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Comparison of pregnancy outcome in twins among spontaneous conception, intrauterine insemination and in vitro fertilization/intracytoplasmic sperm injection

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OBJECTIVE: With the rising incidence of twin pregnancies from artificial reproductive technology (ART), we try to investigate the pregnancy outcome between the spontaneously-conceived and ART-conceived twins to see whether there is any significant difference.

DESIGN: A retrospective university hospital based study.

MATERIALS And METHODS: Totally 240 twin pregnancies delivered during 1992-2001 were included in our study; 35 cases were excluded due to incomplete file and the rest of 205 cases were analyzed. These twins were subdivided into three groups: spontaneous conception (SC, n=51), intrauterine insemination (IUI, n=66) and in vitro fertilization/intracytoplasmic sperm injection (IVF/ICSI, n=88). The maternal complications including, preterm labor, premature rupture of membrane (PROM), pregnancy-induced hypertension (PIH) and gestational diabetes mellitus (GDM) were compared. Of the fetal outcome, the incidence of first-trimester spontaneous demise, the birth weight, the Apgar score, rates of neonatal morbidity and mortality, and the neonatal ICU hospitalization days were also analyzed among the 3 groups.

RESULT(S): The mean maternal age at delivery among 3 groups (SC, IUI, IVF/ICSI) was 31.8 ± 0.5 , 32.1 ± 0.4 , and 33.7 ± 0.5 , respectively ($p=0.01$). The incidence of first-trimester fetal demise were 3.9%, 0%, and 20.5%, respectively ($p<0.001$). The rates of preterm labor among the 3 groups were 29.4%, 24.2%, and 31.8% ($p=0.59$). The incidence of PROM were 15.7%, 3.0%, and 12.5%, respectively ($p=0.054$). The incidence of PIH were 7.8%, 6.0%, and 11.4% respectively ($p=0.445$). The rates of GDM were 3.9%, 0%, and 5.7%, respectively ($p=0.146$). Mean gestational age at birth among the 3 groups were 36 ± 0.6 , 35.4 ± 0.5 and 34.7 ± 0.5 weeks; birth weight were 2435 ± 58 , 2359 ± 46 , and 2407 ± 40 grams, respectively. Both were not significant among 3 groups. The rates of preterm birth, low birth weight ($BW<1500$ gm) and very low birth weight ($1500<BW<2500$ gm) all were similar in 3 groups. The Apgar scores were all identical among 3 groups. Rates of perinatal mortality (5%, 2.4%, and 1.2%), neonatal mortality (3.1%, 0.8%, and 0.6%) and neonatal ICU admission (14%, 16%, and 20%) all were of no significant difference among 3 groups.

CONCUSION(S): Based on our data, the maternal complications and fetal outcome of twins seemed to have no significant difference among SC, IUI, and IVF/ICSI except the higher incidence of spontaneous fetal demise in the first trimester in IVF/ICSI group. And this discrepancy could be reasonably explained from the elder age of IVF/ICSI mothers. In conclusion, ART is rather safe technique in term of fetal outcome during infertility treatment.