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Anti-Mullerian hormone can predict pregnancy, live birth and miscarriage?

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Study Question; Is the serum Anti-Mullerian hormone (AMH) level in infertile women associated with the outcome of fertility treatment?

Summary Answer; AMH cannot be a predictive value for pregnancy, live birth or miscarriage 1 to 1.5 years after starting fertility treatment.

What is known already? AMH is an established marker of ovarian reserve and a good predictor of ovarian response for controlled stimulation, and previous research has shown that AMH is associated with implantation and clinical pregnancy rate effectuated from assisted reproductive medicine treatments. However, it is still uncertain whether AMH can predict the final outcome of every type of fertility treatment.

Study design, size, and duration; This retrospective cohort study was designed to identify the correlation between serum AMH levels and fecundity by reviewing infertile couples' medical records. Four hundred and eighty-one women had the AMH test at their first consultation visit from January 2015 until June 2016. The history of 477 women who received any kind of fertility care was examined only if the couples reached clinical pregnancy, live birth, or miscarriage by June 2017.

Participants/materials, setting, methods; This study was performed at a private fertility clinic located in Japan's second city, Osaka. AMH was measured by an enzyme-linked immunosorbent assay (gen II). The couples suffered from various causes of infertility and underwent different fertility treatments including, timed intercourse direction, intrauterine insemination, assisted reproductive technology, and/or alternative medicine. The data was analyzed with the Games-Howell multiple comparisons procedure.

Main results and the role of chance; The average age of the women was 38.9 (SD=4.6, range 25-49), and the average AMH was 2.4 (SD=2.4, 0-33.8) ng/mL. Two hundred and forty-one were younger than 40 years old (group I), and two hundred and thirty-six women were in their forties

(group II). The data was analyzed according to their AMH levels, a: <0.1, b: 0.1-0.49, c: 0.5-0.99, d: 1.0-1.49, e: 1.50-1.99, f: 2.0-2.49, g: 2.5-2.99, h: 3.0-3.99, i: 4.0-4.99, j: ≥5.0 ng/mL. The pregnancy rate, the live birth rate including the ongoing pregnancy rate after the 12th week of gestation, and the miscarriage rate were compared among different AMH sub-groups (a-j) at the point of 1 to 1.5 years after their first visit. The pregnancy rate in group I was a: 0.31, b: 0.53, c: 0.46, d: 0.52, e: 0.57, f: 0.62, g: 0.60, h: 0.77, i: 0.59, j: 0.66. The live birth rate was a: 0.23, b: 0.40, c: 0.38, d: 0.41, e: 0.54, f: 0.58, g: 0.47, h: 0.65, i: 0.53, j: 0.58. No significant difference was found among the AMH dependent subgroups. This trend was the same in the elderly group (II). The analysis on miscarriage rates showed no relation between AMH and miscarriage development.

Limitations, reasons for caution; Small sample size. There is possible dispersion of the cause of infertility, the patients' back ground and treatment policy.

Wider implications of the findings; AMH is not associated with the outcome of fertility treatment. Low AMH doesn't necessarily mean a poor prognosis of fertility treatment. With adequate management for poor ovarian responders we anticipate just under 40% of infertile couples can achieve conception.