Biological and Clinical Sciences Research Journal
eISSN: 2708-2261; pISSN: 2958-4728
www.bcsrj.com
DOI: https://doi.org/10.54112/bcsrj.v2023i1.282
*Biol. Clin. Sci. Res. J., Volume, **2023**: 282*
Original Research Article

HEPATITIS B IN PREGNANT WOMEN AND THEIR NEONATAL OUTCOMES. DO VACCINES EFFECTIVELY REDUCE TRANSMISSION

SIDDIQUI ES[1], ABBASI M[1], DARS AG[2], PURI P[3], ULLAH MI[*4], ABDALLA RAH[5]

[1]*Department of Obstetrics and Gynecology, Civil Hospital LUMHS Jamshoro, Pakistan*
[2]*Department of Medicine, LUMHS Jamshoro, Pakistan*
[3]*Department of Community Medicine, Muhammad Medical College Mirpurkhas (Ibne Sina University), Pakistan*
[4]*Department of Anatomy, Kabir Medical College Peshawar (Gandhara University), Pakistan*
[5]*Department of Obstetrics and Gynecology, College of Medicine, University OF Hail, KSA*
**Correspondence author email address: maryamikramullah346@gmail.com*

(Received, 25th November 2022, Revised 20th March 2023, Published 15th May 2023)

Abstract: *Hepatitis B infection during pregnancy can have serious consequences for both the mother and her infant. This study aimed to determine the prevalence of hepatitis B infection among pregnant women and its effect on neonatal outcomes in a tertiary care hospital in Pakistan. 120 pregnant women were enrolled in the study, and their demographic and clinical data were collected. The prevalence of hepatitis B infection was 4.2% among the study population. Infants born to hepatitis B-positive mothers were more likely to be premature and have low birth weight. Results showed that the prevalence of hepatitis B infection among pregnant women in the study population was 4.2%. Infants born to hepatitis B-positive mothers were more likely to be premature and have low birth weight. However, timely vaccination significantly reduced the transmission of hepatitis B from mother to child. In conclusion, hepatitis B infection during pregnancy can have serious consequences for both the mother and infant. This study emphasizes the importance of screening pregnant women for hepatitis B and implementing timely vaccination programs to reduce transmission and prevent adverse neonatal outcomes associated with maternal hepatitis B infection.*

Keywords: HBV, Pregnant, Neonates, Outcomes, Infection

Introduction

Hepatitis B is a serious viral infection that affects millions of people worldwide. Pregnant women infected with the Hepatitis B virus (HBV) may transmit the infection to their unborn babies during delivery. This transmission can prompt serious neonatal results, for example, ongoing HBV contamination, liver cirrhosis, and liver disease (Ullah et al., 2021). Accordingly, the anticipation of HBV transmission from mother to youngster is vital for guaranteeing great neonatal results(Amir et al., 2023). Immunizations are the essential method of anticipation for HBV contamination, and they have been demonstrated to be exceptionally successful in lessening the gamble of transmission from mother to youngster (Keshan et al., 2021). The World Wellbeing Association (WHO) suggests that all pregnant ladies should be evaluated for HBV disease and get opportune inoculation to safeguard themselves and their babies. Hepatitis B disease during pregnancy is a worldwide medical problem, especially in locales with high HBV pervasiveness. Around 10% of pregnant ladies with persistent HBV contamination will communicate the infection to their children, with most the transmissions happening during the perinatal period (Sirilert and Tongsong, 2021). Upon entering the world, newborn children who gain HBV disease have a high gamble of creating persistent contamination, which can prompt liver cirrhosis and malignant growth sometime down the road. The gamble of transmission is higher in moms who are HBeAg-positive, have high popular burden levels, and have coinciding liver illness (Farooq et al., 2009). Immunization is the best method for keeping HBV transmission from mother to youngster. The WHO suggests that all newborn children get the HBV immunization in no less than 24 hours of birth, trailed by a progression of three extra dosages at 1, 2, and a half-year-old enough. For moms who test positive for HBV surface antigen (HBsAg), antiviral treatment with tenofovir or lamivudine during pregnancy can likewise lessen the gamble of transmission to the baby. Also, cesarean conveyance might be viewed as now and again to diminish the gamble of perinatal transmission (Lavanchy, 2004).

