Prevalence of structural birth defects in IVF-ICSI pregnancies resulting from autologous and donor oocytes in Indian sub-continent: Results from 2444 births

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Abstract

Introduction: This study was conducted to evaluate and compare the incidence of birth defects in In-Vitro Fertilization-Intra Cytoplasmic Sperm Injection (IVF-ICSI) pregnancies with autologous and donor oocytes. As a secondary outcome, the prevalence of birth defects in IVF-ICSI pregnancies was compared with those from spontaneous conceptions in India.

Material and methods: This retrospective study included 2444 births resulting from IVF-ICSI cycles from autologous (n = 1743) and donor oocytes (n = 701) during a 3-year period in an Indian infertility center. Birth defects, if any, were noted antenatally and followed till the neonatal period, in case of live birth.

Results: The overall prevalence of birth defects in IVF-ICSI pregnancies in this study was 29/2444 (118.6/10 000 births) and the most common congenital anomaly was cardiac malformation (32.7/10 000 births) followed by genitourinary (28.6/10 000 births). The risks of birth defects resulting from autologous and donor oocytes did not differ (114.7/10 000 vs 128.38/10 000; $P > 0.05$). However, pregnancies resulting from autologous oocytes had a higher trend of gastrointestinal birth defects (20.5/10 000 births vs 0), though not statistically significant. The risk of cardiovascular birth defects resulting from IVF-ICSI pregnancies was much higher compared with the natural conceptions in India (32.7/10 000 vs 12.7/10 000 births; $P = 0.03$), whereas the risk of central nervous system malformations was much lower (8.1/10 000 vs 60.18/10 000 births; $P = 0.005$).

Conclusions: Overall, there was no significant difference in birth defects resulting from IVF-ICSI with autologous or donor oocytes. The births resulting from IVF-ICSI pregnancies did not tend to have a higher rate of birth defects a compared with natural conceptions. The differences in the prevalence of certain birth defects (cardiovascular or central nervous system) reported in IVF-ICSI pregnancies may be due to improved surveillance modalities and early detection in pregnancies following