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Adverse Neonatal Outcomes in Twin Gestations: Do They Differ By Mode of Conception?

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Abstract

Background

It is known that higher rates of adverse neonatal outcomes are associated with multifetal gestations. However, the rates of adverse outcomes associated with spontaneous versus non-spontaneous twin gestations are unknown. We examined neonatal outcomes among twin gestations conceived through either the use of fertility-enhancing drugs, assisted reproductive technology (ART), or spontaneously.

Methods

We utilized linked vital statistics-patient discharge data from California (2007-2011), and included twins with gestational age of 23-42 weeks. We categorized mode of conception into three categories- spontaneous or fertility-enhancing drugs or ART. We compared demographics and outcomes (preterm birth, NICU admission >24 hours, respiratory distress syndrome, large for gestational age, small for gestational age, congenital anomalies, stillbirth, infant death, necrotizing enterocolitis, intraventricular hemorrhage) using chi-square tests. Multivariable logistic regression models were then utilized to assess the association of mode of conception with the outcomes.

Results

Among 64,500 neonates, 56,803 (88.07%) were spontaneous gestations, 5,808 (9.0%) were ART gestations, and 1,889 (2.93%) were fertility enhancer gestations. Pregnant patients who used fertility enhancing drugs or ART were more likely to be white, older, highly educated, on private insurance and have normal BMI ($p<0.001$for all). Multivariable logistic regression showed that pregnancies conceived through fertility enhancing drugs had significantly higher odds of preterm birth [aOR=1.21 (1.09,1.34)], NICU admission [aOR=1.41 (1.28,1.56)], respiratory distress syndrome [aOR=1.27 (1.15,1.42)], and intraventricular hemorrhage [aOR=1.60 (1.14,2.23)]. Similar results were found in pregnancies conceived through ART.

Conclusions

Although patients who underwent ART or fertility enhancing treatments were more likely to have demographics that are associated with favorable neonatal outcomes, both methods of non-spontaneous twin gestations were more likely to have adverse neonatal outcomes in preterm birth, NICU admission, respiratory distress syndrome, and intraventricular hemorrhage. The higher risk nature of pregnancies conceived through ART and fertility-enhancing drugs may necessitate closer follow ups throughout gestation to avoid adverse outcomes.