Nursing Effect of Patients with Viral Hepatitis in Pregnancy

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Abstract: Viral hepatitis is one of the common clinical infectious diseases, and pregnant women are especially susceptible to infection during pregnancy. The burden of the liver increases during pregnancy, and the growth of the fetus in the mother and the process of delivery often aggravate the liver damage, which may lead to large-scale necrosis of liver cells and cause severe hepatitis, causing serious adverse effects on both the mother and the fetus. Therefore, the nursing effect analysis of pregnant patients with viral hepatitis has great clinical and social significance. The purpose of this article is to analyze the nursing effect of pregnant patients with viral hepatitis. This article uses the literature research method to search for key words to find relevant domestic and foreign documents, works, articles, etc.; it is compiled according to research needs on the basis of referencing a large number of documents and consulting obstetrics and gynecology, nursing experts, and most of the content Choose with closed questions. Simultaneously use and then use the controlled experiment method to compare and analyze the fetal outcomes of the maternal HBV infection group (hepatitis B group) and the maternal non-HBV infection group (non-hepatitis B group). Studies have shown that the youngest age of onset is 18 years old, the oldest is 38 years old, and the average age is 25.5±3.1 years. Children under 20 and over 35 are relatively rare. 21 to 30 is the peak period of childbirth, accounting for 71.4% (54/70). During this period, the mortality rate of pregnant women is 40% (28/70), and the age is greater than or equal to 35 and less than or equal to 20. The number of cases of the age is relatively small.

Keywords: Viral Hepatitis, Delivery Process, Nursing Effect, Pregnancy with Viral
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Our country is a country with a high incidence of liver disease. Pregnancy complicated with liver disease is clinically common. With the influence of the national second-child policy, such patients are increasing year by year. Pregnancy leads to aggravation of liver disease, and liver disease also increases the risk of pregnancy, and pregnancy complications and complications increase [1,2]. Pregnancy with severe hepatitis is one of the important causes of maternal death in my country, with a mortality rate as high as 60%-90% [3,4]. Pregnancy with severe hepatitis B is critically ill, with a high case fatality rate, and its treatment is more complicated, involving multi-specialty cooperation and the application of multiple treatment methods, which should be paid attention to clinically [5,6]. Therefore, it is of great significance to analyze the nursing effect of patients with viral hepatitis in pregnancy and to choose a more correct and better nursing method [7,8].

In the analysis and research on the nursing effect of pregnant women with viral hepatitis, many scholars have conducted research on them, and have obtained good results. For example, Mohsen W, Levy MT. etc. Hepatitis B virus surface antigen and e antigen in women of childbearing age in my country the analysis of the epidemic situation suggests that the overall prevalence of HBsAg among women of childbearing age in my country is 6.61%, while the rate of mother-to-child transmission of HBV in infants is about 3%-10%, and there is a 90% chance that newborns will be infected with HBV. Chronic HBV infection [9]. Liu. In the study of hepatitis B immunoglobulin combined with hepatitis B vaccine to block the

mother-to-child transmission of hepatitis B virus, it was mentioned that before the application of HBIG to block mother-to-child transmission, about 80%-85% were during childbirth. Infections, 10% - 15% are postpartum infections, and 5%-10% are intrauterine infections. After the application of combined neonatal immunization, mother-to-child transmission is greatly reduced, but the failure rate of mother-to-child blocking is still 5%-10% [10].

This article uses the literature research method to search for literature, works, articles, etc. related to keywords such as "viral hepatitis" and "pregnancy complicated virus"; then, using a controlled experiment method, the maternal HBV infection group (hepatitis B group); The fetal outcome of the HBV infection group (non-hepatitis B group) was compared and analyzed.

NURSING EFFECT OF PREGNANT PATIENTS WITH VIRAL HEPATITIS

Causes of Hepatitis in Pregnancy

Common causes of hepatitis in pregnancy include viral infection, intrahepatic cholestasis of pregnancy, drug damage, alcohol, inherited metabolic liver disease, autoimmune hepatitis, acute fatty liver of pregnancy, elevated liver enzymes, and thrombocytopenia syndrome (HELLP) Wait. In the statistics of pregnant women with liver disease in our hospital, viral hepatitis, intrahepatic cholestasis of pregnancy, and acute fatty liver of pregnancy are more common, and viral hepatitis is particularly prominent. Viral hepatitis is divided into 5 pathogenic types, namely type A, type B, type C, type D, and type E.

