



ISSN: 0976-3031

Available Online at <http://www.recentscientific.com>

International Journal of Recent Scientific Research
Vol. 6, Issue, 4, pp.3590-3593, April, 2015

**International Journal
of Recent Scientific
Research**

RESEARCH ARTICLE

SEROPREVALENCE OF HBV IN PREGNANT WOMEN AND ITS CO- INFECTION WITH HCV & HIV

Vandana Bansal^{1,2*}, Arpit Bansal³, Ashwani Kumar Bansal³ and Ajay Kumar⁴

¹Guru Gobind Singh Memorial Vanadana Women's Hospital, Allahabad, U.P. India

²Department of Gynecology, Jeevan Jyoti Hospital, Allahabad, U.P. India

³Department of Surgery, Jeevan Jyoti Hospital, Allahabad, U.P. India

⁴Jeevan Jyoti Institute of Medical Sciences, Allahabad, U.P. India

ARTICLE INFO

Article History:

Received 14th, March, 2015
Received in revised form 23th,
March, 2015
Accepted 13th, April, 2015
Published online 28th,
April, 2015

Key words:

HBV, HCV, HIV, Blood
transfusion

ABSTRACT

Introduction: Hepatitis B virus infection is major public health problem worldwide and during pregnancy it is associated with high risk of maternal complications. This study was conducted to determine the prevalence of HBV and its association with HCV & HIV infection in pregnant women.

Method: It was a retrospective study based on review of records of pregnant women during the January 2012 to February 2015. All samples were screened for HBV and all HBV positive samples were further investigated for HCV and HIV.

Result: Out of 1600 HBV were found positive in 38 women, the overall prevalence of HBV positivity was 2.37%. Out of 38 HBV positive samples 4 (0.1%) were identified as HCV positive and 1 (0.03%) were HIV positive.

Conclusion: HBV during pregnancy is associated with a high risk of maternal complications, has a high rate of vertical transmission. The study suggests expansion of the Hepatitis B vaccination program to reduce the risk of HBV among pregnant women.

Copyright © Vandana Bansal *et al.*, This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

INTRODUCTION

Hepatitis B virus infection is major public health problem world wide it causes chronic hepatitis, cirrhosis, and hepatocellular carcinoma (HCC) (Idrees M *et al.* 2004). It is estimated that around 2 billion people have been infected with HBV. Out of these 350 million people remain chronically infected and become carrier of the virus, and 1.5 million death occurs from HBV related liver diseases, including end stage cirrhosis and hepatocellular carcinoma each year. (Ferriara MS 2000, Li G *et al.* 2010). In India the prevalence rate of hepatitis varies from 1 to 13 percent; with an average of 4.7% (Kurien T *et al.* 2005). Three major routes spread HBV: perinatal, horizontal, and sexual transmission (Edmunds WJ *et al.* 1996). In developing countries, the main routes of transmission are: neonatal with HBV carrier mother infecting her infant usually during birth or soon after birth following close contact, transfer of HBV via cuts, sexual transmission, transfusion of infected blood or blood products, needle stick injury, contamination of eye, re-use of HBV contaminated needles, syringes, lancets and instruments including those used in tribal ceremonies, possibly blood sucking insects and bed bugs (Cheesbrough M. 2000). Viral hepatitis during pregnancy is associated with a high risk of maternal complications, has a high rate of vertical transmission causing fetal and neonatal

hepatitis and has been reported as a leading cause of maternal mortality (Ornoy A *et al.* 2006, Tse KY *et al.* 2005). Epidemiological data on HBV infection are important to program managers and health planners, to plan vaccination and other preventive strategies. Though several studies on epidemiology of viral hepatitis in pregnancy are available from Africa (Simpore J, *et al.* 2006). there is paucity of such data from India.

People at high risk for HIV are also likely to be at risk for other infectious pathogens, including HBV or HCV enabling co-infection with these viruses a common event (Saravanan S *et al.* 2007, Jain M *et al.* 2009). Co-infections of HBV and HCV in HIV positive patients are associated with reduced survival and an increased risk of progression to severe liver diseases with higher susceptibility towards hepato-toxicity due to antiretroviral therapy (Mohammad M *et al.* 2009) In United States and Europe have expert guidelines to screening of all individuals infected with HIV for infection with HCV and HBV to help inappropriate management of such patients In developing countries like India, no such uniform guidelines are available. Moreover literature regarding the prevalence of HIV co-infection with HBV &/or HCV in India is sparse. Thus the present study was undertaken to detect the current

*Corresponding author: Vandana Bansal

Guru Gobind Singh Memorial Vanadana Women's Hospital, Allahabad, U.P. India

seroprevalence of HBV&/or HCV co-infection in pregnant women from North India.

