

Dehydroepiandrosterone (DHEA) supplementation improves in vitro fertilization outcomes of poor ovarian responders, especially in women with low serum concentration of DHEA-S: a retrospective cohort study.

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ABSTRACT

BACKGROUND: Dehydroepiandrosterone (DHEA) is now widely used as an adjuvant for in vitro fertilization (IVF) cycles in poor ovarian responders (PORs). Several studies showed that DHEA supplementation could improve IVF outcomes of PORs. However, most of the PORs do not respond to DHEA clinically. Therefore, the aim of this study is to confirm the beneficial effects of DHEA on IVF outcomes of PORs and to investigate which subgroups of PORs can best benefit from DHEA supplementation.

METHODS: This retrospective cohort study was performed between January 2015 and December 2017. A total of 151 PORs who fulfilled the Bologna criteria and underwent IVF cycles with the gonadotropin-releasing hormone antagonist protocol were identified. The study group (n = 67) received 90 mg of DHEA daily for an average of 3 months before the IVF cycles. The control group (n = 84) underwent the IVF cycles without DHEA pretreatment. The basic and cycle characteristics and IVF outcomes between the two groups were compared using independent t-tests, Chi-Square tests and binary logistic regression.

RESULTS: The study and control groups did not show significant differences in terms of basic characteristics. The study group demonstrated a significantly greater number of retrieved oocytes, metaphase II oocytes, fertilized oocytes, day 3 embryos and top-quality embryos at day 3 and a higher clinical pregnancy rate, ongoing pregnancy rate and live birth rate than those measures in the control group. The multivariate analysis revealed that DHEA supplementation was positively associated with clinical pregnancy rate (OR = 4.93, 95% CI 1.68-14.43, p = 0.004). Additionally, in the study group, the multivariate analysis showed that serum dehydroepiandrosterone-sulfate (DHEA-S) levels < 180 µg/dl were significantly associated with a rate of retrieved oocytes > 3 (OR = 5.92, 95% CI 1.48-23.26, p = 0.012).

CONCLUSIONS: DHEA supplementation improves IVF outcomes of PORs. In PORs with DHEA pretreatment, women with lower DHEA-S level may have greater possibility of attaining more than 3 oocytes.