The positive rate of hepatitis B virus surface antigen (HBsAg) among pregnant women in my country can reach up to 6.7%. Viral hepatitis in pregnancy is more common with HBV infection. This is closely related to the fact that my country is a big country with hepatitis B and the base of hepatitis B virus infection. In this study, 34 cases of HBV infection, accounting for 87.18%, of which 32 cases were HBV-DNA positive, and the other 5 cases were hepatitis E. Hepatitis E virus is the main cause of hepatitis during pregnancy in India. In severe cases, liver failure may even occur. This may be related to their sanitary conditions and living habits.

Specific Measures for Antiviral Treatment during Pregnancy

HBV load threshold for pregnant women

The HBVDNA level of pregnant women as an independent risk factor has important value in predicting the vertical transmission of HBV from mother to child. In the study of the Chinese population, Zou et al. found that when the serum HBV DNA of pregnant women is less than ； 1×10^6copies/mL, the neonatal vaccination failure rate is 0; ； 1×10^6copies/mL＜3.2% when HBV DNA＜1×10^7 copies/mL;1×10^7 copies/mL＜ HBV DNA ＜ 1×10^8 copies/mL, 6.7%; HBVDNA＞$1 \times 10^8$6% at 8 copies/mL.

Therefore, when the HBV DNA in the serum of pregnant women before childbirth is> 10^6 copies/mL, one must be alert to the risk of mother-to-child transmission of HBV. Chen et al. selected 221 pregnant women with HBV DNA≥10^3 copies/mL. Among them, 43 pregnant women with high viral load (≥ 10^6 copies/mL) received TDF antiviral therapy in the middle and late stages of pregnancy. While 89 pregnant women with high viral load and 79 pregnant women with low viral load (≥10^3copies/ml and <10^6 copies/ml) were the control group, the results showed that 70.7% of the pregnant women in the treatment group and 3.4% of the pregnant women with high viral load in the control group turned negative before giving birth to HBV DNA. At 7 months postpartum, the immune prevention failure rate in the treatment group was 2.4%, while that in the untreated high viral load control group was 16.9%, and the low viral load was 16.9%. The control group was 10.1%, so it was concluded that pregnant women with low HBV load also need to consider antiviral treatment to reduce the risk of mother-to-child transmission.

Regarding this issue, the major guidelines have also made recommendations: In 2015, China's guidelines recommended that pregnant women with HBV DNA load> 2×10^6 IU/mL may consider antiviral therapy; the 2015 APASL

guidelines recommend that HBV DNA Antiviral therapy is given when $>1\times10^{6-7}$IU/mL; the 2015 AASLD guidelines and the 2017 EASL clinical practice guidelines point out that pregnant women HBV DNA$>1\times10^{6}$IU/mL At times, antiviral drugs can be taken to increase the rate of interruption of mother-to-child transmission.

Antiviral treatment time

In early pregnancy, because the placental barrier has not yet formed, HBV can directly infect the fetus; in the middle and late pregnancy, the systemic toxemia of pregnant women can cause placental inflammation, which can cause damage to the placental barrier, threatened abortion can lead to placental dissection, etc., and HBV can pass These methods lead to the emergence of intrauterine infections. Therefore, in order to reduce the occurrence of HBV intrauterine infection, it is necessary to reduce the HBV viral load in the serum of pregnant women as early as possible. A retrospective study conducted by Cao Yanjun and others found that premature use of LAM or LdT before pregnancy, or the use of LAM before, is the main cause of viral resistance during pregnancy. Therefore, if pregnant women need to receive antiviral treatment, especially Those who have passed antiviral treatment for a long time before pregnancy need to pay attention to the monitoring of virus resistance.

Timing of withdrawal and safety of withdrawal

Regarding the timing of stopping the use of antiviral drugs during pregnancy, Zhuang Qianying and others conducted a study on 267 HBeAg-positive pregnant women with high viral load, and observed the postpartum effects of different stopping times after the pregnant women took LdT in the second trimester. The changes in liver function showed that compared with those who discontinued the drug for more than 30 days postpartum, the ALT level and the number of cases with ALT>2×ULN were increased in 0-29 days postpartum compared with those who discontinued the drug for more than 30 days.

