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World J Gastroenterol 2004;10(15):2305-2306
World Journal of Gastroenterology
 ISSN 1007-9327

• CASE REPORT •

Pregnant woman with fulminant hepatic failure caused by hepatitis B virus infection: A case report

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Received: 2004-02-21 **Accepted:** 2004-03-04

Abstract

AIM: To report the experience in successfully treating pregnant women with severe hepatitis.

METHODS: Comprehensive medical treatments were performed under strict monitoring.

RESULTS: Pregnant woman with severe hepatitis was successfully rescued.

CONCLUSION: Vital measures taken in the treatment of pregnant women with severe hepatitis include termination of the pregnancy at a proper time and control of various complications, such as disseminated intravascular coagulation (DIC), hepatorenal syndrome, hepatic encephalopathy and infection.

Yang YB, Li XM, Shi ZJ, Ma L. Pregnant woman with fulminant hepatic failure caused by hepatitis B virus infection: A case report. *World J Gastroenterol* 2004; 10(15): 2305-2306
http://www.wjgnet.com/1007-9327/10/2305.asp

INTRODUCTION

Hepatitis B virus (HBV) infection is common in China[1], and it is one of the most common causes of severe hepatitis in pregnancy, with a high mortality rate of 43-80%[2]. In this paper, we reported a pregnant woman with severe hepatitis B infection complicated by postpartum massive hemorrhage, hepatorenal syndrome, hepatic encephalopathy, spontaneous bacterial peritonitis and infection of biliary tract. Under strict monitoring, we applied comprehensive medical treatments. Both the mother and the child were discharged in healthy condition.

CASE REPORT

A 33-year-old pregnant woman was admitted in our hospital on April 15, 2003, presenting with a 38-week pregnancy, 10-d puffiness and yellow urine, and 3-d deep jaundice. She had a history of HBsAg(+), HBeAg(+) and HBcAb(+) for about 10 years, but her liver function had been normal until she got pregnant. The last menstrual period (LMP) was 2002-7-22. The expected date of confinement (EDC) was 2003-4-29. Physical examination showed she had normal vital signs, an urgent and painful looking, clear mind, icteric sclera and xanthochromia, bulbar conjunctiva edema, normal heart and lung on ausculation, absence of abdominal tenderness or rebound tenderness, no detection of liver or spleen and no shifting dullness on palpation, moderate edema of both legs. Obstetrical conditions were as follows: she had left occipitoanterior position (LOP) of fetus, the height of fundus was 36 cm, the abdomen circumference was 99 cm, fetal heart rate (FHR) was 120 beats/min. No dilatation of cervix was found. Laboratory findings were as follows: aspartate transaminase (AST) was 125.0 U/L, alanine transaminase (ALT) was 138.0 U/L, albumin (ALB) was 32.5 g/L; total bilirubin (TB) was 383.9 μmol/L, blood urea nitrogen (BUN) was 36.03 mmol/L, creatinine (CREAT) was 402.6 μmol/L, white blood cell count (WBC) was 21.60×10^9/L, hemoglobin (Hb) was 82 g/L, prothrombin time (PT) was 24 s, uric protein was (+++). β-ultrasonography showed her liver was in a chronic hepatitis state, and moderate ascites and a little liquid in both sides of thoracic cavity were also found. Markers of series of hepatitis virus were negative for hepatitis A, C, D and E, but positive for HBsAg (+), HBeAg (+) and HBcAb (+). Therefore she was diagnosed as pregnancy associated with hepatitis B infection and fulminant hepatic failure of pregnancy (FHFP).

After admission, the pregnant woman received supportive treatments. Later, because of "fetal distress", she received a cesarean section plus hysterectomy under general anesthesia. During the operation, we found yellow ascites of about 1 500 mL, and the same color of amniotic fluid was also found. The newborn was a mature male baby with normal vital signs, and transmitted to pediatrics department and given hepatitis B virus (HBV) specific immunoglobin (HBIG) and HBV vaccine. After the delivery of placenta and membrane, there was no sign of uterine contraction, and massive hemorrhage occurred (about 2 000 mL). So hysterectomy was performed. The liver was obviously small, which was about the palm size and a little harder than normal.

After operation, the patient developed a clinical course of exacerbation. She developed hepatic encephalopathy of degree III, hepatorenal syndrome, spontaneous bacterial peritonitis, infection of biliary tract, secondary fungal infection, septicemia and prolonged healing of the wound. The comprehensive and well-designed rescue measures were taken and her condition was under control on June 25. After a hospitalization of 104 d, the patient and her newborn were discharged in generally good conditions.

