FEATURES OF CHRONIC VIRAL HEPATITIS C IN PREGNANT WOMEN

V. O. Boyko¹, V.I. Naumenko²

Abstract

A clinical and laboratory examination of 73 pregnant women with chronic viral hepatitis C has been performed. The study has clarified the dominant ways of disease transmission, clinical and laboratory features of chronic viral hepatitis C, its negative influence on the pregnancy course with possible complications at the early and late stages of pregnancy. We have substantiated the need for regular examinations aiming to detect the markers of the viral hepatitis C in order not only to reduce the incidence of complications of pregnancy but also to prevent perinatal transmission of the virus.

Key words: chronic viral hepatitis C, pregnant women, epidemiological history, clinical course.

The viral hepatitis C (VHC) is presently an actual issue for the medical science and practical public health concerning the liver diseases. This is due to prevalence, high incidence, polymorphism of clinical manifestations, high rate of chronic forms of the disease such as cirrhosis, liver decompensation, hepatocellular carcinoma and significant social and economic costs of the diagnosis and treatment [4, 9, 13].

Variety of transmission ways (natural and artificial), official registration only of acute forms of VHC, prevalence of non-specific clinical and extrahepatic manifestations of this disease causes difficulties in the diagnosis and a significant increase of the incidence in the population, especially among the women of the reproductive age (19-39 years) [11]. According to WHO, about 700 million people are infected by VHC in the world, and more than a third of them have the chronic viral hepatitis C (CVHC) [8].

The problem of VHC in pregnant women presents a special actuality not only because of the negative influence of the infection on the women health and pregnancy but also due to the possibility of intrauterine infection and intranatal transmission of virus to the newborn [1]. In Ukraine, the rate of infection of pregnant is the same as that in the population, the average rate being 3.1% [3], however, most of the researchers believe that the real frequency of the disease is unknown due to lack of regular antenatal examination of patients with VHC [9, 12, 14].

The aim of this work is to study the epidemiological history, clinical and laboratory parameters of chronic viral hepatitis C in pregnant women.

MATERIALS AND METHODS

A complex clinical and laboratory examination of 73 pregnant women with CVHC have been made. The control group included 30 women without somatic diseases and with physiological pregnancy. The diagnosis of VHC was established according to epidemiological, clinical, laboratory and instrumental data (ultrasound examination of the abdominal cavity). The complex laboratory examination included routine clinical laboratory tests (the complete blood and urine tests), biochemical tests (serum bilirubin, the activity of enzymes – AIFAT and AsAT, the level of alkaline phosphatase and albumin in the blood); the anti-HCV IgM, anti-HCV IgG, anti-NS3, anti-NS4, anti-NS5 were determined by the enzyme immunoassay and the viral RNA was established by the polymerase chain reaction.

Complex examinations of patients were made at least two times – at the first addressing to the infectious-disease specialist and then in the third trimester of pregnancy.

In all pregnant women, mixed hepatitis and HIV-infection, reactivation of herpes viral infections (as possible viruses with polytropic or hepatotropic action) were excluded.

RESULTS AND DISCUSSION

The mean age of the patients in the main group was 28.7 ± 3.2 years, in the control group it was 29.9 ± 4.1 years.

An evaluation of the epidemiological history showed that 64 patients (87.7%) find out their disease for the first time. Only three patients (12.3%) among nine women reported previous clinical manifestations of CVHC. The ways of infection were very diverse. The main ways of CVHC transmission were parenteral medical procedures and surgical interventions – in 21 (28.8%) cases, blood transfusions – in nine (12.3%) patients; the sexual way was responsible in eight (10.9%) patients. Intravenous drug abuse confirmed seven (9.6%) patients; professional risk and donation were revealed much more rarely: respectively in three (4.1%) and two (2.7%) women. It is important that in one third of patients (31.5%) the cause of the disease was not determined. A gradual change in the ways of transmission of VHC, with increasing levels of the sexual fraction, parenteral medical procedures, and intravenous drugs, is indicated by other authors as well [7, 11]. A.L. Gural et al. in their study note that the main way of transmission of VHC is determined by the age structure of the patients and is prevalent among young people aged 15 to 29 years,
which is the reproductive part of the population. The authors also indicate that examination of pregnant women often reveals previous VHC, which necessitates obligatory testing of pregnant women, especially for the prevention of complications and perinatal transmission of the virus [3].

Further examination of pregnant women revealed the prevalence of asymptomatic CVHC in 41 (56.2%) women, but the other 32 (43.8%) patients did not have typical clinical symptoms. Intoxication syndrome, jaundice were not revealed in any patient. Hepatomegaly was observed in 7 (9.6%) women, astenovegetative syndrome – in 26 (35.6%) patients, mostly withing the last 2-3 years. Dyspeptic syndrome with nausea, discomfort in the epigastrium and right upper quadrant, periodic diarrhea, decrease of appetite were observed rarely – in 6 (8.2%) women.

Thrombocytopenia, as extrahepatic manifestations of CVHC, was observed in 3 (4.1%) patients without hematologic pathology. We also revealed that 6 (8.2%) patients had subsequent glomerulonephritis, with periodic treatment procedures in the nephrology department, 1-2 times a year, in 3 (4.1%) pregnant women the disease was also followed up by endocrinologist with suspected autoimmune thyroiditis, and in 2 (2.7%) women we diagnosed nodular parieteritis. Thus, in 14 (19.2%) women extrahepatic signs of CVHC were revealed. The problem of primary detection of extrahepatic manifestations of CVHC motivates collaboration of various physicians and not only obstetrician-gynecologists and specialists in infectious diseases [7, 10].