Research suggests that premature discontinuation of the drug after delivery may be one of the risk factors for elevated ALT. Sheng Qiuju et al. conducted a prospective, open clinical study to observe the safety of HBV-infected pregnant women after applying LdT in the second and third trimesters of pregnancy. The results showed that during the treatment process and within 6 months after the withdrawal, 4.81% ALT increased in patients in the treatment group, and 4.00% of patients in the observation group experienced increased ALT, and the difference was not statistically significant. The results of the study showed that for pregnant women who took LdT in the middle and late pregnancy, the onset of hepatitis was stopped immediately after delivery. The rate is low, and it is safe to stop the drug immediately after delivery. Zhou Yuejin and others conducted a 4-year follow-up study on the safety of LDT treatment during pregnancy after stopping the drug. The results showed that the recurrence rate of patients in the treatment group was low (25%) after stopping the drug for one year, and the long-term curative effect was good.

Treatment of Viral Hepatitis in Pregnancy

General treatment and drug use

There are many contraindications to the use of drugs in pregnant women. Inappropriate drug interventions often endanger the fetus and can cause teratogenesis, premature delivery and even stillbirth. The drugs with clear liver protection treatment include adenosylmethionine, polyene phosphatidylcholine and other drugs. The treatment of pregnancy complicated with viral hepatitis B is particularly important clinically. Due to the continuous replication of HBV-DNA, the condition often aggravates in the third trimester of pregnancy, and even further develops into severe hepatitis, which increases the medical risk of mother and child, and increases complications, and even Increase the mortality of mothers and babies. Controlling viral replication as early as possible is crucial for patients with hepatitis B viral hepatitis during pregnancy, and it is also crucial for reducing the incidence of mother-to-child transmission.

Selection of production method and timing

The choice of production methods and end of pregnancy time for patients with liver diseases in different pregnancy is closely related to the prognosis of the patients. We know that it has been clear that patients with acute fatty liver of pregnancy should end their pregnancy as soon as possible, which can improve the prognosis of patients, and more often use cesarean section. There are no clear answers and regulations regarding when the pregnancy with viral hepatitis will end and the method of delivery.

Because the coagulation function of pregnant patients with liver disease may be poor, and bleeding is prone to occur, especially vaginal bleeding, even DIC, and other complications, it is very important to monitor the patient's coagulation mechanism and improve the patient's coagulation function. In particular, patients with severe hepatitis during pregnancy terminate their pregnancy in due time according to the patient's condition and the condition of the fetus. If the fetus is immature and the gestational age is small, comprehensive treatment should be given. The patient's condition under close monitoring, premature operation to terminate the pregnancy may lead to a decline in the fetal survival rate and affect the future fertility of the mother; in addition, delivery It is a kind of trauma in itself, and termination of pregnancy may lead to rapid aggravation and rapid deterioration of the patient's condition.

Patients with severe hepatitis during pregnancy can alternate daily infusion of 200-400ml fresh frozen plasma and 10-20g albumin, which can supplement coagulation factors, promote vascular endothelial cell repair, and promptly correct hypoalbuminemia. The prothrombin complex is rich in coagulation factors such a II, IV, IX, X, which can be infused with 400-800 U each time, and 3-6 g of fibrinogen can be supplemented daily. The above measures can effectively prevent and treat multi-site hemorrhage caused by coagulation dysfunction, and the most important thing is to prevent postpartum hemorrhage. At the same time, it is necessary to actively correct low protein, hypoglycemia and hypokalemia.

Scholars at home and abroad agree that comprehensive observation and monitoring of the dynamic changes of various biochemical indicators is conducive to the judgment of the prognosis of the disease, so as to decide whether to terminate the pregnancy and adopt an early treatment plan. If the condition worsens, artificial liver (ALSS) treatment can be performed in time.

Prognosis of Viral Hepatitis in Pregnancy

(1) Pregnancy complicated with hepatitis is not treated promptly, and often develops into severe hepatitis during pregnancy. The condition is complicated and may be accompanied by a series of complications such as coagulation dysfunction, hepatic encephalopathy, hepatorenal syndrome, secondary infection and electrolyte balance disorder.

(2) There are many factors affecting the prognosis of liver failure during pregnancy, which mainly depend on liver function and prothrombin time. At present, ALT, AST, TBil, DBil, PT and other indicators are often used clinically to judge the severity of liver failure. Among them, the degree of hepatocyte necrosis is often determined by the level of TBil, and the appearance of severe bile enzyme separation often indicates a critical condition.

