Research Paper

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Prevalence of Hepatitis B and Syphilis in Pregnancy

Medical Science

KEYWORDS : Hepatitis, Syphilis, pregnancy, Still birth

Dr. Anita Sharma	Assistant Professor, Dept. of Obstetrics & Gynecology, S.P Medical College, Bikaner (RAJ)
*** Dr. Rohitash Kularia**	Assistant Professor, Dept. of Medicine, S.P Medical College, Bikaner (RAJ) * Corresponding Author
Dr. Sharanbasu Diggi	Post Graduate Student, Dept. of Medicine, S.P Medical College, Bikaner (RAJ)
Dr. Ajay B.R	Post Graduate Student, Dept. of Medicine, S.P Medical College, Bikaner (RAJ)
Dr. Liyakat Ali Gauri	Senior Professor and Head, Dept. of Medicine, S.P Medical College, Bikaner (RAJ)

ABSTRACT

Infectious disease exposures and infections during pregnancy are common events. Infectious diseases may impact the pregnant women in several ways, including morbidity and mortality, precipitating fetal loss and transplacental infection of the fetus. Hence pregnant women are at higher risk for morbidity and mortality for several infectious diseases than age matched non pregnant women. Hepatitis B is a leading cause worldwide of chronic hepatitis, cirrhosis and hepatocellular carcinoma accounting for 1 million deaths annually. Syphilis is caused by spirochete, Treponema pallidum, infection occurs primarily as a result of sexual contact. The organism penetrates mucosal barriers and is highly contagious. Infection develops in 10% of contacts after a single exposure and in 70% after multiple exposures. Syphilis also may be transmitted perinatal route with devastating consequences for the fetus. In this study we aimed at knowing the prevalence of both Hepatitis B and Syphilis in pregnant women. Out of 500 cases, prevalence of Hepatitis B and Syphilis was 2.6% and 0.8% respectively. In our study 2 cases each were RPR positive in 4th and 5th gravida. 2 (0.4%) HBsAg positive cases were having history of abortion / still births and 11 (2.2%) cases had no history of previous abortions and 2 RPR positive cases were present in both groups considering the fact that 2 HBsAg positive cases and 2 RPR positive cases were present in 36 cases with history of abortion or still births was a strong association of these complications with HBV infection and syphilis. 75 (15%) cases had history of blood transfusion and 425 (85%) had no history of blood transfusion, out of 75 cases, 4 cases were HBsAg positive. Hence it is necessary for screening of pregnant women with Hepatitis B and Syphilis to know the prevalence and prevent further transmission by effective treatment and with necessary precautions. This in turn improves the outcome of the patient and the newborn.

Introduction: Infectious disease exposures and infections during pregnancy are common events; infectious diseases may impact the pregnant women in several ways, including morbidity and mortality, precipitating fetal loss and transplacental infection of the fetus. Hence pregnant women are at higher risk for morbidity and mortality for several infectious diseases than age matched non pregnant women[1].

Hepatitis B is an acute systemic infection with major pathology in the liver, caused by hepatitis B virus (HBV) and transmitted usually by parenteral route, it is clinically characterized by a tendency to a long incubation period (6 week to 6 months) and a protected illness with a variety of outcomes. Usually it is an acute self limiting infection which may be either sub clinical or symptomatic. In approximately 5 – 15% of cases, HBV infection fails to resolve and the affected individuals then become persistent carriers of the virus. Hepatitis B is a leading cause worldwide of chronic hepatitis, cirrhosis and hepatocellular carcinoma accounting for 1 million death annually[2].

Modes of Transmission: Parenteral Route, Perinatal, Sexual transmission, other routes.

Neonatal infection rates vary with gestation and are highest in the 3rd trimester (exposure to blood and body fluids at delivery). Patients with the HBsAg have 80% chance of vertical transmission infection. Perinatal acquisition of infection is the dominant mode of transmission in children, and infants acquiring the infection perinatally have high risk of developing chronic carriage and the associated risk of horizontal transmission of HBsAg positive pregnant women and vaccination of their infants must remain a priority[10,12].

Antenatal screening has been advocated to identify infants at risk of HBV infection. In areas of high prevalence, universal screening is the most effective approach to case findings, but where prevalence is low more cost effective approach might involve selective testing fails to identify a considered to be at high risk of infection[4].

