STATIN USE IN CONTROLLED OVARIAN HYPERSTIMULATION AND IN VITRO FERTILIZATION

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Background

Dyslipidemia (DLD) is negatively associated with in vitro fertilization (IVF) outcomes.[1] Previous studies found patients with DLD had lower numbers of oocytes retrieved compared to patients without DLD, independent of obesity.[2,3] While statins are the first-line approach for DLD treatment, they are classified as Category X due to known teratogenicity and are rarely prescribed during embryo transfer cycles. But little data exists on statin use during controlled ovarian hyperstimulation (COH).

Objective

This study aims to determine whether statin use in DLD patients correlates with COH and IVF outcomes.

Materials and Methods

This retrospective cohort study evaluated IVF outcomes in patients with DLD from 2004 to 2022 at a single academic center. Patients were segregated into cohorts: Group 1: DLD patients on statins; Group 2: DLD patients not on statins; Group 3: Patients not diagnosed with DLD (Controls). Patients were matched by age, body mass index (BMI), and anti-Müllerian hormone (AMH). Patients with endometriosis, premature ovarian failure, severe male factor infertility, or history of chemotherapy treatment were excluded. The primary outcome was the number of metaphase II (MII) oocytes. Secondary outcomes were peak estradiol (E2) levels, progesterone (P4) levels at trigger, fertilization rate, and blastulation rate. Comparative statistics were performed using chi-square and Kruskal-Wallis. Multivariate logistic regression analysis with a generalized estimating equation adjusting for age, BMI, and AMH was performed to evaluate statin use and association with oocyte maturation, fertilization, and blastulation rate. P-values were two-sided and considered significant if <0.05.

Results

The study evaluated 37 cycles in Group 1, 68 cycles in Group 2, and 110 cycles in Group 3 controls. There was no significant difference in the median number of MII oocytes retrieved between the three cohorts ($p=0.75$). While peak E2 level during COH was similar amongst all groups ($p=0.11$), there was a difference in P4 level at trigger ($p=0.01$). Maturation rate ($p=0.55$), fertilization rate ($p=0.84$), and blastulation rate ($p=0.14$) were similar between the groups. On multivariate analysis, the only significant difference between the cohorts was DLD patients not on statins had a higher blastulation compared with DLD patients on statins and control patients ($p<0.01$).

Conclusion

DLD patients who use statins while undergoing IVF stimulation have comparable oocyte yields and similar rates of embryo development when compared to controls.

Support

None

References

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