OBSTETRIC AND GYNECOLOGICAL HISTORY OF PREGNANT WOMEN WITH CHRONIC VIRAL HEPATITIS B WITH AND WITHOUT DELTA AGENT

Shakhnosa A. Tashpulatova - C.M.Sc., associate professor
Tashkent Medical Academy (Tashkent, Uzbekistan)
zebooriginal@gmail.com

Abstract. *The impact of infection in women suffering from chronic viral hepatitis B on pregnancy outcomes has not been fully studied, and existing research shows contradictory results. A review of the literature revealed no reliable data on the course and outcomes of hepatitis D during pregnancy. The aim of this study was to analyze the obstetric and gynecological history of pregnant women infected with chronic viral hepatitis B with and without the D-agent. From 2017 to 2021, a prospective study was conducted at the City Clinical Infectious Diseases Hospital No. 1 in Tashkent involving 260 pregnant women: 142 were infected with HBV without the D-agent, and 118 with the D-agent. The results showed that pregnant women with HBV without the D-agent had a significantly higher probability of favorable pregnancy outcomes, whereas women with HBV associated with the D-agent experienced significantly more frequent complicated deliveries and neonatal complications.*

Keywords: *D-agent, chronic viral hepatitis B, pregnant women, complicated delivery, preterm birth, miscarriage before 22 weeks, Apgar score, prematurity.*

Introduction. The impact of chronic viral hepatitis (CVH) infection in mothers on pregnancy outcomes has not been fully studied, and existing research shows conflicting results. Some studies report no association between maternal CVH and pregnancy outcomes [1]. Other studies have found that CVH infection does not negatively affect perinatal outcomes, noting only lower Apgar scores in newborns [2, 3].

At the same time, certain studies indicate that women infected with HBV and their newborns have higher rates of conditions such as abnormal fetal presentation, preterm birth, and meconium peritonitis [4, 5].

A large cohort study conducted in China revealed that pregnant women who were HBsAg-positive had a higher risk of gestational diabetes, postpartum hemorrhage, and intrahepatic cholestasis [6].

Another large case-control study from China showed that maternal HBsAg positivity was associated with several adverse pregnancy outcomes, particularly an increased risk of pregnancy-related hypertension, abnormal fetal position, cesarean section, and macrosomia. Furthermore, this study demonstrated a statistically significant association between high maternal viral load and the risk of preterm birth in the second trimester.

Other studies have also reported an increased risk of preterm birth associated with maternal HBV infection, although some studies have shown contradictory results [7].

In the reviewed literature, we found no information on the course and outcomes of viral hepatitis D in pregnant women. Therefore, the **aim** of this study was to analyze the obstetric and gynecological history of pregnant women with chronic viral hepatitis B with and without the delta agent.

Material and methods of research. From 2017 to 2021, a prospective observational study was conducted at the Tashkent City Infectious Diseases Hospital No. 1 among 260 pregnant women diagnosed with chronic viral hepatitis B (CVHB) with and without the delta agent.

The study included pregnant women aged 18–45 years with a diagnosis of CVHB with or without the delta agent, confirmed by ELISA and PCR methods, who provided informed consent to

participate in the study. Obstetric and gynecological history was collected through interviews with the enrolled pregnant women.

Participants were monitored from the time of hospital admission until delivery, with outcomes of the current pregnancy analyzed.

The numerical data from the study were processed using the "Microsoft Excel" 2022 (XP) program with variation statistical methods. In this analysis, the arithmetic mean (M), standard deviation, standard error of the mean (m), and relative values (rate, %) were calculated using parametric and nonparametric variation statistics.

The statistical significance of differences in the mean values between study groups was assessed using the Student's t-test, calculating the probability of error (P). Changes were considered statistically significant at a confidence level of $P < 0.05$.

To determine the statistically significant differences in qualitative variables between groups, the odds ratio (OR) was calculated along with the 95% confidence interval (CI).

Results and discussion. Among 142 women with chronic viral hepatitis B (CVHB) without the D agent, 14 (9.9%) were pregnant with their first child, 35 (25.0%) with their second, 69 (48.6%) with their third, and 24 (16.9%) with their fourth or fifth child. As the analysis shows, the majority of pregnancies among women with CVHB without the D agent were second or higher order pregnancies (90.5%). In 116 women (81.7%), pregnancy ended without complications at term, whereas 26 (18.3%) women experienced complicated pregnancies, including miscarriage before 22 weeks in 7 (4.9%) cases, threatened preterm labor in 19 (13.4%) cases, and actual preterm birth in 4 (2.8%) cases. Additionally, 28 (19.7%) women developed early toxicosis, 4 (2.8%) preeclampsia, and 2 (1.4%) intrahepatic cholestasis. The majority of pregnancies in this group concluded without complications.