DISCUSSION

Generally, a pregnant woman with fulminant hepatic failure refers to failure of liver function caused by viral hepatitis. Often the complications included dis- seminated intravascular coagulation (DIC) that presents a hemorrhage trend [3,4], hepatic encephalopathy, hepatorenal syndrome, toxic intestinal tympanites, cerebral edema and infection of biliary tract, and so on. A pregnant woman with severe hepatitis often had hypodynamia, deep jaundice, hypocoagulability, hypoproteinemia, coma and acute renal failure. It was reported that many viruses including hepatitis virus (HAV, HBV, HCV, HDV, HEV, HGV, and so forth[5,6]), cytomegalovirus (CMV), TTV[7] and herpes virus[8], could cause severe hepatitis. But HEV and HBV

infections were most frequent[9-12]. Clinically, about 0.2-0.5% of total patients with hepatitis would develop into severe hepatitis. The prognosis of severe hepatitis during late pregnancy was so poor that it could be listed among the causes of maternity and parity mortality. In this report, the patient with a 10-year history of hepatitis had a 38-wk pregnancy. She developed severe hepatic dysfunction with hypocoagulability, hepatic encephalopathy and hepatorenal syndrome. She was positive for HBsAg, HBeAg, and HBcAb. Therefore the diagnosis of pregnancy associated with severe hepatitis and HBV infection was confirmed[13,14]. Under strict monitoring, we took comprehensive therapeutic measures and got a successful result. The key points of rescuing the patient were as follows.

The general treatment included: (1) The patient was asked to have an absolute rest in bed with a diet low in lipid and protein[15] and rich in fiber and vitamins. The total energy should be controlled at 1 500 kcal. Intra-gastrointestinal food could not only neutralize gastric acid, promote gastro- intestinal movement, but also reduce the incidence of toxic intestinal tympanites, endotoxemia, infection of biliary tract, peritonitis or even septicemia. (2) Protecting liver function, gastric membrane and preventing gastrointestinal hemorrhage. (3) Using antibiotics to prevent and treat infections, gamma globulin to promote immune state and neutralize endotoxins. HBIG, which can neutralize HBV and is relatively safe for gestational period, should also be used. (4) Maintaining the balance of body fluid and electrolytes and using dexamethasone for a short period of time (3-5 d) to improve the toxic symptoms and the maturity of fetal lung, thus getting ready for planned delivery.

To terminate pregnancy at a proper time, internal carotid artery centesis was performed and a tube placed to detect the central vein pressure and determine the amount of transfusion, thus preventing the incidence of cerebral edema or pulmonary edema. Before cesarean section, coloclysis and atropine were used. But sedatives such as luminal were not taken into consideration. General anesthesia instead of epidural anesthesia was to avoid epidural hematoma[16], and during cesarean section[17], we chose longitudinal incision. After cesarean section, we performed hysterectomy and placed an absorbable hemostatic gauze on the cervical stump to reduce hemorrhage during and after operation. We also detected the size of liver during operation to make a general evaluation of its condition of direct prognosis. We perfused the abdomen cavity with iodophors to reduce abdominal infection. We remained a gastric tube during operation to prevent intestinal tympanites and to put in medicines that could improve the movement of intestine. After operation, we remained a drainage tube in abdomen to facilitate the expulsion of ascites and to inspect whether there was continuous hemorrhage.

To prevent and cure complications, measures were taken to reduce possible motivations such as using none or as few as sedatives and narcotics, to avoid too much or too fast diuretics or relieving of ascites, to prevent constipation or mass hemorrhage or infection, to adjust intestinal environment by lactulose towards pH<7 to reduce absorption of NH_3 and endotoxin which would exacerbate the condition of hepatic encephalopathy, to take metronidazole and norfloxacin to compress intestinal bacteria which could produce NH_3, to use coloclysis to accelerate the expulsion of intestinal bacteria and endotoxin and NH_3-removing medicines, to keep normal neurotransmitter by applying L-dopa or aceglutamide, to inject hepat amine intravenously to keep amino-acid balance, to use Chinese formulated medicines such as *Angong niuhuang wan*. Heparin in low dose was used to prevent dissipation of large amount of plot and thrombin factors and to improve clotting mechanism. Thrombin factors such as fresh frozen plasma, plot, cryoprecipitate, pro- thrombin complex, and fibrinogen were used in a great quantity. Hepatorenal syndrome was treated by restricting the infusion of fluid, correcting hypoproteinemia and hypovolemia in time. Diuretics such as furosemide, diuretics complex (furosemide + dopamine + phentolamine) or mannitol + furosemide were used.

To promote regeneration of hepatocytes, glucagon and insulin were used to trigger the synthesis of hepatocyte DNA, human albumin was used to neutralize indirect bilirubin, stimulate regeneration of hepatocytes and prevent further necrosis of hepatocytes.

Blood routine, clotting function, liver function and biochemical indices, especially ALT, AST, alkaline phosphatase (AKP), acetylcholine esterase (CHE), alpha fetoprotein (AFP) and glucose (GLU) were monitored. Intensive nursing and sterile operation were performed, regular mouth care and clean of incision and perineum were maintained. 50% glucose + insulin was used to promote wound healing.

Before labor, HBIG or anti-HBV medicines (safe for both maternity and fetus) were given to interrupt intrauterine HBV infection[1]. The newborn was also given HBIG and HB vaccine[18] to build up active and passive immunity.

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Edited by Wang XL **Proofread by** Chen WW and Xu FM