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EVALUATING THE RELATIONSHIP BETWEEN EJACULATORY ABSTINENCE AND THE INCIDENCE OF EMBRYO MOSAICISM

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OBJECTIVE:

Delays in ejaculatory abstinence (EA) may increase exposure to reactive oxygen species and subsequent DNA fragmentation (1). Whether extended EA influences embryo ploidy is under investigation (2). This study aims to elucidate EA and the incidence of embryo mosaicism.

MATERIALS AND METHODS:

This retrospective study included patients who underwent in vitro fertilization (IVF) with preimplantation genetic testing for aneuploidy using next generation sequencing from 2018 to 2022. Patients were grouped by EA (Days): 0-1 (Group 1), 2 (Group 2), 3(Group 3), 4 (Group 4), 5 (Group 5), and 6-10 (Group 6). The primary outcome was rate of mosaicism. Secondary outcomes included sperm concentration and motility in sample used at the time of IVF, euploid rate and aneuploid rate. Risk ratios (RR) and 95% confidence interval (CI)were estimated for euploidy, aneuploidy, and mosaicism comparing EA using Poisson regression models fitted with GEE adjusted for male age, oocyte age, body mass index (BMI), anti-mullerian hormone level (AMH), and year of treatment.

RESULTS:

A total of 2,385 cycles were evaluated. Most cycles (n=939 (39.4%)) occurred in patients with an EA of 2 days. There was no difference in median baseline demographics or cycle characteristics. Median sperm concentration (million/mL) was significantly different between groups (Group 1: 35; Group 2: 48; Group 3: 70; Group 4: 88; Group 5: 85; and Group 6: 105).

Median sperm motility was similar in groups. On univariate analysis, no difference was observed in euploid, aneuploid or mosaic rate between groups. Group 4 was selected as the referent due to its alignment with the median time point recommended by the World Health Organization for EA. Adjusted analysis for confounders showed no increased or decreased in rate of mosaicism (RR 1.16, 1.10, 1.0, 1.05, 0.89; p = 0.93), euploid (RR 0.80, 0.98, 1.00, 1.09, 0.99; p = 0.18) or aneuploid rate (RR 1.14, 1.01, 1.01, 0.88, 1.00; p = 0.2) in Groups 1-3, 5 and 6.

CONCLUSIONS:

While factors such as sperm concentration may be influenced by EA, interval variation does not appear to be associated with embryo ploidy status. Thus, couples undergoing IVF can be reassured that moderate differences in EA are unlikely to associate with embryonic PGT-A result.

IMPACT STATEMENT:

The duration of EA is not associated with mosaic, euploid or aneuploid rate.

REFERENCES:

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