Of the 142 women with CVHB without the D agent, 135 (95.1%) carried their pregnancies to the delivery stage, with 7 miscarriages occurring before 22 weeks (mean gestational age 18.7±0.33 weeks; median 18 weeks; mode 18 weeks; min 18 weeks; max 20 weeks). Among the 135 women who reached delivery, 131 (97.04%) delivered at term (mean gestational age 38.9±0.87 weeks; median 38 weeks; mode 38 weeks; min 38 weeks; max 42 weeks), and 4 (2.9%) had preterm births (mean gestational age 35.7±1.2 weeks; median 35 weeks; mode 35 weeks; min 35 weeks; max 37 weeks). Most deliveries occurred naturally (115 cases, 85.2%), while cesarean sections were performed in 20 cases (14.8%) based on obstetric indications. Four preterm newborns were assessed with grade I prematurity.

Among deliveries, 14 (10.4%) cases involved polyhydramnios, and 21 (15.6%) cases showed placental calcifications.

When assessing delivery outcomes and the early neonatal period in 135 newborns, the average birth weight was 3300±0.78 g. Eight newborns (5.9%) weighed over 4000 g, while 21 (15.6%) weighed less than 2500 g. The average Apgar score at birth was 7.6±0.12.

In women with CVHB with the D agent, 50 (42.4%) were pregnant with their first child, 42 (35.6%) with their second, 22 (18.6%) with their third, and 4 (3.4%) with their fourth or fifth child. Thus, the majority (78.0%) of women with the D agent were pregnant with their first or second child, a significantly higher rate compared to the group without the D agent (OR=6.580; 95% CI 2.944–14.7; Yates correction $\chi^2=21.277$; $P<0.001$).

Among women with the D agent, 66 pregnancies (55.9%) ended without complications, while 52 pregnancies (44.06%) ended with complications, including miscarriage before 22 weeks in 15 cases (12.7%), threatened preterm labor in 37 cases (31.4%), preterm birth in 7 cases (5.9%), and stillbirth in 4 cases (3.4%). Furthermore, 24 cases (20.3%) of early toxicosis, 9 cases (7.6%) of preeclampsia, and 7 cases (5.9%) of intrahepatic cholestasis were recorded. Comparison between the

groups revealed that women with the D agent had a significantly higher risk of complicated pregnancy outcomes (OR=3.529; 95% CI 1.67–7.7; Fisher's exact test p<0.05), although there was no significant difference in the types of complications (p>0.05).

Of 118 women with CVHB with the D agent, 103 carried their pregnancies to delivery. Miscarriages occurred in 15 women before 22 weeks (mean gestational age 13.57±0.27 weeks; median 13 weeks; mode 12 weeks; min 12 weeks; max 18 weeks). Miscarriage occurred significantly earlier in women with the D agent compared to those without (P<0.01).

Among those who reached delivery, 92 women (77.97%) delivered at term (mean gestational age 37.2±0.66 weeks; median 38 weeks; mode 37 weeks; min 37 weeks; max 40 weeks). No significant difference in term deliveries was observed between groups (P>0.05).

Seven women (6.8%) delivered preterm (mean gestational age 34.9±0.98 weeks; median 35 weeks; mode 35 weeks; min 35 weeks; max 36 weeks), and again no significant difference was found between the groups regarding preterm delivery rates (P>0.05).

Of the 103 women with deliveries, 61 (59.2%) had natural deliveries, while 42 (40.8%) underwent cesarean section, with a significantly higher probability of cesarean delivery in the D agent group (OR=4.004; 95% CI 1.647–9.7; Fisher's exact test p<0.05). Moreover, four cases of stillbirths were observed in this group.

All seven preterm newborns in the D agent group were assessed with grade I prematurity.

Among the 103 deliveries, polyhydramnios was detected in 22 cases (21.4%), and placental calcifications were found in 16 cases (15.5%), with no significant differences between groups (P>0.05).

The average birth weight of newborns from women with the D agent was 3150±0.99 g, with no significant difference between groups (P>0.05). Among them, 4 newborns (3.9%) weighed over 4000 g, and 24 (23.3%) weighed less than 2500 g.

The average Apgar score among newborns in the D agent group was 6.8±0.36, significantly lower compared to newborns from women without the D agent (P<0.05), indicating the need for special monitoring.

The study results showed that the risk of pregnancy complications was significantly higher in cases of CVHB with the D agent. Notably, the D agent was found in a high percentage (78.0%) among women pregnant for the first or second time. This may suggest that the viral infection was already present and led to complications early in their reproductive life.

Women with CVHB and the D agent had a higher incidence of miscarriage before 22 weeks, threatened preterm labor, toxicosis, preeclampsia, and intrahepatic cholestasis. The probability of a complicated pregnancy outcome was also higher (OR=3.529). In addition, the likelihood of cesarean section was significantly higher in the D agent group (OR=4.004), indicating the need for additional obstetric caution.

Although the rates of full-term and preterm deliveries did not differ significantly between groups, the Apgar scores were significantly lower in the D agent group (P<0.05), possibly due to placental transmission of the virus or fetoplacental insufficiency.

Conclusion. In pregnant women with CHB without the delta agent, the likelihood of an uncomplicated pregnancy outcome was significantly higher. In women with CHB with the delta agent, the risk of complicated delivery and neonatal complications was significantly higher.

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