In India studies conducted by National Institute of Virology at Pune showed that the rate of chronic carriers of HBV infection varied from 0.6 to 5.8%. In countries in which infection with HBV is relatively uncommon, the highest prevalence of the surface antigen is found in 20 – 40 years age group. In countries where infection with HBV is common, much infection occurs perinatally or during early childhood[5].

Syphilis is caused by spirochete, Treponema pallidum, infection occurs primarily as a result of sexual contact. The organism penetrates mucosal barriers and is highly contagious. Infection develops in 10% of contacts after a single exposure and in 70% after multiple exposures. Syphilis also may be transmitted perinatally with devastating consequences for the feuts[7].Syphilis can be divided into three clinical categories i.e. primary, secondary and tertiary syphilis. In addition, syphilis can present as a latent infection, a latent syphilis is subdivided into early latent (<1 year duration) and late latent (>1 year) infection[10].The incubation period of syphilis ranges from 10 – 90 days[6,7].

Material and Methods:

The overall evaluation of 500 pregnant women attending an-

tenatal clinic at PBM Hospital, Bikaner was done by collecting through history, clinical biochemical examination as follows –

- A detailed clinical evaluation to rule out any possibility of associated diseases.
- Careful history as in proforma, regarding name, age gravid, parity, socioeconomic status, religion, previous obstetric history, type of previous pregnancy, outcomes like full term or premature delivery, number of abortions, number of alive children, history of malformed babies.
- Date of last menstrual period and expected date of delivery noted.
- Any history of previous surgery and history of blood transfusion noted.
- Any traveling history of self or husband for occupation or any other reason was noted.
- Any risk factors for hepatitis B virus infection like history of blood transfusion, multiple sex partner, IV drug abuse, family history of hepatitis B, worker in health institution, history of jaundice and immunocomprised states were asked and accordingly the patients were categorized as high or low risk for HBV infection.
- Similarly for syphilis, risk factors like multiple sex partners, prostitution, history of genital lesion, sexual disharmony with sex partners, broken homes, social disruption, poverty, illiteracy were noted and patients were categorized as high or low risk, if risk factors were present or absent respectively.
- Regarding the patient's pregnancy status, per abdominal examination done to note height of uterus, external ballotment presentation and position of fetus and auscultation for fetal heart sounds.

HBsAg detection test: The test was done by HBsAg one step Test strip method which is a rapid chromatographic immunoassay for the qualitative detection of HBsAg in serum or plasma.

Interpretation:

- *Positive:* Two distinct red lines appear. One line should be in control region C and another line should be in the test region "T". The intensity of the red color in the "T" region will vary depending on the concentration of HBsAg present in the specimen.
- *Negative:* One red line appear in the control region "C". No red line in "T" region.
- *Invalid:* Control line fails to appear, most commonly due to insufficient specimen volume or incorrect procedural technique.
- *Sensitivity of strip test:* This strip test can detect 5ng/ml of HBsAg in 15 min and 1 ng/ml of HBsAg in 30 min.

Results and Discussion:

The prevalence of Hepatitis B and Syphilis were 2.6% and 0.8% respectively. Maximum prevalence of syphilis was found in 23-26 years i.e. 3(0.6). Maximum number of HBsAg positive patients were also in the age group 23-26 years 3 (1.8%). Regarding HBsAg majority of cases (2%) were from urban area and only (0.6%) were from rural area. Regarding syphilis, in our study 2 cases each (0.4%) were positive in both rural and urban groups.

In present study, 78(15.6%) were illiterate women and 422 (82.4%) were literate 4 (0.8%) out of 13 HBsAg positive cases were illiterate and 9(1.8%) cases were literate. Regarding syphilis 3(0.6%) RPR positive cases were in illiterate group and only 1(0.2%) case was RPR positive in literate group.

In our study maximum number of cases were multi para i.e. 2nd and 3rd para (65.6%) and HBsAg positive cases were also maximum in multi para i.e. para 2nd or more. Similarly in RPR, all cases were present in multi para. Similarly maximum number of cases were multigravida (i.e. gravid 2nd, 3rd or 4th) 401 (80.2%) and maximum number of 5 HBsAg positive cases were gravid 3rd group.

