Brief Note
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A Report on Foetal-maternal Haemorrhage

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Brief Note

The loss of foetal blood cells into the maternal circulation is known as foetal-maternal haemorrhage. It occurs in both normal pregnancies and those with obstetric or trauma-related pregnancy problems. Gas and nutrient exchange take place across a membrane in the placenta made up of two layers, the syncytiotrophoblast and the cytotrophoblast, which keeps the maternal and foetal circulations from coming into direct touch. When this membrane fails to function as a barrier, foetal cells may come into contact with and enter maternal vessels in the decidua/endometrium, resulting in foetal-maternal bleeding.

FMH has no conventional definition, and its prevalence varies depending on the amount of foetal blood that is considered substantial. When all degrees of FMH are included, the rate of occurrence rises throughout pregnancy: 4% in the first trimester, 12% in the second trimester, 45 percent in the third trimester, and 60% after delivery. Massive FMH is defined as 30 or 80 mL with a 0.3 or 0.1 percent incidence rate, respectively.

FMH interrupts the fetomaternal circulatory interface and causes trophoblast injury due to inflammatory and mechanical factors, despite the fact that the aetiology is unknown. FMH has been linked to invasive obstetrical procedures (such as amniocentesis), trauma, placental abruption, and oxytocin labour augmentation, among other things.

If at all, recognition may not occur until after the injury has happened. Reduced foetal activity is the most prevalent prenatal symptom, and in cases of persistent maternal perception of decreased foetal movements, a high index of suspicion is required. The Kleihauer-Betke screen, the diagnostic gold standard, has significant flaws. Management is still a challenge. Cordocentesis with intrauterine transfusion may be done to repair anaemia if discovered antenatally; however, repeat intrauterine transfusion or delivery may be required to correct continued bleeding. Despite the fact that substantial antenatal fetomaternal haemorrhage is relatively uncommon, it is likely underreported and underappreciated. A nationwide registry should be established to expand our knowledge across institutions by analysing the clinical presentations of fetomaternal bleeding, the various foetal heart rate tracings observed, the management options used, and the outcomes obtained.

Fetomaternal hemorrhage Testing

Although alternative procedures are available, the acid elution test (Kleihauer-Betke test) or haemoglobin F quantification by flow cytometry is the most used methods for determining foetal bleeding. The test is used to assess if an RhD-negative woman should take RhIG or to diagnose and quantify a fetomaternal haemorrhage. The Kleihauer-Betke test has a number of flaws, including low sensitivity, poor repeatability, and a proclivity towards overestimating bleeding volume. The Kleihauer-Betke test's inability to distinguish between maternal and foetal F cells is a significant drawback. This is especially problematic in the second trimester, when maternal F cells can reach a high of 5% to 10%. This physiologic alteration could be misconstrued for a fetomaternal haemorrhage if a Kleihauer-Betke test is conducted during this period.

Flow cytometry has been proven to be a more exact and straightforward method of measuring haemoglobin F than the Kleihauer-Betke test. 8,287 External proficiency testing samples comprising a 20-mL and a 40-mL bleed were delivered as part of the 2001 CAP survey. A single 300-g dosage of RhIG would not be enough to prevent alloimmunization after a 30-mL fetomaternal haemorrhage. 88 percent of laboratories employing haemoglobin F quantitation and 50% of laboratories using the Kleihauer-Betke test accurately reported the result as less than 30 mL for the 20-mL haemorrhage. For the 40 mL haemorrhage, 100% of laboratories employing haemoglobin F quantitation and 85% of laboratories using Kleihauer-Betke reported the result as greater than 30 mL accurately. Based on these findings, haemoglobin F quantification appears to be a superior test procedure. Given the flaws observed in studies and surveys, no clinical management decisions should be based exclusively on the results of fetomaternal haemorrhage testing.

Despite the fact that the diagnosis of antenatal fetomaternal haemorrhage is elusive, the origin is unknown, and the management is unknown, the foetal effects are potentially fatal.

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