Perinatal outcomes following conception through assisted reproductive technologies

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Objective
To evaluate the maternal and perinatal outcomes of singleton pregnancies conceived through assisted reproductive technologies (ART) compared to spontaneous pregnancies.

Methods
Case control study carried out as part of an 11-14 weeks ultrasound screening program. In case of ART, the exact type of technology was obtained. The gestational age was adjusted by the CRL, and the uterine artery (UtA) Doppler was obtained to predict placental insufficiency. The perinatal outcome was found out by reviewing the medical chart or contacting the patient directly. The odd ratios (OR) were obtained by univariate logistic regression analysis, and adjusted by maternal age and parity. A sub-analysis was performed, considering ovarian stimulation/intrauterine insemination (OS/IUI) or in-vitro fertilization/intra-cytoplasmic sperm injection (IVF/ICSI).

Results
During the study period, 6,562 singleton pregnancies with known perinatal outcome were evaluated. 105 of these cases (1.6%) conceived through ART (42 OS/IUI and 63 IVF/ICSI). As expected, patients undergoing ART were older and had higher rates of nulliparity compared to spontaneously conceiving patients. There were no differences in BMI, smoking habits or chronic hypertension background. ART patients demonstrated a two-fold odds of preterm delivery (PTD) <37 and <34 weeks (1.90 [1.10 – 3.30] and 2.51 [0.99 – 6.38], respectively. In the OS/IUI group these odds were higher as compared with IVF/ICSI group (OR= 2.7 [1.27 – 5.64] vs 1.38 [0.62 – 3.09], and 3.7 [1.13 – 12.29] vs 1.67 [0.39 – 7.04]) for PTD <37 weeks and PTD <34 weeks, respectively. Furhtermore the OS/IUI group showed almost three times higher odds of small for gestational age babies (OR=2.66 [1.03 – 6.86]). IVF/ICSI group was only associated with three-fold increase odds of cesarean section (OR=3.02 [1.58 – 5.78]), with normal birthweight and not significantly lower rates of preeclampsia compared to controls (1.8% vs 3.7%).

Conclusion
ART pregnancies, in particular OS/IUI, are associated with an increased risk of preterm delivery and low birthweight.

Perinatal outcomes of spontaneous vs ART pregnancies