Beyond Numbers: Unraveling the Complex Relationship Between AMH and AFC Levels and Embryo Quality

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INTRODUCTION

AMH and AFC are widely used to assess ovarian reserve

- Association of embryo quality, specifically euploidy rates, remains controversial

Hypothesis: AMH and AFC levels are associated with embryo euploidy rates independent of age and other confounders in patients undergoing IVF with PGT-A

OBJECTIVE

To evaluate the association between AMH and AFC with embryo euploidy, independent of age and confounding factors, in patients undergoing IVF with PGT-A

METHODS

Study Design:

- Retrospective cohort study

Population:

- 11,473 women, 13,451 IVF cycles
- October 2016 – August 2024

Inclusion Criteria:

- IVF cycle with PGT-A
- AMH or AFC measured within six months of oocyte retrieval

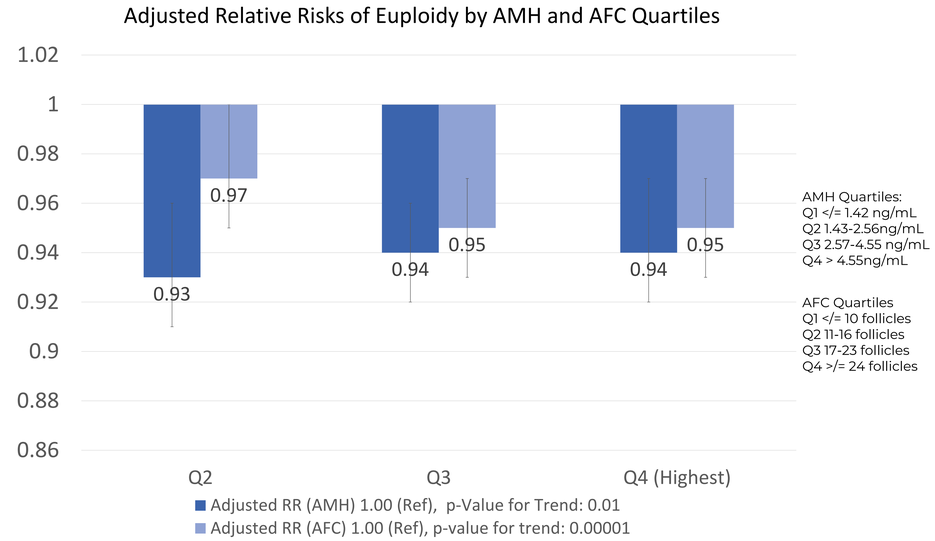
Exclusion Criteria:

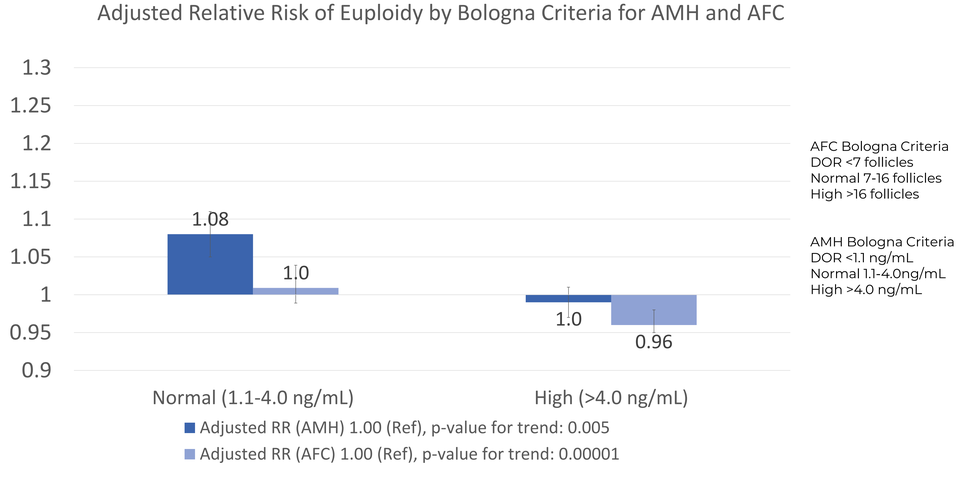
- Use of donor oocytes
- PGT-M or PGT-SR cycles

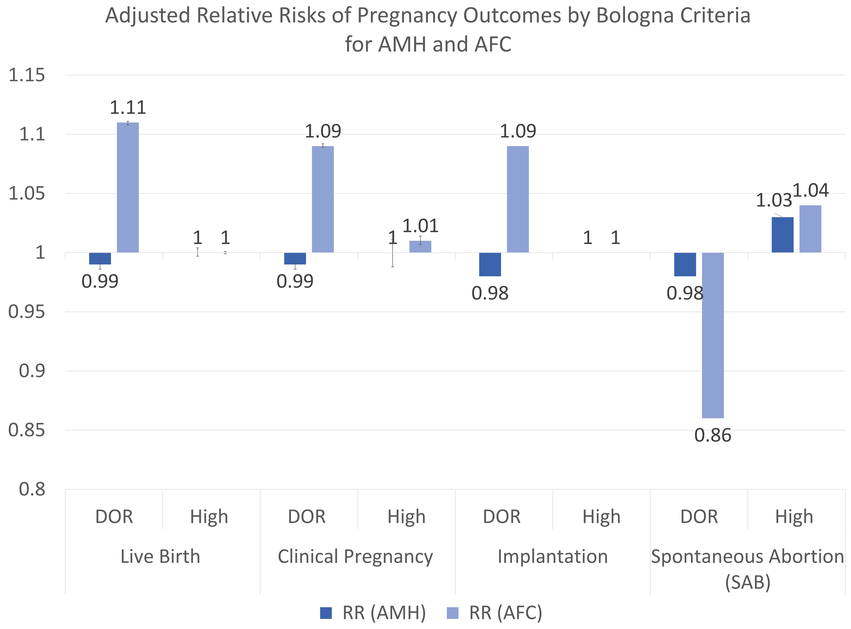
Analysis:

- AMH and AFC categorized based on Bologna criteria
- Poisson regression models with generalized estimating equations (GEE) adjusted for age, BMI, and PCOS

RESULTS







- DOR (AMH <1.1 ng/mL or AFC <7) was not associated with lower embryo euploidy rates.
- Live birth, clinical pregnancy, and implantation rates were similar across all AMH and AFC quartiles.
- AFC's association with live birth was non-linear, making categorical analysis more informative than continuous models.

DISCUSSION & CONCLUSIONS

- AMH and AFC were not associated with clinically meaningful differences in embryo euploidy or live birth rates.
- Maternal age remains the strongest predictor of reproductive success.
- When counseling patients, clinicians should emphasize maternal age over AMH or AFC when discussing euploidy and pregnancy outcomes.

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