TROPHECTODERM BIOPSY DOES NOT INCREASE RATES OF LOW BIRTHWEIGHT, MACROSOMIA, OR PREMATURITY.

Authors: Bedient CE (1,2), Kaye L (1,2), Garner FC (1,2), Shapiro BS (1,2).

Affiliations: (1) The Fertility Center of Las Vegas, Las Vegas, NV, USA; and (2) Kirk Kerkorian School of Medicine, University of Nevada, Las Vegas, NV, USA.

Background
The placenta originates from trophectoderm (TE) cells, which produce hCG in early pregnancy. Serum hCG levels in early pregnancy and gestational sac parameters are reportedly associated with birthweight and related perinatal outcomes. This suggests TE biopsy might alter perinatal outcomes. This study tests whether singleton births following transfer of single TE-biopsied blastocysts had altered frequency of low birthweight (<2500g), very low birthweight (<1500g), macrosomia (>4500g), or prematurity (<37 weeks) when compared to singleton births following transfer of non-biopsied blastocysts.

Objective
The current study examines the relationship between embryo biopsy and perinatal outcome (the incidence of low birthweight, very low birthweight, and prematurity).

Materials and Methods
This IRB-approved retrospective cohort study precluded any potential effects of vanished twins by including only single embryo transfers resulting in single sac, single fetal heart, and singleton live birth. Births following transfer of biopsied frozen-thawed blastocysts were matched 1-for-1 with births following transfer of non-biopsied frozen-thawed blastocysts using the same luteal support protocol. Births were matched on maternal age (same SART age group at retrieval), body mass index, and inner cell mass grade. TE grade was not matched in order to allow variation due to any impact of the biopsy on the trophectoderm. Birthweight and birth date were collected as required for national reporting. McNemar's test was used to assess statistical significance of the outcome measures. A P-value <0.05 was considered significant.

Results
There were 313 matched pairs of live births following transfer of biopsied and non-biopsied blastocysts. Biopsied and non-biopsied groups did not differ significantly in respective maternal age (30.8 versus 30.9), maternal BMI (26.4 versus 26.2), or the proportion of A-grade ICM (73.5% in both groups). The biopsied and non-biopsied groups had similar respective frequencies of low birthweight (6.7% versus 5.4%, P=0.63), very low birthweight (0.3% versus 0.0%, P=1.00), macrosomia (1.6% versus 1.6%, P=1.00), and prematurity (7.7% versus 10.8%, P=0.20).

Conclusions
There was no significant evidence that TE biopsy altered the frequencies of low birthweight, very low birthweight, macrosomia, or prematurity. These findings are reassuring that the biopsy is safe with respect to the outcome measures studied here.

Financial support
None.

References:
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