

Extended Abstract

Higher body weight is associated with lower concentrations of progesterone and estrogen in early pregnancy following in vitro fertilization

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Objective

To evaluate if body weight impacts progesterone and estradiol concentration levels in early pregnancy in women conceiving following single embryo transfer.

Design

Retrospective cohort analysis with IRB exempt approval.

Setting

University of Iowa Hospitals and Clinics

Patients

Women with a positive serum pregnancy test following single blastocyst embryo transfer in either a fresh or frozen cycle between 2004 and 2017. A total of 977 women were included in the fresh cycle group and 752 in the frozen cycle group.

Main Outcome Measures

Progesterone (P) was measured between 9-12 days following embryo transfer. Estradiol (E2) was measured at the same time as progesterone in the fresh cycles, but not in frozen cycles. All analyses controlled for the patient's

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age and number of days post embryo transfer when hormone levels were drawn.

Results

A total of 977 women were included in the fresh cycle group and 752 in the frozen cycle group. The median progesterone and estrogen concentrations are significantly lower in women with higher body weight. This trend occurs not only in women with live births but also in those with abnormal pregnancies.

Conclusion

Higher body weight is associated with significantly lower E2 and P concentrations in early pregnancy following blastocyst single embryo transfer. This could be explained by increased volume of distribution or by increased metabolism of the hormones in heavier women. Clinicians should consider this when evaluating these hormone levels for prognostic and diagnostic purposes.

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