

The Effect of Human Growth Hormone In IVF Cycles On Miscarriage Rates

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Abstract

OBJECTIVE: To determine the effect of adding human growth hormone to IVF protocols on the rate of miscarriage after frozen embryo transfers (FET).

DESIGN: Retrospective chart reviews were conducted in patients who underwent FETs at a private, multi-site fertility center.

MATERIALS AND METHODS: Patients were divided into two groups: One group typically received a total dose of 200 units of human growth hormone in their IVF cycle, while another age-matched control group did not receive any. The pregnancy outcome after the FET was then charted. Only transfers with PGT normal embryos were included. We defined miscarriages based on ACOG guidelines as the loss of a pregnancy within the first trimester, including biochemical pregnancies. A two-sample proportion t-test was run to determine statistical significance.

RESULTS: 221 patients were included in this study, with an average age of 40.5 years in both groups. 166 patients took human growth hormone during their IVF cycle, with an overall miscarriage rate of 15% and biochemical pregnancy rate of 6.6%. 55 patients did not take human growth hormone during their IVF cycle, with an overall miscarriage rate of 33% and a 16.3% biochemical pregnancy rate. Our results demonstrate that the incorporation of human growth hormone in IVF treatment protocols may significantly reduce the likelihood of miscarriage ($p=0.004$).

CONCLUSIONS: Human growth hormone is frequently incorporated into IVF protocols for patients with a poor IVF response, such as women of advanced reproductive age or with a diminished ovarian reserve. Research supports how adding human growth hormone increases the number of oocytes retrieved, the number of embryos available to transfer, and the clinical pregnancy rate. Previous research conducted by our clinic found improved Blastocyst Quality Scores (BQS) in IVF cycles with human growth hormone. However, there are few studies on whether human growth hormone significantly affects miscarriage rates. Our results suggest that human growth hormone may significantly reduce the likelihood of miscarriage in these poor ovarian responder patients in their subsequent frozen embryo transfer. Additional studies are necessary to further evaluate this effect, controlling for other variables such as overall IVF treatment protocol and total number of IVF cycles.

SUPPORT: None