DOES ABSTINENCE PERIOD LESS THAN 2 DAYS IMPACT ART OUTCOMES? REVISITING THE WHO ABSTINENCE GUIDELINES

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Background:

The optimal abstinence period before semen sample production remains debated. The World Health Organization (WHO) currently recommends a minimum abstinence period of 2 days before specimen collection for all assisted reproductive technology (ART) procedures. Clinical studies support that a prolonged abstinence period can improve semen parameters, notably volume and count, on semen analysis, however these increased parameters have not been associated with improved clinical outcomes. Conversely, shorter abstinence periods have improved DNA fragmentation and may improve fertilization rates.

Objective:

To evaluate the impact of abstinence period less than 2 days on embryogenesis and pregnancy outcomes in fresh embryo transfers (FET).

Materials and Methods:

Design: Retrospective cohort.

Setting: Academic fertility center.

Patients: 2,979 ART cycles with 1,824 FET

Intervention: Abstinence period <2 days vs. Abstinence period ≥ 2 days.

Outcomes: High quality blastocyst (HQB) number, conversion rate (% of 2PNs), and clinical pregnancy rate.

Statistics: Parametric and non-parametric tests were used. Linear and logistic regression models were performed to account for maternal AMH, age of oocyte, stimulation protocol, and male age and BMI.

Results:

Abstinence periods ranged from 0.5-31 days (mean 3 days) before sample production for ART. A total of 131 cycles had abstinence periods <2 days. No differences noted in the baseline characteristics, including age of oocyte, age of recipient, and AMH between the two groups. The unadjusted analysis showed a similar fertilization rate between abstinence period <2 days vs ≥2 days (78.8% ±15.9

vs 78.3% ±16.2, p=0.4; respectively). The total number of D5 blastocysts and D5 blastocyst conversion rate, as well as the total number of D5+D6 blastocysts and D5+D6 blastocyst conversion rate were similar in the two groups (D5 HQB# 3.0 ±2.7 vs 3.0 ±2.7, p=0.5, D5 HQB Rate 36.5% ±25.7 vs 36% ±25.7, p= 0.4, D5+D6 HQB# 3.9 ±2.9 vs 4 ±3.1. p=0.4, D5+D6 HQB Rate 47.9% ±25.7 vs 36% ±25.7, p=0.4). These results were unchanged after adjusting for age of oocyte, stimulation protocol, AMH, and male age and BMI.

There was a non-significant increase in positive pregnancy test (including clinical, biochemical, and ectopic pregnancies) and clinical pregnancy rates following transfer with abstinence period <2 days vs ≥2 days (66.3% vs 59.8%, OR 1.3, 95%CI 0.8-2.1, p=0.2, and 54.2% vs 52.2%, OR 1.1, 95%CI 0.7-1.7, p=0.7, respectively). After adjustment, there was an increase in the non-significant difference for both positive pregnancy test and clinical pregnancy with an abstinence period <2 days (OR (95%CI): 1.8 (0.5-5.7), p=0.3, and 1.5 (0.5-4.3), p=0.5, respectively).

Conclusions:

This study supports that an abstinence period < 2 days does not have negative impacts on embryogenesis or on subsequent pregnancy outcomes for patients undergoing in vitro fertilization (IVF). Although not statistically significant, there may be a clinically significant increase in positive pregnancy tests and clinical pregnancies with shorter abstinence periods. Given these findings, it is reasonable to reevaluate the WHO guidelines as they pertain to abstinence periods. Future studies to evaluate this finding would include a randomized control trial investigating shortened abstinence periods prior to sample production for ART procedures.

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