METHODOLOGY

It was a retrospective study based on review of records of pregnant women, who attended the antenatal clinics of Guru Govind Singh Vandana Womens Hospital, Allahabad, and Gynecology Department of Jeevan Jyoti Hospital, Allahabad, U.P. India. They were screened for HBV after informed consent was obtained. Blood samples were collected from 1600 pregnant women. The age ranged from 17-40 years during the January 2012 to February 2015.

The blood samples were collected from women attending the clinics for the first time during that particular pregnancy, irrespective of duration of gestation. Screening of HBV (HBs Ag + HBeAg) & HCV was done by Rapid Plasma Heam Agglutination (RPHA) method and positive HBs Ag and HCV test was confirmed by Enzyme-Linked Immuno Sorbent Assay (J.Mitra & Co.Pvt .Ltd.). The HBs Ag and HCV positive samples were then further tested for HBe Ag and HIV. The results were analyzed by age distribution, women with history of diseases mainly for jaundice, surgery, blood transfusion, economic status and literacy.

RESULTS

Total 1600 pregnant women’s were screened for HBV, HCV and HIV during the study period.

HBV Positivity

Out of 1600 HBsAg were found positive in 38 women. Therefore the overall prevalence of HBsAg positivity was 2.37%. Accordance with different factors the positivity was as: rural vs. urban (55% / 45%), <Intermediate vs. >Graduate (60.5% / 39.5%), 6 (15.8%) women have the history of blood transfusion while 32 (84.2%) have no such history, 9 (23.7%) HbsAg positive women have some types of surgical procedure instead of this there was 29 (76.3%), history of tattooing was found in 5 (13.2%) and rest 33 (86.8%) have not, 3 (7.9%) pregnant HBsAg positive women have the history of abortion & 35 (92.1%) with no history of abortion. The positive women who underwent caesarian section previously was 6 (15.8%) while 32 (84.2%) not gone for such procedure. 22 (57.9%) women have history of liver disease while 16 (42.1%) have no history of such disease (Table. 1 & Bar Diagram. 1).

HBV positivity with HCV

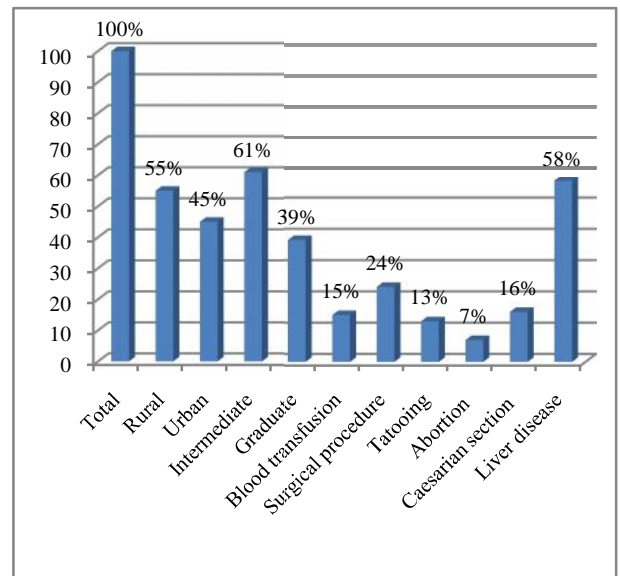
Total 38 HBV positive pregnant women’s samples were screened for HCV. Out of 38 HBV positive samples 4 (0.1%) were identified as HCV positive. Out of this 4 women 1 (25%) belonging from rural population and remaining 3 (75%) from urban population and same result with history of blood transfusion, 3 (75%) were educated up to intermediate while 1 (25%) was up to graduate level same result was obtained for history of tattooing and abortion. All 4 (100%) HBV + HCV +ve pregnant women have history of liver disease but no caesarian section (Table.1).

HBV positivity with HIV

Out of 38 HBV positive pregnant women only one found to be associated with HIV of urban population educated up to graduation having the history of abortion and liver disease but there was no any evidence of blood transfusion, surgical procedure, tattooing and caesarian section was found (Table. 1).

