Transplant International

LETTER TO THE EDITOR

Successful management of a same-day emergency delivery and liver transplant in a 27 weeks pregnant woman with fulminant hepatic failure

doi:10.1111/j.1432-2277.2009.00908.x

Fulminant hepatic failure (FHF) during pregnancy occurs more frequently in the third trimester of gestation and finds its aetiology in many diseases [1–5]. As is well-represented by Greek epidemiology, HBV remains the most significant cause of acute liver failure (ALF) in Mediterranean countries [6].

A young Greek woman, 22 years old, multiparaous with six children, in her 27th week of pregnancy, was admitted to the University Hospital of Salonika (Greece). She was unconscious because of hepatic encephalopathy (GCS = 6), in hypodynamic shock, had fever, coagulopathy and oliguria. Ultrasound showed that the foetus was still live. Her laboratory evaluation showed: hyperbilirubinaemia (21 mg/dl); AST 1930 – ALT 1987 IU/l, raised plasma ammonia (68 IU/l), INR 9.05, haematic V factor 51%, leucocyte count 17 500 cells/mm^3. She was HBsAg positive, and Ab anti-HBc IgG and IgM positive HBV-DNA was 23.000 copies/ml (Cobas TaqMan 48, Roche Diagnostics, lower detection limit <64 copies/ml).

Because of the critical increase of bilirubin, the quick progression of the indices of hepatic necrosis and the rapid progression of the severe jaundice, which usually results in the death of the mother and the foetus [7], she was listed for liver transplantation (LT): two doses of steroids (12 mg) were administered to induce foetal pulmonary maturation in anticipation of a possible emergency delivery before LT.

As no deceased donor was available in Greece and because of international agreements between Greece and Italy, she was transferred to our Liver Unit, in the University of Rome 'Tor Vergata', and listed for urgent LT on Italian transplant list. On admission in our ITU, her arterial blood gas analysis showed pH 7.59, pCO_2 28 mmHg, pO_2 119 mmHg, HCO_3^- 27 mmol/l, BE +5 mmol/l, lactate 5.79 mmol/l, Hb 7.8 g/dl and O2 saturation 97%. After 12 h, a deceased donor was available, so we decided to perform emergency caesarian section while the surgical team was harvesting the liver from the donor for transplantation.

The newborn male, 1.400 g of weight, with a low Apgar index (1 min: 0; 5 min: 2; 10 min: 7) was intubated by following resuscitation procedures. After 2 h, he was transferred to the neonatal ITU in the Children Hospital, and immunoglobulin treatment for HBV and vaccination were administered. The condition of the foetus stabilized within 6 h following the transfer; his neurological state was stable. After the surgical induction of the delivery a stabilization of the mother parameters of general and hepatic function in the criticality of the general state was observed. Five hours later she underwent a LT. A total of 13 FFPs and 8 blood units were transfused. During ITU stay she was haemodynamically stable and had normal gas exchange, with good urine output. Immunosuppression was based on cyclosporine monotherapy.

As HBV prophylaxis she had the first 10.000 IU dose of human immunoglobulin during the anhepatic phase and the next daily dose in the four days after LT; after peristalsis, she was on Lamivudine 100 mg a day. She was discharged 48 days after transplantation in good condition and transferred back to Greece. Her son was transferred 1 month later in good condition.

The treatment of HBV-related FHF in pregnancy seems to improve with a delivery induced in the 27th week of pregnancy and by modifying the bioumoral substrate that favours the FHF [7], and at the same time by blocking the progression of the disease by stabilizing the vital parameters of hepatic function to achieve readiness for surgical treatment [8]. The neurological effects of toxic hyperbilirubin on the foetus within this period of time are reversible.

In this case we had many ethical issues to contend with: there were many concerns over the likelihood of survival of both mother and foetus, which the team members had to address. We knew that the first 'cynical' priority of management was the safety of the mother and the outcome of the foetus was considered secondary as she had six other children. Two different solutions were possible: to perform a transplant continuing the pregnancy by some weeks, could have posed a threat to her life but the inotrope and immunosuppressive therapy that would have been necessary for her survival post-transplant could have affected the foetus; or immediately inducing the birth and then performing a LT in the same anaestheiological induction, with the liver from deceased donor ready to be transplanted.

To our knowledge, in the last 20 years only 11 cases of LT for FHF during the period between 13th and 27th week of pregnancy were described, with differences in the outcomes regarding maternal and foetal survival [9,10]. No patient was treated with both procedures at the same time: all of them underwent a LT to treat the FHF, going on with pregnancy. Mother survival was 100%, but foetal survival was only 36%. Three of those found Hepatitis B as the aetiology: two patients had preterm delivery ten days and eight weeks after LT, and in one patient foetal death occurred after 1 week.

In our case, because of the high incidence of foetal death after transplantation described above, we decided to perform the delivery after steroids induction, in accordance with gynaecologists' team, firstly to avoid the foetus of the side effects deriving from the post-LT immunosuppressive and inotropic therapy, and secondly because our conviction that the delivery would not have affected the outcome of the LT, better still it could have had a benefit for the general conditions of the mother.

In conclusion, despite the unstable condition of the patient before the delivery and the LT, our case showed a double successful surgical approach and appears to be relevant in this setting where the management is still controversial.

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