Br J Obstet Gynaecol. 1991 Mar;98(3):287-93.

Fetal liver dysfunction in Rh alloimmunization.

Nicolini U, Nicolaidis P, Tannirandorn Y, Fisk NM, Nasrat H, Rodeck CH.

Royal Postgraduate Medical School, Institute of Obstetrics & Gynaecology, Queen Charlotte's and Chelsea Hospital, London.

Abstract

The liver enzymes, aspartate transaminase (AST), alanine transaminase (ALT), gamma glutamyl transpeptidase (GGT) and alkaline phosphatase (ALP), were measured in the blood of 25 fetuses with severe Rh alloimmunization at the time of their first, second and third intravascular transfusions and in 17 comparison fetuses. In the comparison group, GGT increased with advancing gestation (r = 0.7; P = 0.002), whereas ALP, AST and ALT did not correlate with gestational age. Rh hydropic fetuses (n = 8) had higher blood ALT levels than the comparison fetuses (P = 0.008) had significantly increased transaminases when compared with non hydropic fetuses (n = 17). In hydropic fetuses, AST correlated with the nucleated red cell count before transfusion (r = 0.94; P = less than 0.0001). Fetal transaminases were no longer increased in hydropic fetuses by the second (AST) or third (ALT) transfusion. In both hydropic and non hydropic fetuses, GGT increased by the second transfusion (median percentage change +85%, range -83% to +596%; P = 0.003). The rise in fetal GGT was transitory and correlated with the increase in fetal haematocrit at the first transfusion (r = 0.58; P = 0.006). This study reports liver dysfunction secondary to extramedullary erythropoiesis in Rh alloimmunization and implicates portal hypertension for the rise in fetal GGT with transfusion.