

Early β -HCG Levels Predict IVF Pregnancy Viability

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LOS ANGELES — Physicians counseling patients after in vitro fertilization can use early β -HCG levels and slopes to predict whether a pregnancy is viable, according to a study presented at the annual meeting of the Society for Gynecologic Investigation.

Researchers in the Center for Reproductive Medicine at New Jersey Medical School, Newark, have identified β -HCG thresholds at 16 and 18 days after oocyte retrieval based on a retrospective chart

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review of 322 pregnancies by in vitro fertilization. Investigator Shirley A. Fong, M.D., and her colleagues reported in a poster presentation at the meeting that the new levels were highly significant for distinguishing viable pregnancies from those that did not sustain a fetal heart beat through the first trimester. They also were significantly higher for multiple pregnancies, compared with singleton pregnancies.

"What it puts in my mind is, if their first level is below 100, they are probably not going to have a viable pregnancy outcome. ... I know to couch my counseling," Dr. Fong said in an interview.

The investigators reviewed all IVF pregnancies at the New Jersey center from June 1998 to March 2004. A total of 53 patients did not have a fetal heartbeat at the end of the first trimester. Their mean β -HCG levels were 56 mIU/mL on day 16, and 115 mIU/mL on day 18, with an average slope of 24 mIU/mL.

Levels and slopes were much higher for the remaining 269 women with viable pregnancies with mean levels of 216 mIU/mL on day 16 and 505 mIU/mL on day 18, with an average slope of 140 mIU/mL.

Most of the women, 180, had singleton pregnancies. Their average β -HCG levels were 169 mIU/mL on day 16 and 401 mIU/mL on day 18. The researchers noted that the average slope of 111 mIU/mL was 4.62 times higher than in the pregnancies that were not viable.

For the 89 women who had multiple births, average β -HCG levels were 348 mIU/mL on day 16 and 798 mIU/mL on day 18. Their average slope, 220 mIU/mL, was reported as 9.16 times higher than the slope in patients who did not have a fetal heart beat at the end of the first trimester.

Dr. Fong said the group undertook the study because they did not know how to advise patients with β -HCG levels that are low but not low enough to establish that a pregnancy is not viable.

"Are you enthusiastic? Are you guard-

ed? What sort of tone should you take with your patient when giving levels?" she said. "Often they ask what that means, and we were looking for a point when we should be cautious in advising patients about what their pregnancy outcomes are going to be."

The investigators noted that β -HCG levels and their rate of rise over 48 hours have been used to manage early pregnancy in the absence of ultrasound. They said the threshold has been a rise of 66%

or more over 48 hours to predict a viable pregnancy.

This threshold was based on a 20-patient study with a confidence interval of 85% (Obstet. Gynecol. 1981;58:162-6), according to Dr. Fong.

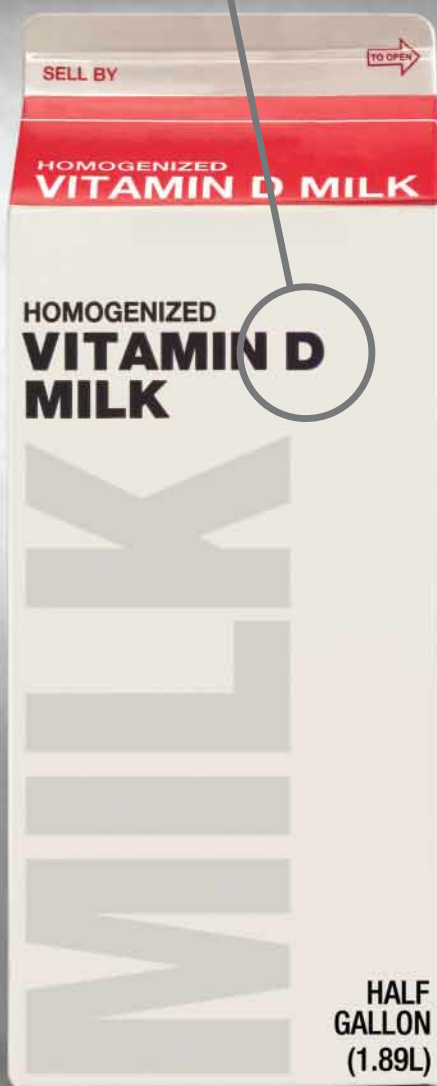
She and her colleagues have noted that the researchers in that study concluded that about 15% of normal intrauterine pregnancies would appear abnormal by this measure, and that diagnosis actually would be delayed beyond 48 hours in

an estimated 13% of ectopic pregnancies.

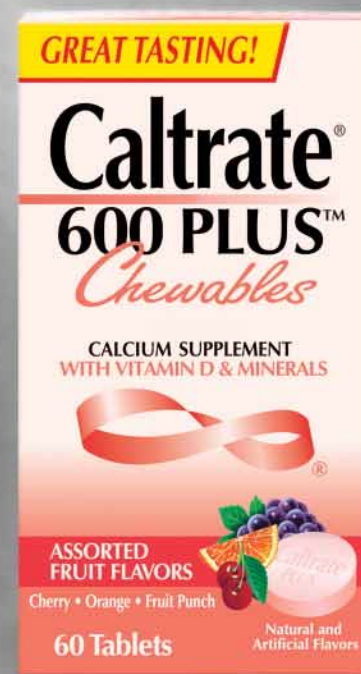
Dr. Fong emphasized that the new study is specific to in vitro fertilization and more accurate with a confidence interval of 95%. Dr. Fong also cautioned, however, that the averages are not absolutes and that the study does not predict pregnancy outcomes beyond the first trimester.

"We are just reporting a fetal heart," she said. "People miscarry for reasons other than infertility." ■

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References: 1. Office of the Surgeon General. *Bone Health and Osteoporosis: A Surgeon General's Report: What Is Bone Disease?* Available at: www.surgeongeneral.gov/library/bonehealth/factsheet1.html. Accessed November 19, 2004. Page 3. 2. *Bone Health and Osteoporosis: A Report of the Surgeon General*. Washington, DC: Office of the Surgeon General, US Dept of Health and Human Services; 2004:12.

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