In this experiment, through the comparison of ALT, AST, TBil, DBil, PT and other groups when the jaundice is highest in the early and late pregnancy, the P value of ALT, AST, TBiL, DBil, PT is less than the two independent sample t-tests. 0.05, the difference is statistically significant. The ALT, AST, TBil, DBil, and PT in the third trimester of pregnancy are significantly higher than those in the early and second trimester, which can be used as dynamic monitoring indicators to determine the severity of liver failure.

(3) The occurrence of complications is also an important indicator of prognosis. The worse the prognosis, the more complications. The 15 pregnant women who died or were discharged automatically in this group had at least two complications. Pregnancy complicated by hepatitis; non-severe hepatitis has no significant impact on newborns. Severe hepatitis threatens the safety of

mothers and children, and can cause serious consequences for low-birth-weight infants, stillbirths and even the death of pregnant women.

For pregnant patients with hepatitis, in order to improve the success rate of clinical treatment, it is necessary to popularize relevant knowledge and actively prevent complications as early as possible. Intrauterine fetal death is often a sign of aggravation. The comparison of stillbirths in the non-severe hepatitis group and severe hepatitis in this group, P<0.05, indicating that the difference between the two groups is statistically significant

In summary, viral hepatitis during pregnancy has complex conditions, diverse symptoms, and various changes, especially in the third trimester, which can cause multiple complications and comorbidities, which can further develop into severe hepatitis, which is extremely harmful to pregnant women and fetuses. In order to improve the success rate of clinical treatment, early identification, early diagnosis, and early treatment are needed, and clinical and biochemical indicators should be closely observed dynamically, an early warning mechanism for such patients should be established, comprehensive treatment should be adopted, and various complications should be actively prevented to reduce the mortality of pregnant women and fetuses.

Statistical Least Squares Regularization Regression Algorithm

Regarding the Mercer kernel K, the regularized kernel network algorithm is:

$$f_{z,\lambda} = \arg\min_{g \in H_K} \{\frac{1}{m}\sum_{i=1}^{m}(f(x_i) - y_i)^2 + \lambda||f||_K^2 \quad (1)$$

Here $\lambda > 0$ is the regularization parameter. In the algorithm analysis, the error between$f_{z,\lambda}$ and $f_\rho$is estimated using the method of integral operator. Take $u_m = \frac{1}{m}\sum_{i=1}^{m}\rho_X^{(I)}$, give the following function: give the following function:

$$f_{z,\lambda} = \arg\min_{f \in H_K} \{\int (f(x) - \int_p (x))^2 d\mu(x) + \lambda||f||_K^2\} \quad (2)$$

The error estimate of $f_{z,\lambda} - f_\rho$ is decomposed into the following three parts:

$$f_{z,\lambda} - f_\rho = \{f_{z,\lambda} - f_{z,\mu}\} + \{f_{\lambda,\mu} - f_{\lambda,\rho_x}\} + \{f_{\lambda,\rho_x} - f_\rho\} \quad (3)$$

Among them, the first part is called the sample error; the second part is called the deviation; the third part is called the approximation error.

EXPERIMENTAL STUDY ON NURSING EFFECT OF PREGNANT PATIENTS WITH VIRAL HEPATITIS

Research Object

From January 2020 to March 2021, he was admitted to the hospital with the Department of Gastroenterology in a hospital for severely ill pregnant and lying-in women in a hospital in this province, or was urgently transferred to the hospital after delivery in other hospitals for treatment of 201 pregnant patients with viral hepatitis (hepatitis group) aged 18 - 38 years old, average (22.6±1.8) years old, 8 to 42 weeks of gestation; at the same time, 200 pregnant women (non-hepatitis group) with healthy cycles and no comorbidities were randomly selected as the control group, aged 19 to 36 years, average (23.6±2.7)) Years old, 18 to 42 weeks of gestation, the ages of the two groups were similar. Check the case in the medical record room according to the patient's name and hospitalization number.