Anemia was confirmed in 52 (71.2%) patients, while 36 patients had it before pregnancy. The hemoglobin level in the main group of pregnant women with anemia was 95.3 ± 5.4 g/l. In the control group, anemia was detected in 6 (20.0%) patients with the mean hemoglobin level being 98.8 ± 6.7 g/l.

Some of the biochemical parameters in patients of the main group differed from those of the control group of women and indicated cytolytic, mesenchymal-inflammatory and, rarely, cholestatic syndromes (tab. 1).

<table>
<thead>
<tr>
<th>Parameters</th>
<th>The main group</th>
<th>The control group</th>
</tr>
</thead>
<tbody>
<tr>
<td>AlAT (mmol/l/h)</td>
<td>1.88±0.42*</td>
<td>0.76±0.22</td>
</tr>
<tr>
<td>AsAT (mmol/l/h)</td>
<td>1.43±0.36*</td>
<td>0.59±0.19</td>
</tr>
<tr>
<td>Total bilirubin (umol/l)</td>
<td>19.8±1.67</td>
<td>20.3±1.8</td>
</tr>
<tr>
<td>Albumin (g/l)</td>
<td>46.1±2.8</td>
<td>48.4±2.7</td>
</tr>
<tr>
<td>Timol test (U)</td>
<td>8.9±0.58*</td>
<td>6.4±0.79</td>
</tr>
<tr>
<td>Alkaline phosphatase (mmol/l/h)</td>
<td>3.4±0.34</td>
<td>2.7±0.37</td>
</tr>
</tbody>
</table>

Table 1 Biochemical parameters in the comparison groups

Note: * - p < 0.05 as compared to the control group

In the main group, we observed a level of transaminases 2.5 times higher than that in the control group, along with a significant increase of the thymol test result. Most authors established a physiological decrease of the alkaline phosphatase level in pregnant women [2]. However, though we noticed an increase trend for this enzyme, which indicates development of cholestatic syndrome, no statistically significant difference between the main group and the control one was observed. The levels of bilirubin and albumin were normal in the both groups.

An ultrasound examination of the abdominal cavity revealed diffuse changes in the liver structure: heterogeneity of the parenchyma was revealed in 29 (39.7%) women, hepatomegaly – in 15 (20.5%) cases, and an increase of the diameter of v. portae was observed in 8 (10.9%) patients. Most of these ultrasound features are typical for chronic process in the liver, as is noted by other authors [5].

We have analyzed the course of pregnancy in patients with CVHC and confirmed the disease influence on the development of complications at early and late periods (Table 2). The frequency of complications in women with CVHC was much higher than in the patients of the control group. The threat of spontaneous abortion in pregnant women with CVHC is 3 times more often than in the control group, early hestosis is 2.5 times more often than in patients of the main group. The frequency of fetoplacental failure and preterm delivery in women with CVHC was more than 2 times higher than in the control group. Thus, the complications were registered significantly more often in patients with CVHC, which confirms negative influence of the disease on pregnancy. V.V Kaminsky et al. states that some of the complications can increase the risk of perinatal transmission of disease [6].

<table>
<thead>
<tr>
<th>Complications</th>
<th>The main group</th>
<th>The control group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abs. number</td>
<td>%</td>
<td>Abs. number</td>
</tr>
<tr>
<td>The threat of spontaneous abortion</td>
<td>29</td>
<td>39.7</td>
</tr>
<tr>
<td>The early hestosis</td>
<td>25</td>
<td>34.2</td>
</tr>
<tr>
<td>Hydramnion</td>
<td>9</td>
<td>12.3</td>
</tr>
<tr>
<td>Oligohydramnion</td>
<td>6</td>
<td>8.2</td>
</tr>
<tr>
<td>Preeclampsia</td>
<td>11</td>
<td>15.1</td>
</tr>
<tr>
<td>Fetoplacental failure</td>
<td>34</td>
<td>46.6</td>
</tr>
<tr>
<td>Preterm delivery</td>
<td>17</td>
<td>23.3</td>
</tr>
</tbody>
</table>
CONCLUSIONS

1. The main factors of VHC transmission among pregnant women are medical procedures and surgical interventions (28.8%), blood transfusion (12.3%), sexual transmission (10.9%), intravenous drug use (7.6%). High percentage of patients (31.5%) with unknown causes of CVHC leads to a weaker circumspection of the parenteral viral hepatitis not only among the woman but also among the doctors of obstetric clinic, therefore pregnant women are not screened for markers of VHC.

2. The asymptomatic form of the disease (56.2%) is prevalent in pregnant women with CVHC. 14 (19.2%) patients initially had signs of extrahepatic VHC. All the pregnant women with CVHC had nonspecific clinical signs, hence this infection was detected accidentally in 87 of patients (7%).

3. Pregnant women with CVHC had an increased activity of ALAT, ASAT, timol tests, tendency to an increase in alkaline phosphatase, which suggests a need for obligatory screening for markers of VHC in women.

4. CVHC negatively influences the pregnancy: a high frequency of complications at the early and late period is observed (the threat of spontaneous abortion is 39.7%, early hestosis is 34.2%, fetoplacental failure is 46.6%, preterm delivery is 23.3%), thus the risk of perinatal transmission is high.

REFERENCES


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