

PROCEEDINGS ABSTRACT

Association of age, anthropometric measurements, reproductive history, and critical serum hormone levels with *in vitro* fertilization outcomes in Iraqi women

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Infertility represents a major reproductive health problem, while assisted reproductive technologies, particularly *in vitro* fertilization (IVF), are widely used as effective therapeutic strategies for its management. The present study aimed at investigating the association between age, anthropometric measurements, and serum levels of key reproductive hormone with IVF outcomes among Iraqi women undergoing assisted reproductive treatment. This comparative cross-sectional study included 101 women undergoing IVF treatment. Participants were classified into two groups according to IVF outcome: a successful IVF group (N=60) and a failed IVF group (N=41). Women between 18 and 40 years of age with complete clinical and laboratory records were included in the study. Participants with diagnosed thyroid disease requiring treatment, diabetes mellitus, hyperprolactinaemia, or incomplete laboratory data were excluded from our study in order to reduce potential confounding variables. Anthropometric measurements, including body mass index (BMI), height, and weight, as well as reproductive history (such as gravidity) were also recorded. Blood samples were collected from all participants at the Tiba IVF Center (Hillah, Iraq) between November 2025 and March 2026, and were used in order to measure in them the serum levels of the anti-Müllerian (AMH), follicle-stimulating (FSH), luteinizing (LH), and thyroid-stimulating (TSH)

hormones as well as those of oestradiol and prolactin. Hormonal analyses were performed using the VIDAS® Blue automated immunoassay system. Our results revealed maternal age to be significantly higher in the failed IVF group than in the successful IVF group (30.33 *versus* 28.19 years, $p=0.028$). The age distribution analysis further indicated that IVF success was more common among younger women, while the likelihood of IVF failure increased progressively with advancing maternal age. The anthropometric measurements (including BMI, height, and weight) did not differ significantly between successful and failed IVF groups. Gravidity was also significantly higher among women who achieved successful IVF as compared to those of the women who did not (1.75 *versus* 0.91, $p=0.0003$). Serum prolactin levels were found to be significantly higher in the women with successful IVF outcomes when compared with those of the women with failed IVF outcomes (25.90 *versus* 18.90 ng/mL, $p=0.0002$). Similarly, serum TSH levels were significantly higher in the successful IVF group than in the failed IVF group (2.80 *versus* 2.25 μ IU/mL, $p=0.0228$). In contrast, no statistically significant differences were observed between the two groups in terms of their serum levels of AMH, FSH, LH, or oestradiol. Moreover, a correlation analysis revealed a significant positive correlation between AMH and LH levels ($r=0.299$, $p=0.0025$) and a signifi-

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cant negative correlation between AMH and FSH levels ($r=-0.291$, $p=0.0033$). In conclusion, our findings indicate that age, serum prolactin levels, serum TSH levels, and gravidity are significantly associated with IVF success in Iraqi women, whereas the serum levels of AMH, FSH, LH, and oestradiol, as well as the herein assessed anthropometric measurements were not predictive of the IVF outcome.

Keywords

in vitro fertilization; Iraq; prolactin; reproductive hormones; thyroid-stimulating hormone

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Conflicts of interest statement

None to declare.

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