Table 1 Distribution of HBV, HCV & HIV in pregnant women according to risk factors

S.No.	Factor	Response	HBV	HBV + HCV	HBV + HIV
1	Residence	Rural	21	1	0
		Urban	17	3	1
2	Education	<Intermediate	23	3	0
		>Graduate	15	1	1
3	History of blood transfusion	Yes	6	1	0
		No	32	3	1
4	History of surgical procedure	Yes	9	0	0
		No	29	4	1
5	History of tattooing	Yes	5	3	0
		No	33	1	1
6	History of abortion	Yes	3	3	1
		No	35	1	0
7	Caesarian section	Yes	6	0	0
		No	32	4	1
8	History of liver disease	Yes	22	4	1
		No	16	0	0
Total			38	4	1



Picture. 1 HBV positive women and associate risk factor

DISCUSSION

Our study showed that the prevalence of HBV in pregnant women was 2.3%. This was comparatively low to previous studies which showed the prevalence rate ranging from 3 – 8.4% (Khakhhar Vipul M et al. 2012, Chanprapaph P et al. 1998, Piya-Anant M et al. 1998). Manisha Dwivedi et al. showed the prevalence rate was 0.9% which was contrast to our study in same population group (Manisha Dwivedi et al. 2011). Shazia Praveen S showed the overall prevalence of sero-positive HBsAg among pregnant women was 0.61% (Shazia Parveen S et al. 2012). This may be due to the geographic variation among regions or due to a difference in the detection method used.

The pregnant women of our study was interviewed for history such as residence (rural/urban), education (<Intermediate vs. >Graduate), blood transfusion, surgical procedure, tattooing, abortion, caesarian section and liver disease. Out of 38 HBV positive mothers the percentage to above history was (55% / 45%), (60.5% / 39.5%), 6 (15.8%), 9 (23.7%), 5 (13.2%), 3 (7.9%), 6 (15.8%) and 22 (57.9%) respectively, while study conducted by [Khakhkhar Vipul M et al.](#) showed 5.5% with blood transfusion, 5% with surgery and 13.95% having liver disease ([Khakhkhar Vipul M et al. 2012](#)). Our study showed 23 (60%) pregnant women are educated bellow 12th standard this and Pregnant women who experienced abortion had higher prevalence of HBsAg (7.9%) was similar to the [Mohammed Awole et al.](#) ([Mohammed Awole et al. 2005](#)). Out of 38 HBV positive samples 4 (0.1%) were identified as HCV positive and 1 (0.03%) were HIV positive. While [Sanjiv Ahuja et al.](#) studied on seroprevalence of HVB, HCV co-infection in HIV patients showed 4.7% with HBV and 1.7% with HCV ([Sanjiv Ahuja et al. 2013](#)). The past history of sexually transmitted diseases is significantly associated with HBV positivity when compared with the normal pregnant women. In general, women of child bearing age who are living in more urbanized areas may have more HBV exposure than those in the rural population, as a result of risky life style practices ([Scott-Wright A et al. 1997](#)).

CONCLUSION

In order to prevent perinatal transmission and spread of the infection within the larger community pregnant mothers should receive prenatal screening for hepatitis B. Viral hepatitis during pregnancy is associated with a high risk of maternal complications, has a high rate of vertical transmission causing fetal and neonatal hepatitis and has been reported as a leading cause of maternal mortality Therefore, every pregnant woman undergoing delivery and/or any other surgical procedure must be screened for Hepatitis B. Past history of hospitalization and jaundices are important risk factors for transmission of infection. The study suggests expansion of the Hepatitis B vaccination program to reduce the risk of HBV among pregnant women.

Acknowledgement

We would like to acknowledge Dr. Ashwani Kumar Bansal (Director, Jeevan Jyoti Hospital, Allahabad, U. P. India) for his guidance and proof reading of this research article. At last but not least we appreciate to Dr. Aneeta and all Staff Nurse who help in data collection.