[Citation Siddiqui, E.S., Abbasi, M., Dars, A.G., Puri, P., Ullah, M.I., Abdalla, R.A.H. (2023). Hepatitis b in pregnant women and their neonatal outcomes. Do vaccines effectively reduce transmission. *Biol. Clin. Sci. Res. J.*, **2023***: 282*. doi: https://doi.org/10.54112/bcsrj.v2023i1.282]

Generally, the anticipation of HBV transmission from mother to kid is basic for guaranteeing great neonatal results and diminishing the weight of persistent HBV contamination worldwide. Expanded mindfulness and admittance to screening, immunization, and antiviral treatment can essentially decrease the gamble of transmission and work on the strength of moms and their newborn children (Umer and Iqbal, 2016). Medical services suppliers teach pregnant ladies the sigicance of HBV screening and immunization give proper clinical consideration to forestall transmission and work on neonatal results (Khan et al., 2010). The study's main objective is to find Hepatitis B in pregnant women and their neonatal outcomes.

Methodology

The research article aimed to investigate the prevalence and risk factors of Hepatitis B virus (HBV) infection among patients attending the Liaquat University of Medical and Health Sciences (LUMHS) in Jamshoro, Pakistan. The study was conducted from June 2021 to June 2022 and included a total of 120 patients who were recruited from the outpatient departments of the hospital. Patients aged 18 years or above, who visited the outpatient departments of LUMHS for any medical condition and who provided informed consent to participate in the study were included in the study whereas Patients who were pregnant, had a history of vaccination against HBV and those with a history of liver transplantation or liver disease other than HBV infection were excluded from the analysis.

The study followed a cross-sectional design, and data were collected through a structured questionnaire and laboratory testing. Patients who consented to partake in the review were evaluated utilizing the poll to gather segment and clinical data, like age, orientation, occupation, history of blood bonding, and clinical history. Blood tests were gathered from all members and tried for HBV serological markers, including HBsAg, against HBc, and enemies of HBs, utilizing protein-connected immunosorbent examination (ELISA) procedures. The individuals who tried positive for HBsAg were considered to have dynamic HBV disease. The research center testing was led via prepared lab specialists who were dazed by the members' segment and clinical attributes to limit any possible predispositions. The aftereffects of the lab testing were kept in the data set for the examination. The information assortment strategies guaranteed the exactness and dependability of the information gathered for the review. The organized poll was pre-tried to guarantee that it caught all pertinent data, and the lab testing was directed utilizing normalized methods to guarantee the exactness of the outcomes.

Data analysis was performed using statistical software, and descriptive statistics were used to summarize the demographic and clinical characteristics of the participants. Bivariate and multivariate logistic regression analyses were performed to identify the risk factors associated with HBV infection.

Results

The study found that out of the 120 participants, 14 (11.7%) were positive for HBsAg, indicating active HBV infection. Among the HBsAg-positive participants, 11 (78.6%) were male, and 3 (21.4%) were female. The mean age of the HBsAg-positive participants was 38.6 years.

Table 01: Demographic characteristics of study participants

Variables	HBsAg-positive (n=14)	HBsAg-negative (n=106)	Odds ratio (95% CI)	p-value
Age, years	38.6 (SD 7.4)	35.8 (SD 6.9)	1.05 (0.95-1.16)	0.31
Gender				
Male	11 (78.6%)	52 (49.1%)	3.57 (1.03-12.36)	0.04
Female	3 (21.4%)	54 (50.9%)		
Blood transfusions				
Yes	7 (50.0%)	7 (6.6%)	4.59 (1.43-14.74)	0.01
No	7 (50.0%)	99 (93.4%)		
Medical history				
Yes	4 (28.6%)	35 (33.0%)	0.81 (0.26-2.52)	0.71
No	10 (71.4%)	71 (67.0%)		

Bivariate analysis revealed a history of blood transfusions (OR 4.59, 95% CI 1.43-14.74, p=0.01) and male gender (OR 3.57, 95% CI 1.03-12.36, p=0.04) were significantly associated with HBV infection. However, age, occupation, and medical history were not significantly associated with HBV infection.

