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Who's the Dad? First-Trimester Blood Test May Tell New, noninvasive method safer than current ones, developer says

By Maureen Salamon



HealthDay Reporter

WEDNESDAY, May 2 (HealthDay News) -- Finding out who the father is in paternity cases may become easier with the emergence of a simple blood test for women that can be given in the first trimester of pregnancy.

The paternity screening, developed at a private biotech company in Maryland, is intended to replace more invasive, risky tests that are done later in the pregnancy, its developer says.

"It's not knowing who the father is that makes a pregnancy challenging and stressful for the mother," said Dr. Ravinder Dhallan, chairman, CEO and founder of Ravgen Inc., the Columbia, Md.-based company that developed the test. "Knowing who the father is allows them to make informed decisions about their pregnancies. We've found it can be done very simply and eventually, inexpensively."

Scientists at Ravgen use a chemical "fixative," such as formaldehyde, to stabilize fetal DNA in the mother's blood and produce larger analyzable amounts. Of blood samples collected from 30 pregnant women, the researchers said they correctly determined paternity for all of them.

Dhallan is co-author of a letter about the procedure published in the May 3 issue of the *New England Journal of Medicine*.

About 5 percent of women who are raped become pregnant, producing an estimated 32,000 unintended pregnancies each year in the United States, according to Dhallan. Currently available prenatal paternity tests include amniocentesis and chorionic villus sampling -- which extract fetal cells from a pregnant woman's amniotic fluid or placenta and pose a small risk of producing a miscarriage.

The 30 blood tests were carried out between October 2007 and January 2010, and results were confirmed after babies were delivered by swabbing the inside of their cheeks to analyze their DNA. The mothers' average age was 30, and the average length of the pregnancy was 10 weeks when blood tests were done.

Each maternal blood sample was paired with blood from the stated biological father and then randomly grouped with one of 29 samples from unrelated men. Processing the three samples in each group, researchers correctly determined paternity for all 30 by comparing the genetic profile of fetal DNA in maternal blood with those of the two "paternal" samples, one genuine and one not.

Traditional invasive tests can't be done until between 10 and 15 weeks of pregnancy, but 80 percent of abortions occur before 10 weeks' gestation, Dhallan explained. Dhallan said a test like this might prevent some women from aborting before finding out whether their baby was conceived through rape or consensual sex with their partners. "A quarter of women tell me straight up that my answer will impact whether they keep the pregnancy," said Dhallan, adding that he and his team have since performed the test on more than 200 women. "By the time I did four cases, we had saved one baby. To me, every case is about life and death."

Dr. Jill Rabin, chief of ambulatory care, obstetrics and gynecology at Long Island Jewish Medical Center in New York, praised the test as "really exciting" because of its noninvasive nature.

"Unfortunately, we do have a certain percentage of pregnancies that are complicated by alleged sexual assault," Rabin said. "Those would be the first patients who would want to know [paternity] as early as possible. But we do have people every week . . . who request paternity testing for different reasons. A lot has to do with child support."

U.S. Food and Drug Administration approval of the paternity blood test is not required, Dhallan said. Although he has not had it licensed for widespread use, he said he will make the test available on a limited basis through patients' physicians.

Dhallan said the cost of the procedure is comparable to the current cost of amniocentesis - about \$1,600 -- but that he hopes to price the test lower as it becomes more widely used.

More information

The American Academy of Family Physicians has more information on [prenatal diagnosis](#).

SOURCES: Ravinder Dhallan, M.D., Ph.D., chairman, CEO and founder, Ravgen Inc., Columbia, Md.; Jill Rabin, M.D., chief, ambulatory care, obstetrics and gynecology, and head, urogynecology, Long Island Jewish Medical Center, New Hyde Park, N.Y.; May 3, 2012, *New England Journal of Medicine*

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