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Title:

INCONCLUSIVE RESULTS FROM TROPHECTODERM BIOPSY DO NOT PREDICT DEFINITIVE RESULTS FOLLOWING RE-BIOPSY

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Objective:

A nonconcurrent, or inconclusive result, is sometimes obtained after blastocyst biopsy for CCS when an embryo karyotype is not clearly diagnosed as disomic, monosomic, or trisomic. Patients who receive such a result may experience anxiety and confusion. A nonconcurrent result may be due to complex chromosomal abnormalities, or it may result from biopsy or sample processing techniques. Using embryos that received clear results after one biopsy as the benchmark background, this study sought to create descriptive statistics for initial nonconcurrent embryos that were re-biopsied and subsequently diagnosed.

Design:

Retrospective analysis

Materials and Methods:

Blastocysts undergoing CCS ($n=1853$) were analyzed. Aneuploid and euploid rates of embryos with 1st biopsy results were compared to those of embryos with a 1st nonconcurrent and 2nd ploidy result. Groups were stratified by age.

Results:

Embryos that were diagnosed after a 2nd biopsy for a nonconcurrent result showed comparable overall aneuploid (41.9%) and euploid (58.1%) rates to those that received initial aneuploid (43.9%) or euploid (56.1%) diagnoses.

Conclusions:

Our study aimed to determine whether embryos receiving nonconcurrent results after trophectoderm biopsy for CCS showed higher rates of aneuploidy than embryos with aneuploidy after 1st biopsy. After a 2nd biopsy and successful analysis, our study found that nonconcurrent embryos fall into the



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anticipated ploidy rates. This suggests that a nonconcurrent diagnosis may be related to technical issues, conservative interpretation of genetic data, or sample collection techniques, and not necessarily to chaotic chromosomal abnormalities. Patients can be reassured that an embryo receiving a nonconcurrent result does not carry an increased risk of aneuploidy. We recommend re-biopsy and re-analysis of embryos with inconclusive or non-concurrent results.

Support:

None.

Table:

Non-Concurrent 2nd BX Ploidy Outcomes					
	1st BX - Aneuploid (n=799)	1st BX - Euploid (n=1023)		1st BX - Non-Concurrent / 2nd BX - Aneuploid (n=13)	1st BX - Non-Concurrent / 2nd BX - Euploid (n=13)
<35 (n=680)	29.7% (n=202)	70.3% (n=478)	<35 (n=5)	40.0% (n=2)	60.0% (n=3)
35-37 (n=436)	39.7% (n=173)	60.3% (n=263)	35-37 (n=10)	30.0% (n=3)	70.0% (n=7)
38-40 (n=290)	50.7% (n=147)	49.3% (n=143)	38-40 (n=2)	0.0% (n=0)	100.0% (n=2)
>40 (n=416)	66.6% (n=277)	33.4% (n=139)	>40 (n=14)	57.1% (n=8)	42.9% (n=6)
Total (n=1822)	43.9% (n=799)	56.1% (n=1023)	Total (n=31)	41.9% (n=13)	58.1% (n=18)