Diagnostic Methods

The main methods for collecting cases include: according to the method of reporting infectious diseases in the hospital, searching the gastroenterology and obstetrics and gynecology infectious disease registration forms, obtaining the patient's name and hospitalization number; in the statistics computer room of the hospital, directly inputting "pregnancy, hepatitis" and other related information into the computer The case is retrieved by word, and the patient's name and hospitalization number are obtained; the patient's name and hospitalization number are found in the electronic case system according to the discharge diagnosis. Then check the case in the medical record room according to the patient's name and hospitalization number. After obtaining the required cases, record the patient's clinical data, including pregnancy test for pregnant women, hepatitis virus markers (using enzyme-linked immunosorbent assay (ELISA) to detect anti-HAV-IgM, HBsAg, HBeAg, anti-HBs, anti-HBc, anti- HBe, anti-HCV, HDAg,

anti-HDV-IgG, anti-HDV-IgM, anti-HEV-IgM, anti-HEV-IgG automatic biochemical analyzer for liver function test) and other test results and ascites, hepatic encephalopathy, Hepatorenal syndrome, DIC or bleeding tendency, infection and other complications, the outcome of the pregnant woman and the outcome of the pregnant fetus.

Experimental Research and Analysis of Nursing Effect of Pregnant Patients with Viral Hepatitis

Distribution of Pregnant Women and the Outcome of Pregnant Women

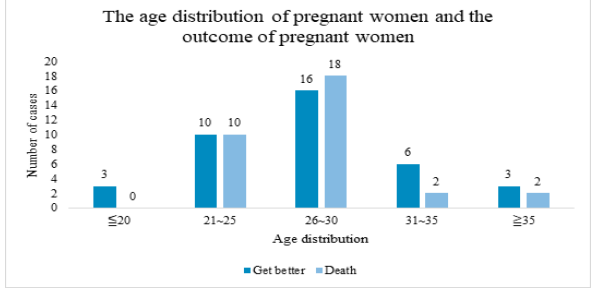
Among the 70 pregnant patients with severe viral hepatitis in this experiment, the youngest age of onset was 18 years old, the oldest was 38 years old, and the average age was 25.5±3.1 years. See Table 1 for details.

Table 1.
The age distribution of pregnant women and the outcome of pregnant women

Maternal age	Get better	Death
≤ 20	3	0
21~25	10	10
26~30	16	18
31~35	6	2
≥ 35	3	2

It can be seen from Figure 1 that the number of pregnant women aged 26 to 30 is the most, and relatively few are under 20 and over 35. The peak period of childbirth is 21 to 30, accounting for 71.4% (54/70), during which the mortality rate of pregnant women is 40%. (28/70), the number of cases with an age of 35 or more and 20 years or less is relatively small. At the same time, the number of deaths between 26 and 30 is also the highest. The number of deaths aged 20 years or less is 0%, indicating that the younger age is slightly stronger in recovery.

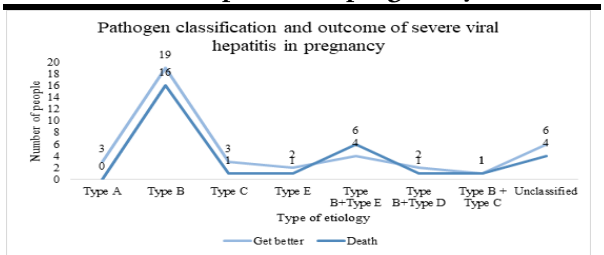
Figure 1.
The age distribution of pregnant women and the outcome of pregnant women



Types of Maternal Pathogens and the Outcome of Pregnant Women

In this group of 70 pregnant patients with severe viral hepatitis, the pathogenic infection rate of each type of hepatitis virus was 4.29% (3/70) of hepatitis A and HBV 71.42% (50/70).), hepatitis C HCV 5.71% (4/70), hepatitis D HDV 18.57% (13/70), hepatitis E HEV 17.14% (12/70), unclassified 14.28% (10/70)), the superinfection rate (B+C, B+D, B+E) is 21.43% (15/70), as shown in Figure 2.

Figure 2.
Pathogen classification and outcome of severe viral hepatitis in pregnancy



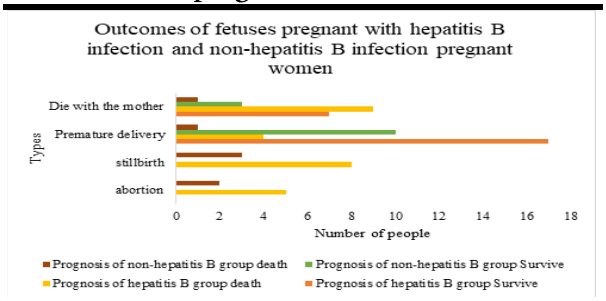
It can be seen from Figure 2 that the pathogenic infection in this experiment is mainly related to hepatitis B and hepatitis E infection and superinfection, which are 71.42% (50/70), 17.14% (12/70), 21.43% (15). /70), of which the fatality rates were 48% (24/50), 53.8% (7/13), and 53.3% (8/15).

