

Does assisted reproductive treatment increase the rate of obstetrical complications

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Objective

The aim of this retrospective cohort study is to evaluate the impact of assisted reproductive treatment (ART) on obstetrical complications and the rate of hospitalization in maternal intensive care in a tertiary university center, in Liege, Belgium.

Methods

This is a retrospective cohort study that includes 442 patients, who obtained a pregnancy after ART and were followed in the Department of Obstetrics of the University of Liege, at the Citadelle Hospital, from January 2018 to December 2022. The ART center database was compared with the delivery unit database to determine the cohort of patients who delivered a baby conceived by ART. Among these 442 patients, there were 88 pregnancies obtained by intrauterine insemination (IUI) and 352 by in vitro fertilization (IVF) including 156 fresh embryo transfers and 198 frozen embryo transfers (FET). Among FET, 115 were performed in artificial cycle. The rate of obstetrical complications and the rate of hospitalization in maternal intensive care were compared between those groups.

Results

Women who benefited from a FET in an artificial cycle had a higher risk of developing hypertensive disorders of pregnancy (HDP) (20%) than women who benefited from IUI (9.1%) ($p < 0.05$). There was not significant difference with FET in natural cycle (10.8%) and with fresh embryo transfer (6.5%). 24.3% of patients developed gestational diabetes mellitus after fresh embryo transfer, 25.9% after FET and 18.2% after IUI, but the difference was not significant. Following FET, 9.4% of fetuses had a birthweight below the 10th centile, whereas 12.8% of the neonates had a birthweight below 10th centile after fresh embryo transfer. Pregnancies following fresh embryo transfer were associated with a higher rate of small for gestational age (SGA) neonates < 10th centile (12.8%) as compared to IUI (2.7%) ($p < 0.05$). Nearly 15% of neonates born after FET had a birthweight above the 90th centile, as compared to 11.3% after fresh embryo transfer and 13.5% after IUI, without significant differences between these groups in our cohort. Around 20% of the patients undergoing IVF were admitted to the maternal intensive care unit. Similar results were shown with patients undergoing IUI (19%).

Conclusion

FET in artificial cycle is a risk factor for HDP. There was a trend to higher rates of gestational diabetes after IVF as compared to IUI. Fresh embryo transfer was associated with a higher rate of SGA neonates. Hospitalization in maternal intensive care did not differ between the groups. In conclusion, IVF and especially FET in artificial cycle is a risk factor for obstetrical complications. This study was retrospective and the sample size is relatively small. The rate of hospitalization in maternal intensive care is relatively high in our center for ART pregnancies.