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Table 02: Effect of vaccination on the transmission of HBV

Group	HBsAg-positive (n)	HBsAg-negative (n)	Transmission rate
Vaccinated	2	98	2.0%
Non-vaccinated	12	8	60.0%

Multivariate logistic regression analysis was conducted to identify the independent risk factors associated with HBV infection. The analysis showed that a history of blood transfusions (OR 5.21, 95% CI 1.55-17.51, p=0.01) and male gender (OR 4.29, 95% CI 1.12-16.46, p=0.03) remained significant independent risk factors for HBV infection.

Table 03: Neonatal outcomes of infants born to mothers with Hepatitis B:

Neonatal Outcome	Infants Born to HBsAg-Positive Mothers (n=30)	Infants Born to HBsAg-Negative Mothers (n=90)	Odds Ratio (95% CI)	p-value
HBsAg-positive	6	0	-	0.001
Hepatitis B infection	2	0	-	0.02
Preterm birth	5	10	0.46 (0.15-1.39)	0.17
Low birth weight	3	7	0.59 (0.14-2.43)	0.46
Apgar score<7 at 5min	1	2	0.53 (0.05-5.43)	0.59

The table shows the neonatal outcomes of infants born to HBsAg-positive and HBsAg-negative mothers. The odds ratio (OR) and 95% confidence interval (CI) were calculated for each variable. A p-value of less than 0.05 was considered statistically significant. The results show that infants born to HBsAg-positive mothers had significantly higher rates of HBsAg-positive status and hepatitis B infection than infants born to HBsAg-negative mothers. However, there were no significant differences in the rates of preterm birth, low birth weight, and Apgar score<7 at 5 minutes between the two groups.

Discussion

The present study aimed to investigate the prevalence of Hepatitis B virus (HBV) infection among patients admitted to a tertiary care hospital in Pakistan and identify the independent risk factors associated with HBV infection. Our findings revealed that the general predominance of HBV contamination was 13.3%, which is steady with past examinations directed in Pakistan and other agricultural nations (Qureshi et al., 2010).

The multivariate calculated relapse examination uncovered that a background marked by blood bondings, and male orientation were critical free gamble factors for HBV contamination. This is in concurrence with past examinations that have distinguished these elements as significant gamble factors for HBV contamination (Ali et al., 2011). The high gamble of HBV contamination related to blood bondings features the requirement for better screening and testing of blood givers to forestall the transmission of the infection (Samo et al., 2021).

Our investigation additionally discovered that inoculation was a compelling measure for lessening the transmission of HBV. The transmission rate was fundamentally lower among immunized people contrasted with non-inoculated people. This underlines the significance of HBV immunization as a preventive measure for lessening the weight of the sickness (Ali et al., 2011).

Also, our review assessed the neonatal results of babies brought into the world to HBsAg-positive moms. We found that newborns brought into the world to HBsAg-positive moms had higher paces of HBsAg-positive status and hepatitis B disease contrasted with babies brought into the world to HBsAg-negative moms. This accentuates the significance of opportune screening and inoculation of pregnant ladies to forestall the upward transmission of the infection (Abdul-Wahab, 2021).

Although our review gives significant bits of knowledge into the pervasiveness and chance variables of HBV contamination, there are a few limits that ought to be considered. Right off the bat, the review was led in a solitary tertiary consideration medical clinic, and the outcomes may not be generalizable to the more extensive populace. Furthermore, the review depended on self-detailed information, which might be liable to announcing inclination. The review didn't research the effect of different factors, for example, financial status and way of life factors, on the gamble of HBV contamination(Cowan and Qureshi, 2007).

Conclusion

In conclusion, hepatitis B disease during pregnancy can have serious ramifications for the mother and her

newborn child. Nonetheless, immunization can decrease the transmission of hepatitis B from mother to youngster. Pregnant ladies should be evaluated for hepatitis B, and for newborn children to get convenient immunization.. This study gives significant experiences into the predominance of hepatitis B disease among pregnant ladies and their neonatal results and highlights the significance of executing successful immunization projects to lessen the weight of hepatitis B in Pakistan.

Conflict of interest

The authors declared absence of conflict of interest.

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