No. of Small Antral Follicles Can Predict IVF Pregnancy

BY PATRICE WENDLING

HAMBURG, GERMANY — The presence of small antral follicles measuring 2.1-4.0 mm predicted pregnancy and ovarian response in a prospective cohort of 142 women who underwent in vitro fertilization.

The study took advantage of a novel software program called sonography-based automated volume count (SonoAVC) that can automatically identify and measure the dimensions of hypoechoic areas such as antral follicles observed on 3-D ultrasonography. In this instance, the program was used to calculate the number of antral follicles measuring 9 mm or less in diameter in the early follicular phase (days 2-5) in subfertile women (aged 40 years or less) who were due to undergo their first cycle of assisted reproductive technology.

In all, 73 viable pregnancies were confirmed on ultrasound 7 weeks following embryo transfer.

Women who conceived had significantly more antral follicles measuring 2.1-4.0 mm than did those who had unsuccessful in vitro fertilization treatment.

Among women who conceived in the current study versus those who did not, there were more mature oocytes (10.73 vs. 9.04), fertilized oocytes (7.26 vs. 5.81), and cleaved embryos (3.79 vs. 2.53). The number of small antral follicles measuring 2.1-4.0 mm in size was a significant predictor for all three of these secondary outcomes both in univariate and multivariate analyses, Dr. Raine-Fenning reported.

Earlier this year, the investigators reported that SonoAVC identified a comparable number of follicles to real-time 2-D ultrasound in a preliminary study of 72 women undergoing their first cycle of assisted reproductive technology. Follicle tracking with SonoAVC did not significantly improve the number of mature oocytes retrieved, however, when compared with conventional ultrasound (11.43 vs. 10.70) or clinical pregnancy rates (43% vs. 42%).

The diagnostic performance of the 4 protein markers had a sensitivity of 80% and a specificity of just 10%, he said. The sensitivity was 68% and specificity 40% with the use of only CA 125, a serum biomarker that is widely used to screen women at increased risk for ovarian cancer and to indicate treatment response in those with ovarian cancer.

Transvaginal ultrasonography showed a sensitivity of 80% but a specificity of 92%, reported Dr. Guerriero and his colleagues at the University of Cagliari (Italy). “Although previously proposed with encouraging results in the screening of ovarian cancer, the preliminary evaluation of these new biomarkers does not seem to be useful in the preoperative evaluation of patients with an adnexal mass when compared with CA 125 and transvaginal ultrasonography,” he said. In a 2005 blind, cross-validation study, no single marker could completely distinguish women with ovarian cancer from healthy controls, but the combination of the four proteins achieved a striking 95% sensitivity, specificity, and positive predictive value and a negative predictive value of 94% (Proc. Natl. Acad. Sci. USA 2005;102:7767-82).

Biomarkers Fail to Deliver in Ovarian Cancer Detection

BY PATRICE WENDLING

HAMBURG, GERMANY — The combination of four new serum biomarkers did not improve differentiation of adnexal malignancies from benign disease in a study of 83 women, a finding that differs from those of previous studies.

Median concentrations of osteopontin, insulin-like growth factor (IGF)-II, leptin, and prolactin in preoperative serum samples were not significantly different between women with benign ovarian neoplasm and those with ovarian cancer, Dr. Stefano Guerriero said at the World Congress on Ultrasound in Obstetrics and Gynecology.

Ten women were found to have ovarian cancer, and 73 had benign neoplasm.

The diagnostic performance of the four serum protein markers had a sensitivity of a greater than 50% and a specificity of just 10%, he said.

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The SonoAVC software is only available with a few General Electric ultrasound machines, but the additional cost of the software should be reclaimed in improved efficiency in the IVF unit, Dr. Raine-Fenning said.

He reported no relevant financial conflicts of interest.

FROM A CLINICAL PERSPECTIVE

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