

Does Embryo Development Differ between Women with Polycystic Ovary Syndrome and a Control Group? A Retrospective Cohort Study

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Background

Polycystic Ovary Syndrome (PCOS) is one of the most common infertility diagnoses. Multiple metabolic disturbances are covered by 'PCOS' but it remains uncertain which disturbances contribute to altered embryo development in this condition. High body mass index (BMI) is commonly seen in PCOS women and has previously been linked to poorer reproductive outcomes.

Methods

Using specialised imaging of embryos, the study tests whether PCOS is associated with differences in early embryo development when compared with embryos from age-matched controls. Sub-group analyses aim to evaluate the effect of BMI on this relationship. Timings of specific developmental events were compared between groups using a linear mixed model analysis. These included timing of cellular divisions to the blastocyst stage. BMI of the PCOS women was added to the analysis to evaluate the effect of this variable.

Results

The time to 3-cells was slower in the PCOS women however this did not reach statistical significance. Time to blastocyst expansion was however significantly slower in the control group. The times to 2, 3, 5, 6, 8 and 9 cells, compaction, morula formation and blastocyst expansion increased with increasing BMI in the PCOS women, however were not statistically significant.

Key Messages

BMI is likely to affect embryo development in PCOS women. The results suggest that the causative factor of poorer reproductive outcomes in PCOS may not be related to the timing of developmental milestones in the pre-implantation embryo. This is important to understand when advising women about their chances of successful fertility treatment.