References

- Chanprapaph P, Sirivatanapa P, Sekararit R *et al.* Hepatitis B prevalence in pregnant women at Maharaj Nakorn Chiang Mai Hospital. *Thai J Obstet Gynecol* 1998; 10:203-7.
- Cheesbrough M. District laboratory practice in tropical countries, 3rd ed. Cambridge University press, UK. 2000; pp. 250-252.
- Edmunds WJ, Medley GF and Nokes DJ. The transmission dynamics and control of hepatitis B virus in The Gambia. *Statistics in medicine.* 1996; 30(15):2215-33.
- Ferriara MS. Diagnosis and treatment of hepatitis B. *Rev Soc Bras Med Trop.* 2000;33:389-400.
- Idrees M, Khan S, Riazuddin S: *J Coll Phy Sur Pak* 2004, 14:344-7.
- Jain M, Chakarvati A, Verma V, Bhalla P. Seroprevalence of hepatitis virus in patients infected with human immunodeficiency virus. *Indian J Pathol Microbiol* 2009;52:17-9.
- Khakhkhar Vipul M, Bhuva Pragnesh J, Bhuva Shashwati P, Patel Chirag, Cholera Meera S. Seroprevalence of hepatitis B amongst pregnant women attending the antenatal clinic of a tertiary care hospital, Jamnagar (Gujrat). *National J Medical Research.* 2012;Vol2(1): 362-365.
- Kurien T, Thyagarajan SP, Jeyaseelan A, Peedicayil P, Sivaram S, Hansdak SG, *et al.* Community prevalence of hepatitis B infection and modes of transmission in Tamil Nadu, India. *Indian J Med Res.* 2005;121:670-5.
- Li G, Li W, Guo F, Xuc S, ZhaodN.ChenaS, Liu L: *JVirolMeth* 2010, 165:914.
- Manisha Dwivedi, Sri Prakash Misra, Vatsala Misra, Arvind Pandey, Sanjay Pant Reeta Singh & Manju Verma. *Indian J Gastroenterol* (March-April 2011) 30(2):66-71.
- Mohammad M, Talel G, Sheikhian A, Ebrahimzade F, Pournia Y, Ghasemal E *et al.* Survey of both hepatitis B virus (HBsAg) and hepatitis C virus (HCV-Ab) co-infection among HIV positive patients. *Virology journal* 2009;6:202.
- Mohammed Awole, Solomon Gebre-Selassie. Seroprevalence of HBsAg and its risk factors among pregnant women in Jimma, Southwest Ethiopia. *Ethiop.J.Healh Dev.* 2005;19(1): 45-51.
- Ornoy A, Tenenbaum A. Pregnancy outcome following infections by coxsackie, echo, measles, mumps, hepatitis, polio and encephalitis viruses. *Reprod Toxicol.* 2006;21:446-57.
- Piya-Anant M, Jamjun B, Praktikvonchai A, Tienthai C, Chandanabodhi S. Prevalence of hepatitis B carriers in pregnant women. *Siriraj Hos Gaz* 1998; 50:100-4.
- Sanjiv Ahuja, Shalini Malhotra, Ankit Chauhan, Charoo Hans. Seroprevalence of Hepatitis B and C Co-Infection in HIV Positive Patients from a Tertiary Care Hospital. *JIMSA* April - June 2013 Vol. 26(2): 91-92.
- Saravanan S, Velu V, Kumarasamy N, Nandakumar S, Murugavel KG, Balakrishnan P, *et al* Coinfection of hepatitis B and hepatitis C virus in HIV infected patients in South India. *World J Gastroenterol* 2007;13:5015-20.
- Scott-Wright A, Hakre S, Brayan JP *et al.* HBV, HIV-1, and syphilis among women attending prenatal clinics in Belize, Central America. *Am J Trop Med Hyg.* 1997;56:285-90.
- Shazia Parveen. S, Shyamala. R, Janardhan Rao R. and Rama Rao M. V. Seroprevalence of Hepatitis B surface antigen among pregnant women attending

- antenatal clinic in a teaching hospital. *J. Microbiol. Biotech. Res.*, 2012, 2 (2):343-345.
19. Simpure J, Savadogo A, Ilboudo D, *et al.* Toxoplasma gondii, HCV, and HBV seroprevalence and co-infection among HIVpositive and -negative pregnant women in Burkina Faso. *J Med Virol.* 2006;78:730-3.
20. Tse KY, Ho LF, Lao T. The impact of maternal HBsAg carrier status on pregnancy outcomes: a case-control study. *J Hepatol.* 2005;43:771-5.

How to cite this article:

Vandana Bansal *et al.*, Seroprevalence Of Hbv In Pregnant Women And Its Co- Infection With Hcv & Hiv. *International Journal of Recent Scientific Research Vol. 6, Issue, 4, pp.3590-3593, April, 2015*
