran

Military Hospital / National University of Medical Sciences (NUMS) Rawalpindi Pakistan

ABSTRACT

Objective: To determine the frequency of hepatitis B viral markers among pregnant women attending Military Hospital Rawalpindi.

Study Design: Cross sectional study.

Place and Duration of Study: Department of Gynaecology and Obstetrics, Military Hospital Rawalpindi from Feb 2013 to Jul 2013.

Material and Methods: A total of 9149 pregnant ladies were inducted in our study by non-probability convenient sampling in the Department of Gynae/Obs, Military Hospital Rwp during the study period and were tested for Hepatitis B surface antigen by enzyme linked immunosorbant assay (ELISA).

Results: The mean ± SD age of the study group was 27.5 ± 3.24 years. Frequency of hepatitis B surface antigen in pregnant ladies was 4.69%.

Conclusion: The frequency of hepatitis B infection is quite high in pregnant women in Pakistan therefore proper screening of HBV and management programs must be introduced in all pregnant women attending ante natal clinics.

Keywords: Hepatitis B surface antigen, Pregnant ladies.

INTRODUCTION

Hepatitis B virus is a double stranded deoxyribonucleic acid (DNA) virus belonging to hepadnaviridae family. The incubation period is six weeks to six months[1]. The route of transmission is parenteral, sexual and exposure to HBsAg positive blood or other body fluids from carriers of HBV or from those who have acute hepatitis B[2]. Chronic hepatitis B virus infection is an important cause of chronic liver disease which may lead to cirrhosis, decompensated liver disease, and/or hepatocellular carcinoma.

Worldwide about 2 billion people are infected with hepatitis B virus. Out of them 350 million are chronically infected. Fifty million new cases are diagnosed annually[3]. Over 50% 350 million carriers of chronic hepatitis B (CHB) acquire infection perinatally. In hepatitis B e antigen (HBeAg) positive mother, rate of vertical transmission increases to 90%[4]. Because of induction of an immune tolerant state, perinatally acquired infection results in chronic hepatitis B infection. For global eradication of hepatitis B virus (HBV) infection, adoption of strategies for prevention of perinatal transmission is important.

The objective of this study was to assess the frequency of hepatitis B viral markers among pregnant women attending Military Hospital Rawalpindi so that focus can be made on strategies aimed at decreasing maternal-fetal transmission of hepatitis B.

MATERIAL AND METHODS

This cross sectional study was conducted in Gynaecology and Obstetrics department of Military Hospital from Feb 2013 to Jul 2013. Military Hospital Rawalpindi is a referral, tertiary care hospital catering for large number of army and civilian personnels. Administrative and ethical permission from concerned authorities was sought.

Data Collection Procedure

All pregnant ladies attending for antenatal care facilities were included in the study through

Correspondence: Dr Rabiah Anwar, Classified Gynaecologist MH Rawalpindi Pakistan (*Email: rabiahanwardr@gmail.com)*

Received: 27 Nov 2014; revised received: 10 Jul 2015; accepted: 30 Nov 2015

non-probability convenient sampling. Total 9149 pregnant ladies participated in our study. Screening for HBsAg is a part of routine antenatal laboratory investigations and is done after informed consent. It is tested by enzyme linked immunosorbant assay (ELISA) in the laboratory of Military Hospital Rawalpindi. All the cases were evaluated by detailed history including demographics, obstetrical record and potential risk factors for acquisition of HBV infection. The data was noted down on predesigned proforma by the principle author and her team. Confidentiality of HBSAg positive cases was maintained.

Data were analyzed using statistical software SPSS version 10. Mean and standard deviation were used to describe quantitative variables like age. Frequency and percentage were calculated for qualitative variables like positivity of HBsAg cases.

RESULTS

Total of 9149 pregnant ladies were enrolled in our 6 months study period. The mean ± SD age of the study group was 27.5 ± 3.24 years. HBsAg was found to be positive in 430 cases (4.6%). Pattern of age distribution along with minimum and maximum values is shown in fig-1.

DISCUSSION

Hepatitis B is a liver disease caused by HBV. Its severity ranges from mild illness, lasting a few weeks (acute) to serious long-term (chronic) disease which can cause cirrhosis or cancer[1]. When acute infection occurs in first trimester, vertical transmission occurs in about 10% of neonate but if infection occurs in third trimester, upto 80-90% of neonates acquire HBV[5]. HBsAg doesnot cross placental barrier but is usually acquired at birth or shortly thereafter. Therefore presence of HBsAg in cord blood indicates intrauterine infection. Transplacental transmission is associated with maternal HBeAg positivity, HBsAg titers, HBV DNA level, and history of threatened preterm labour[6].

