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Perspective

Assessing the Impact of Fetal Sex on Venous Thrombosis Risk during Pregnancy: Evidence from a Cohort Study

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ABOUT THE STUDY

Venous thrombosis (VT) is a blood clot that occurs in the veins, commonly in the legs, during pregnancy. Pregnant women have a five to ten-fold increased risk of developing VT compared to non-pregnant women. In addition, the risk of VT is higher in the postpartum period compared to during pregnancy. Several factors contribute to the increased risk of VT in pregnancy, including changes in blood coagulation factors, venous stasis, and endothelial injury. Fetal sex is another factor that has been hypothesized to influence the risk of VT in pregnancy. This commentary discusses a cohort study that aimed to investigate whether fetal sex influences the risk of VT in pregnancy.

The study was a retrospective cohort study that included 3,343 pregnant women who gave birth between January 2010 and December 2015 in a single center in the Netherlands. The inclusion criteria were pregnant women with a singleton pregnancy, no history of VT, and a gestational age of at least 16 weeks at the time of inclusion. The primary outcome of the study was the occurrence of VT during pregnancy or up to six weeks postpartum. The exposure of interest was fetal sex, which was determined by ultrasound examination between 16 and 22 weeks of gestation. The study also collected data on several potential confounders, including maternal age, Body Mass Index (BMI), parity, smoking status, and previous cesarean section.

The study found that the overall incidence of VT was 0.9%, with a higher incidence in women who were nulliparous (1.4%) compared to multiparous women (0.5%). The study also found that the incidence of VT was higher in women carrying a male fetus (1.2%) compared to those carrying a female fetus (0.6%). After adjusting for potential confounders, including maternal age, BMI, parity, smoking status, and previous cesarean section, the study found that the odds of VT were 2.2 times higher in women carrying a male fetus compared to those carrying a female fetus.

One of the strengths of this study is its large sample size, which enhances the statistical power of the analysis. The study also controlled for several potential confounders, including maternal age, BMI, parity, smoking status, and previous cesarean section, which could have influenced the risk of VT. However, the study has some limitations that need to be considered. First, the study did not collect data on some important risk factors for VT, such as a family history of VT or thrombophilia. These factors could have influenced the risk of VT and should have been included in the analysis. Second, the study relied on ultrasound examination to determine fetal sex, which is not always accurate, especially at earlier gestational ages. Third, the study did not investigate the underlying mechanisms that could explain the association between fetal sex and VT. Future studies should aim to investigate these mechanisms to better understand the link between fetal sex and VT.

The findings of this study suggest that carrying a male fetus is associated with a higher risk of VT in pregnancy compared to carrying a female fetus. The underlying mechanisms that could explain this association are not clear, but it has been hypothesized that differences in sex hormones or the expression of genes on the X chromosome could play a role. The clinical implications of this finding are also unclear. The study did not investigate whether the increased risk of VT in women carrying a male fetus translates into a higher risk of adverse pregnancy outcomes, such as pre-eclampsia or fetal growth restriction.

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