In our study 2 cases each were RPR positive in 4th and 5th gravida. 2 (0.4%) HBsAg positive cases were having history of abortion / still births and 11 (2.2%) cases had no history of previous abortions and 2 RPR positive cases were present in both groups considering the fact that 2 HBsAg positive cases and 2 RPR positive cases were present in 36 cases with history of abortion or still births was a strong association of these complications with HBV infection and syphilis. 75 (15%) cases had history of blood transfusion and 425 (85%) had no history of blood transfusion, out of 75 cases, 4 cases were HBsAg positive.

Out of 500 cases, 406 (81%) denied any history of travel for occupation purpose of self or sex partner and 94 (19%) cases accepted history of travel, out of that 4 cases were HBsAg positive and 2 cases were RPR positive.

For some risk factors for hepatitis B like family history of hepatitis B, multiple sex partners, prostitution, IV drug abuse and immunocompromised states etc. In our study, our questionnaire clinical examination and previous records failed to reveal any positive response. Similarly for syphilis some high risk factors like multiple sex partners, prostitution, alcoholism, social disruption, mental illness, sexually disharmony and broken homes, all pregnant women denied such type of behavior and we failed to elicit positive response from all cases. There were 3 cases who were working as health personnel and all were found to be negative for HBsAg. Regarding syphilis, 16 out of 500 cases had genital warts on vulva, vagina and cervix, but all of these cases were RPR negative.

Conclusion:

Considering the prevalence of Hepatitis B and Syphilis amongst pregnant women, it is important to screen them for the possible infection status to prevent the complications and further transmission. This study enumerates the importance of antenatal screening and advocates considering it for the daily practice in decreasing the mortality and morbidity associated with these infections.

Table 1 – Prevalence of HBV infection and Syphilis in different age groups of pregnant women

Age	No.	% in terms of total population	No. of HBsAg positive cases	% of HBsAg positive cases	No. of Positive RPR Cases	% of Positive RPR Cases
18 – 22	152	30.4	2	0.4	0	-
23 – 26	189	37.8	9	1.8	3	0.6
27 – 30	116	23.2	1	0.2	1	0.2
31 – 34	39	7.8	1	0.2	0	-
≥35	4	0.8	0	-	0	-
Total	500	100	13	2.6	4	0.8
Mean	24.73		25		25	
SD	3.75		2.77		1.41	

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Table 2 – Prevalence of HBV infection and syphilis in rural vs urban pregnant women.

Residence	No.	% in terms of total population	No. of HBsAg positive cases	% of HBsAg positive cases	No. of Positive RPR Cases	% of Positive RPR Cases
Rural	105	21	3	0.6	2	0.4
Urban	395	79	10	2	2	0.4

Table 3 – Prevalence of HBV infection and syphilis in relation to poor and middle upper, middle classes of society.

Socioeconomic status	No.	% in terms of total population	No. of HBsAg positive cases	% of HBsAg positive cases	No. of Positive RPR Cases	% of Positive RPR Cases
Poor	167	33.4	7	1.4	4	0.8
Middle or upper middle	333	66.6	6	1.2	0	-

Table 4 – Prevalence of HBV infection and syphilis in relation to parity status.

Parity	No.	% in terms of total population	No. of HBsAg positive cases	% of HBsAg positive cases	No. of Positive RPR Cases	% of Positive RPR Cases
0	66	13.2	0	-	0	-
1	180	36	5	1	1	0.2
2	164	32.8	4	0.8	1	0.2
3	70	14	4	0.8	2	0.4
4	17	3.4	0	-	0	-
5	3	0.6	0	-	0	-
Total	500	100	13	2.6	4	0.8
Mean	1.62		1.92		2.25	
SD	1.06		0.86		0.96	

Table 5 – Prevalence of HBV infection and syphilis in relation to Gravida.

Gravida	No.	% in terms of total population	No. of HBsAg positive cases	% of HBsAg positive cases	No. of Positive RPR Cases	% of Positive RPR Cases
1	66	13.2	0	-	0	-
2	165	33	3	0.6	0	-
3	163	32	5	1	0	-
4	73	14.6	3	0.6	2	0.4
5	26	5	2	0.4	2	0.4
6	7	1.4	0	-	0	-
Total	500	100	13	2.6	4	0.8
Mean	2.70		3.31		3.75	
SD	1.12		1.03		0.96	

Table 6 – Prevalence of HBV infection in relation to history of blood transfusion

H/o blood transfusion	No.	% in terms of total population	No. of HBsAg positive cases	% of HBsAg positive cases
Present	75	15	4	0.8
Absent	425	85	9	1.8

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