

INCONCLUSIVE PGT-A RESULTS: TO REBIOPSY OR NOT TO REBIOPSY?

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Abstract Body

Preimplantation genetic testing for aneuploidy (PGT-A) is commonly offered to patients undergoing in vitro fertilization (IVF) treatment. This testing is increasingly performed on trophectoderm biopsy samples, which has substantially reduced the incidence of inconclusive results. However, this does still occur. The goal of our study was to assess the rebiopsy rate for embryos that failed to pass PGT quality control (QC) metrics and the subsequent rebiopsy results. We performed a retrospective analysis on all samples received from May 2018 through early September 2019 for PGT-A or PGT-SR (structural rearrangements). Whole-genome amplification and next generation sequencing (NGS) analysis was performed for each sample using the Ion ReproSeq PGS Kit and data analysis was performed utilizing the Ion Reporter software (Thermo Fisher Scientific). Results were reported as 1) no abnormal cells detected, 2) abnormal cells detected (with percentages if mosaicism was identified), or 3) did not pass QC metrics, thus leading to the following embryo categories: euploid, aneuploid, mosaic, and QC failure. All samples resulting in QC failure were tracked to determine if rebiopsies were received; if so, rebiopsy results were tallied. A total of 15,247 samples were received during the study period. Of these, 286 failed to meet our laboratory's QC metrics (1.88%). We received rebiopsies for 113 of these embryos (39.51%). Rebiopsy results were as follows: euploid: 47/113 = 41.6%; aneuploid: 51/113 = 45.1%; mosaic: 12/113 = 10.6%; and QC failure: 3/113 = 2.7%. Our results show that a substantial proportion (>40%) of rebiopsies of inconclusive embryos were euploid, providing justification for the consideration of embryo rebiopsy for patients with limited or no euploid embryos available for transfer. Furthermore, as laboratories typically do not charge for testing of rebiopsies, this presents one less challenge for patients and physicians considering this option.