

Antimüllerian Hormone Level Predicts IVF Success

Larry Hand | Feb 14, 2013

Women with high levels of antimüllerian hormone (AMH) may be more likely to give birth successfully after in vitro fertilization (IVF), according to a study [published online](#) February 13 in the *Journal of Clinical Endocrinology & Metabolism*.

Thomas Brodin, MD, from the Department of Women's and Children's Health, Uppsala University, Sweden, and colleagues conducted a prospective cohort study involving 892 women (median age, 36 years; maximum allowed age, 42 years) who underwent 1230 IVF cycles at the Carl von Linné Clinic in Uppsala between April 2008 and June 2011, resulting in 1111 live births.

The researchers found that AMH, which is produced by ovaries, not only is "strongly associated" with the oocyte yield after IVF, as previous research has shown, but is also associated with oocyte quality, making it a prognostic factor for positive IVF treatment outcomes.

After determining AMH levels through blood samples before IVF, the researchers divided the participants into 3 groups: AMH levels lower than 0.84 ng/mL, between 0.84 and 2.94 ng/mL, and higher than 2.94 ng/mL. Live-birth rates per IVF cycle ranged from 13.4 (95% confidence interval [CI], 9.1 - 17.7) for the low-levels group to 22.0 (95% CI, 18.6 - 25.4) for the middle group and to 32.5 (95% CI, 27.1 - 37.9) for the highest-levels group (all $P < .0001$).

"[I]n our study, AMH remained independently associated with both pregnancies and live births after adjustment for female age and oocyte yield," the researchers write.

They used generalized estimating equation models to analyze AMH's effect and found the odds ratio for live-birth rates per ovum pickup for AMH to be 1.75 (95% CI, 1.42 - 2.16) unadjusted and 1.57 (95% CI, 1.26 - 1.95) after adjusting for age. After controlling for both age and oocyte yield in the generalized estimating equation models, the researchers found that "AMH was independently significant for both pregnancy rate ($P < .001$) and live-birth rate ($P = .004$)."

PCOS and IVF

The results are especially important for women with polycystic ovaries, which is associated with ovulation problems, who are not normally included in IVF outcome studies, the researchers write. "Our data suggests women who have polycystic ovaries are likely to be good candidates for IVF," Dr. Brodin said in a news release. "Along with high AMH levels, this group tends to have a significant supply of eggs remaining in the ovaries."

Study limitations include no standardization for factors such as ovarian hyperstimulation and infertility diagnosis and the factor that individualized stimulation doses might have had an influence on results, the researchers write.

The conclude, however, that "AMH, besides being a valuable ovarian reserve marker when designing ovarian stimulation, is positively associated with pregnancy and live-birth rates in a log-linear manner," which makes it a possible prognostic factor.

"For women who are struggling to get pregnant, a high AMH level should be very reassuring," Dr. Brodin said in the news release. "High levels of this hormone mean there is a greater chance they have plenty of healthy eggs remaining to support a pregnancy."

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