Antenatal screening for HBV has become standard in antenatal care because of availability of safe and effective vaccine against HBV. HBV screening enables us to identify infants requiring immunoprophylaxis with HBV vaccine and hepatitis B immunoglobulin (HBIG)[7]. Universal screening for HBsAg in all pregnant ladies should be done. Because if risk factors based screening is done, upto 50% HBsAg–positive individual may be missed[8].

The prevalence of hepatitis B surface antigen (HBsAg) positive pregnant ladies varies with geographical location and ethnicity. In United State of America, HBsAg prevalence is 6% in Asian women, 1% in African-American, 0.6% in non-Hispanic whites and 0.1% in Hispanics[9]. HBsAg was found in 1.7% of pregnant women in Brazil[10].

Whereas a study in Africa revealed that HBsAg was positive in 4.6% of pregnant Nigerian women[11] and in 5.6% of pregnant women of Sudan[12].

A study done in the countries of Persian Gulf showed the seroprevalence of HBsAg among pregnant women as 7.1% in Oman, 1.0% in Qatar and 1.5% in UAE[13].

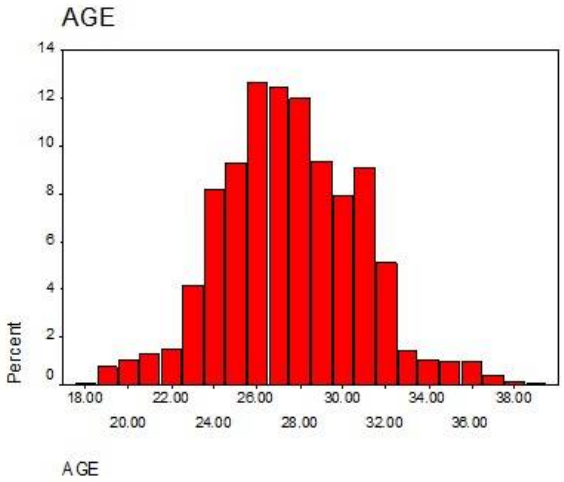

Figure: Age distribution of study subjects (n=9149).

According to a study by Denis et al conducted in France, HBsAg was positive in 0.29% of the pregnant women of French origin, 7.15% of Southeast Asian origin, and 6.52% for Sub Saharan African origin[14].

In a study done in six regions of Italy, HBsAg was positive in 1.1% of pregnant women born in Italy, but it was 5.9% among immigrants[15].

Pakistan is highly endemic for HBV with nine million people infected with HBV and its infection rate is on a steady rise due to lack of proper health care facilities, poor economical status and less public awareness about the transmission of major communicable diseases including HBV, HCV and HIV[16].

In our country, there are estimated 7-9 million carriers of hepatitis B virus (HBV) with a carrier rate of 3-5%. Five studies showed the HBV prevalence of 5.872% ± 4.984% in pregnant women[17 - 21].

A very high frequency of ≥12% HBV infections in pregnant females has been reported in Bahawalpur, Hyderabad and Rahim Yar Khan reigons[22-24].

Globally, over 160 countries endorse universal infant vaccination, particularly in reigons where HBV is endemic. WHO recommends the 1st dose of HBV vaccine within 24 hours of birth and 2 to 3 subsequent doses as part of routine immunization schedule. Hepatitis B immunoglobulin (HBIG) passive immunization in conjunction with HBV vaccination may also be administered to infants born to HBeAg-positive mothers. However, WHO acknowledges the limitations related to cost and supply of HBIG in certain endemic areas[4]. The Centre for Disease Control (CDC) also advises one dose of HBV vaccine given shortly after birth with or without HBIG[25] and breast feeding is promoted as breast feeding does not transmit infection.

CONCLUSION

The frequency of hepatitis B infection is quite high in pregnant women in Pakistan therefore proper screening of HBV and management programs must be introduced in all pregnant women attending ante natal clinics.

CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

REFERENCES

1. Tujios SR. New advances in chronic hepatitis B. Curr Opin Gastroenterol.2012. May;28(3):193-7.
2. Seo DH, Whang DH, Song EY, Han KS. Occult hepatitis B virus infection and blood transfusion.World J.Hepatol.2015 Mar 27;7(3):600-6.
3. World Health Organization. Hepatitis B: fact sheet no. 204. http: / / who.int / mediacentre / factsheets / fs204 / en / index.html. Accessed December 1, 2012.
4. Patton H, Tran TT. Management of hepatitis B during pregnancy. Nat Rev Gastroenterol Hepatol. 2014;11:402–409.
5. Sarkar M, Terrault NA. Ending vertical transmission of hepatitis B: the third trimester intervention. Hepatology. 2014;60:448–51.
6. Bleich LM, Swenson ES.Prevention of neonatal hepatitis B virus transmission. J Clin Gastroenterol. 2014 Oct;48(9):765-72.
7. Bhat M, Ghali P, Deschenes M and Wong P. Prevention and Management of Chronic Hepatitis B.Int J Prev Med. 2014 Dec; 5(Suppl 3): S200–S207.
8. Rac MW, Sheffield JS. Prevention and management of viral hepatitis in pregnancy. Obstet Gynecol Clin North Am. 2014 Dec;41(4):573-92.
9. ACOG educational bulletin. Viral hepatitis in pregnancy. Number 248, July 1998 (replaces No. 174, November 1992). American College of Obstetricians and Gynecologists. Int J Gynaecol Obstet. 1998; 63(2):195-202.
10. Bertolini DA, Pinho JR, Saraceni CP, Moreira RC, Granato CF, Carrilho FJ. Prevalence of serological markers of hepatitis B virus in pregnant women from Parana State, Brazil. Braz J Med Biol Res. 2006; 39 (8):1083-90.
11. Obi SN, Onah HE, Ezugwu FO. Risk factors for hepatitis B infection during pregnancy in a Nigerian obstetric population. J Obstet Gynaecol. 2006; 26 (8):770-2.
12. Elsheikh RM, Daak AA, Elsheikh MA, Karsany MS, Adam I. Hepatitis B virus and hepatitis C virus in pregnant Sudanese women. Virol J. 2007; 4:104.
13. Al Awaidy S, Abu-Elyazeed R, Al Hosani H. Sero-epidemiology of hepatitis B infection in pregnant women in Oman, Qatar and the United Arab Emirates. J Infect. 2006; 52(3):202-6.
14. Denis F, Ranger-Rogez S, Alain S. Screening of pregnant women for hepatitis B markers in a French Provincial University Hospital (Limoges) during 15 years. Eur J Epidemiol. 2004; 19(10):973-8.
15. Stroffolini T, Bianco E, Szklo A. Factors affecting the compliance of the antenatal hepatitis B screening programme in Italy. Vaccine. 2003;21(11-12):1246-9.
16. Hepatitis prevention & control program Sindh (chief minister's initiative) 2009. directorate general health services, Hyderabad, Sindh, Pakistan.
17. Sheikh SM. Hepatitis B and C: value of universal antenatal screening. J Coll Phy Sur Pak. 2009; 19:179–82.
18. Khattak ST, Marwat MA, Khattak I, Khan TM, Naheed T. Comparison of frequency of hepatitis B and hepatitis C in pregnant women in urban and rural area of district Swat. J Ayub Med Coll Abottabad. 2009; 21:12–5.
19. Sami S, Korejo R, Bhutta SZ. Prevalence of hepatitis B and C: A Jinnah postgraduate medical centre experience. J Obstetrics and Gynecology Res. 2009; 35:533–538.
20. Batool A, Bano KA, Khan MI, Hussain R. Antenatal screening of women for hepatitis B and C in an out-patient department. J Dow Uni Health Sci. 2008; 2:32–5.
21. Ali HS, M Memon A. Prevalence of hepatitis B infection in pregnant women in a tertiary care hospital. J Infect Dis Pak. 2007; 16:35–38.
22. Ahmad A, Khichi GQ, Rehman A. Hepatitis B markers. Professional Med J. 2007; 1:307–311.
23. Yousfani S, Mumtaz F, Memon A, Memon MA and Sikandar R. Antenatal screening for hepatitis B and C virus carrier state at a university hospital. JLUMHS. 2006; 5:24–27.

24. Hakeem A, M Khan S, Abdullah M, Rehman A and Hashmi MI. Prevalence of HbsAg & Anti HCV in pregnant ladies attending antenatal clinic at Sheikh Zayed Medical Complex, Rahim Yar Khan.Esculapio. 2006; 2:6–8.

25. General recommendations on immunization-- recommendations of the Advisory Committee on Immunization Practices (ACIP). National Center for Immunization and Respiratory Diseases.MMWR Recomm Rep. 2011;60(2):1.

.....