

Vaginal progesterone reduces the rate of preterm birth, neonatal complications, and death in twin gestations with a short cervix

Treatment with vaginal progesterone reduced the risk of preterm birth, neonatal complications and death in pregnant women with twins and who have a short cervix— a risk factor for preterm birth— according to a meta-analysis of individual patient data by researchers at the National Institutes of Health and other institutions in the United States and abroad.

Births occurring before week 37 of pregnancy are considered preterm. Preterm birth increases the risk for infant death and long term disability. Twin pregnancies are at 5-6 times increased risk for preterm birth.

In preparation for birth, the cervix (lower part of the uterus) thins and shortens during pregnancy. In some women, the cervix shortens prematurely, as early as the fourth or fifth month of pregnancy. The natural hormone progesterone (also called the “pregnancy hormone”), inserted in the vagina either as a gel or tablet, has been shown to decrease the risk for preterm birth associated with a short cervix in women with a single fetus, in previous studies done by investigators at NIH.

The new study was published in *Ultrasound in Obstetrics and Gynecology*, the official journal of the International Society of Ultrasound in Obstetrics and Gynecology (ISUOG).

“The findings represent persuasive evidence that treatment with vaginal progesterone in women with a short cervix and a twin gestation reduces the frequency of preterm birth, neonatal complications such as respiratory distress syndrome, and importantly, neonatal death,” said the study’s first author, Roberto Romero, M.D., Chief of the Perinatology Research Branch at the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD/NIH). Dr. Romero emphasized that individual patient data meta-analyses represent the “gold standard” in the hierarchy of scientific evidence to answer clinical questions.

“To date, clinical practice and national recommendations to prevent preterm birth and reduce related adverse outcome in twin pregnancies vary significantly because of a lack of convincing scientific evidence and regional variation in the interpretation of said evidence. The findings of this individual patient data meta-analysis provides scientific evidence that treatment with vaginal progesterone in women with a short cervix and a twin pregnancy reduces the frequency of preterm birth and related serious adverse perinatal outcomes” said Basky Thilaganathan, Editor-

in-Chief of *Ultrasound in Obstetrics and Gynecology*, the premier journal of imaging in women's health.

The meta-analysis included the results of 6 studies, encompassing 303 women pregnant with twins, all of whom had a cervical length of 25 mm or less in the midtrimester. Of these, 159 women received vaginal progesterone and 144 received a placebo or no treatment. Women who received vaginal progesterone were 31 percent less likely to deliver before 33 weeks of pregnancy (31 percent for those receiving vaginal progesterone, compared to 43 percent for those who did not). Vaginal progesterone also reduced the rate of preterm delivery before 32 weeks and 34 weeks. All results were statistically significant.

Infants born to patients who received vaginal progesterone had a 30 percent reduction in the rate of respiratory distress syndrome, the most common complication of prematurity (from 47 percent in the placebo/no treatment group, to 33 percent in the vaginal progesterone group), a 46 percent reduction in the rate of mechanical ventilation (from 27 percent in the placebo/no treatment group, to 16 percent in the vaginal progesterone group), and a 47 percent reduction in the risk of dying in the neonatal period (from 22 percent in the placebo/no treatment group, to 11 percent in the vaginal progesterone group). These results were all statistically significant, as well.

The authors conclude that the results of this individual patient data meta-analysis represents strong evidence that vaginal progesterone in twin gestations with a short cervix reduces preterm birth, neonatal complications and neonatal death. This is the first intervention to successfully reduce both preterm birth and neonatal death.

REFERENCE:

R. ROMERO, A. CONDE-AGUDELO, W. EL-REFAIE, L. RODE, M. L. BRIZOT, E. CETINGOZ, V. SERRA, E. DA FONSECA, M. S. ABDELHAFEZ, A. TABOR, A. PERALES, S. S. HASSAN and K. H. NICOLAIDES. Vaginal progesterone decreases preterm birth and neonatal morbidity and mortality in women with a twin gestation and a short cervix: an updated meta-analysis of individual patient data. *Ultrasound in Obstetrics and Gynecology*. DOI: 10.1002/uog.17397.

Accompanying videoclip summarizing the study findings can be found online at <https://youtu.be/3miRg1boScs>.

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Note for the editors

About the Journal

Ultrasound in Obstetrics and Gynecology (UOG), published by Wiley, is the official journal of the International Society of Ultrasound in Obstetrics and Gynecology (ISUOG) and is recognized as the leading peer-reviewed journal on imaging within the field of obstetrics and gynecology, publishing important research from all parts of the world.

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