Outcomes of Fetuses Pregnant with Hepatitis B Infection and Non-Hepatitis B Infection Pregnant Women

Among 70 pregnant women with severe viral hepatitis in the data of this experiment, hepatitis B HBV-related infection was as high as 71.42% (50/70) of HBV. As shown in Figure 3.

From the analysis in Figure 3, 50 cases of maternal HBV infection group are called hepatitis B group, 50 cases have conceived fetuses, 24 cases died, and 24 cases survived (7 cases were maternal death before the fetus was delivered, and the fetus was delivered by cesarean section in time. After survival), the fetal mortality rate was 48% (24/50); 20 cases of maternal non-HBV infection group, called non-hepatitis B group, gestation of 20 cases of fetuses, 7 cases of death, 13 cases of survival, fetal mortality rate of 35% (7/20), the comparison of fetal outcomes between the two groups was statistically different after testing (P<0.05).

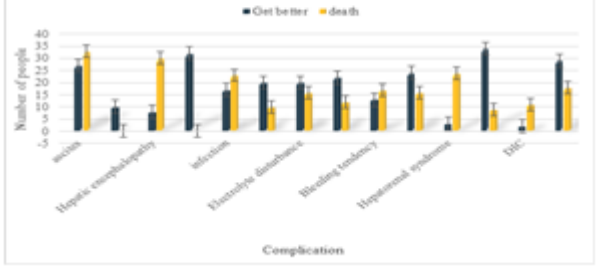
Figure 3.
Outcomes of fetuses pregnant with hepatitis B infection and non-hepatitis B infection pregnant women



Complications of Pregnant Women and the Outcome of Pregnant Women

According to the order of complications, they are: ascites, hepatic encephalopathy, infection, electrolyte imbalance, bleeding tendency, hepatorenal syndrome, DIC (disseminated intravascular coagulation). The case fatality rate is as follows: hepatic encephalopathy stage IV, hepatorenal syndrome, DIC, hepatic encephalopathy, bleeding tendency, infection, electrolyte imbalance, ascites, see Figure 4 for details.

Figure 4.
Complications and outcomes of 70 pregnant women with severe viral hepatitis



It can be seen from Figure 4 that among the 70 complications of pregnant women with severe viral hepatitis, ascites is the most common, with 60 cases, with an incidence rate of 85.7% (60/70), of which 33 cases died and 27 survived. Cases, the case fatality rate was 55% (33/60); 38 cases of hepatic encephalopathy, the incidence rate was 54.3% (38/70), of which 30 cases died and 8 cases survived, the case fatality rate was 78.9% (30/38), in 38 cases Of the 22 patients with hepatic encephalopathy, hepatic encephalopathy stage IV patients, of which only one person got better, 21 cases died, the case fatality rate was 95.4% (21/22); there were 40 patients with co-infection, the incidence rate was 57.1% (40/ 70), of which 23 cases died and 17 cases survived, the fatality rate was 57.5% (23/40); 36 cases of electrolyte disturbance occurred, the incidence rate was 51.4% (36/70), of which 16 cases died, the case fatality rate was 44.4% (16/ 36); 30 cases of bleeding tendency occurred, the incidence rate was 42.9% (30/70), of which 17 cases died, the case fatality rate was 56.6% (17/30); 27 cases developed hepatorenal syndrome, the incidence rate was 38.6% (27/70)), of which 24 cases died and 3 cases survived, the fatality rate was 88.8% (24/27); 13 cases of disseminated intravascular coagulation (DIC) occurred, the incidence rate was 18.6% (13/70), of which 11 cases died and survived In 2 cases, the fatality rate was 84.6% (11/13).

CONCLUSIONS

Pregnancy patients with severe viral hepatitis have increased risk factors for the fetus, and hepatitis B virus-related infections will have adverse effects on the fetus. Therefore, for pregnancy

complicated with severe viral hepatitis, it is important to actively eliminate the unfavorable factors that may affect the outcome on the basis of correct understanding of the disease, usual prevention, early diagnosis, early treatment, and comprehensive analysis and dynamic monitoring of the above indicators on the basis of clinical manifestations. It is of great significance to grasp the changes in the condition and adjust the treatment in time, and to care for the patients correctly, which is of great significance for improving the prognosis of patients and reducing the mortality of pregnant women and fetuses.

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