



The evidence-base of common diagnostic tests: the case of ovarian reserve

Editors
Renato Cozzi, Piero Baglioni

Introduction

For some years, medical journals and scientific societies have been promoting information campaigns (Evidence-Based Medicine, Slow-Medicine, Choosing Wisely, ...) encouraging patients and health care professionals to focus on high-value health care practices while discarding others, which are redundant, obsolete or mistaken. In endocrinology, for example, there are encouraging signs of reduction of inappropriate requests of free-T3, antibodies anti-thyroglobulin and immunometric measurements of free testosterone. A study from University of North Carolina recently published in JAMA (1) casts doubts on the measurement of serum follicle-stimulating hormone (FSH) and anti-müllerian hormone (AMH) in the evaluation of ovarian reserve in women without proven infertility.

Patients enrolled: Participants were mostly Caucasian, highly educated women of advanced child-bearing age (30-44 years) who had been trying to conceive for at least three months, but without history of infertility. Out of an original cohort of 981 participants, 750 who were followed up for 12 months after measurement of FSH and AMH were included in the final analysis.

Main outcomes and measures: AMH <0.7 ng/mL; FSH >10 IU/L; conception, defined as a positive urine pregnancy test (carried out by the patient).

Outcomes not assessed in the study: pregnancy outcomes beyond a positive pregnancy test; outcome in women started on fertility treatment (exclusion criterion).

Results

The table summarises results adjusted for age, ethnicity, BMI, smoking status, and recent use of oral contraceptives. Measurement of FSH in urine did not differ from serum determination. Measurement of inhibin B was also not associated with a significant difference between the two groups (data not shown).

	AMH		FSH	
	≤0.7	>0.7	≤10	>10
Probability of conception (%)	84%	75%	75%	82%
Hazard ratio (95% CI)	1.19 (0.88-1.61)		1.22 (0.92-1.62)	

Discussion

The results of this study show that the routine measurement of FSH and AMH, common home-based tests, does not help to predict conception in women without clinical history of infertility. Likewise, these tests do not help the decision-making process regarding cryopreservation of oocytes. The main strengths of the study are its large sample size and methodology. The study also has some limitations. Lack of data beyond a positive pregnancy test precludes evaluation of pregnancy outcomes. Even though the overall sample size was relatively large, the number of women in the 38 to 44 year-old age group with low AMH was small (n = 28). While it is unlikely that the results of this study will significantly alter practice, they are a useful reminder that investigations proven useful in women diagnosed with infertility (2,3) should not be automatically employed in every woman attempting to conceive. As suggested in the accompanying editorial in the same issue of JAMA (3), heeding this advice could prevent patient anxiety while reducing health-care costs.

References

- Steiner AZ, Pritchard D, Stanczik FZ, et al. Association between biomarkers of ovarian reserve and infertility among older women of reproductive age. JAMA [2017, 318: 1367-76](#).
- Santoro N. Using antimüllerian hormone to predict fertility. JAMA [2017, 318: 1333-4](#).
- Tal R, Seifer D. Ovarian reserve testing: a user's guide. Am J Obst Gynecol [2017, 217: 129-40](#).