**Correlation of discrepancy between Anti mullerian hormone and Antral follicular count and the outcomes of ovarian stimulation cycles**

**Abstract:**

**Background and Aim:**

Anti-Müllerian hormone (AMH) and antral follicle count (AFC) are ovarian reserve tests before in vitro fertilization (IVF). Discordant AMH and AFC values can lead to differing assessments of ovarian reserve. This study evaluated whether AMH/AFC mismatches compared to concordance affect ovarian stimulation and IVF outcomes, to determine the preferable marker.

**Methods:**

This retrospective cohort study included 300 women aged 20-40 years with infertility undergoing IVF/ICSI at Taleghani Hospital in Iran between October 2022 and November 2023Patients were identified through medical records review of their AMH and AFC levels. Inclusion criteria were age 20-40 years and undergoing IVF/ICSI. Those with PCOS, POI, endometriosis or significant medical conditions were excluded. Patients were categorized into four groups based on AMH (<1.1 vs ≥1.1 ng/mL) and AFC (<5 vs ≥5): 1) Normal AMH/AFC; 2) Low AMH/Normal AFC; 3) Normal AMH/Low AFC; 4) Low AMH/AFC. Data were analyzed SPSS version 25.

**Results:**

The statistical analysis revealed significant differences across several parameters, such as age, Body Mass Index (BMI), AMH and Follicle-Stimulating Hormone (FSH) levels and AFC among the groups. The number of retrieved oocytes, fertilization rate and the number of embryos significantly correlated with antral follicle count (AFC) across all groups (p < 0.001). Specifically, the count of intermediate follicles (7-9 mm) demonstrated the strongest association with oocyte yield (**ρ** = 0.72, p < 0.001), while the number of small follicles (2-6 mm) showed a weaker and non-significant correlation (**ρ** = 0.25, p = 0.21). The ratio of retrieved oocytes to AFC follicles (Follicular Output Rate, FORT) also positively correlated with AFC (p < 0.001).

**Conclusion:**

Discordance between AMH and AFC would be a challenge in IVF cycles. Oocyte yield aligned more closely with AFC and specifically intermediate follicle number versus AMH. Determining the more reliable ovarian reserve marker could optimize protocols

**Keywords:**

Anti Mullerian hormone, Antral follicle count ,IntraCytoplasmic Sperm Injection, Discrepancy