

Progress toward personalized prevention of preterm birth: When progesterone works and when it does not

June 7 2022



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The most effective intervention to prevent preterm birth is the administration of a natural hormone, progesterone, in patients at risk for

premature delivery. Two categories of patients have been eligible for this treatment: those with a short cervix and those with a previous preterm birth.

But [research](#) published this week in the *American Journal of Obstetrics and Gynecology* by researchers of the Perinatology Research Branch at the Wayne State University School of Medicine indicates that [progesterone](#) is not effective in reducing the rate of preterm [birth](#) in women with a history of such birth.

In the article, "Does vaginal progesterone prevent recurrent preterm birth in women with a singleton gestation and a history of spontaneous preterm birth? Evidence from a systematic review and meta-analysis," the researchers call for revision of American College of Obstetricians and Gynecologists, and Society for Maternal-Fetal Medicine guidelines that recommend the use of progesterone in women with a history of spontaneous pre-term birth.

"We have advocated that vaginal progesterone reduces the rate of preterm birth in women with a short cervix. This evidence is solid and derived from multiple studies including randomized [clinical trials](#), [meta-analyses](#) and implementation research," said Roberto Romero, M.D., DMedSci, chief of the Eunice Kennedy Shriver National Institute of Child Health and Human Development's Perinatology Research Branch and Professor of Molecular Obstetrics and Genetics at the Wayne State University School of Medicine. "Some people believe that vaginal progesterone is effective not only in women with a short cervix but also in patients with a prior history of preterm birth. We have completed a [systematic review](#) and meta-analysis that shows that this is not the case."

The effective use of vaginal progesterone in women identified with a short cervix via sonograph to prevent pre-term birth was identified and developed by the PRB in 2010. But extrapolating these findings to

patients with a prior history of preterm birth is not correct, the latest findings show.

Women with a history of spontaneous preterm birth have a 2.5- to four-fold increased risk of subsequent such issues compared to women with no history of pre-term birth. The American College of Obstetricians and Gynecologists, and the Society for Maternal-Fetal Medicine recommend the use of vaginal progesterone or 17 α -hydroxyprogesterone caproate for all pregnant women with a history of pre-term birth.

"We believe it is important to understand the limitations of a successful strategy to avoid overtreatment. We advocate for universal screening of cervical length and the identification of patients who may benefit from a specific intervention. In other words, individualized medicine and not one size fits all," said Dr. Romero, who published the findings with Agustin Conde-Agudelo, M.D., M.P.H., Ph.D., adjunct professor of Obstetrics and Gynecology, and head of the Unit of Perinatal Epidemiology, Systematic Reviews and Meta-analyses.

The team reviewed findings from 10 randomized controlled trials that compared [vaginal progesterone](#) to placebo or no treatment in asymptomatic women with a singleton gestation and a history of spontaneous preterm birth. They found no convincing evidence that the use of progesterone prevented pre-term birth in these women.

Preterm labor, Dr. Romero explained, is a syndrome associated with multiple mechanisms of disease, including infection and/or inflammation, decidual hemorrhage and vascular disease, uterine overdistention, cervical disease, disruption of maternal-fetal tolerance, maternal stress and decline in progesterone action. The syndromic nature of [preterm](#) labor explains why a single method of intervention does not prevent all or even predict most cases of [preterm birth](#), he said.

More information: Agustin Conde-Agudelo et al, Does vaginal progesterone prevent recurrent preterm birth in women with a singleton gestation and a history of spontaneous preterm birth? Evidence from a systematic review and meta-analysis, *American Journal of Obstetrics and Gynecology* (2022). [DOI: 10.1016/j.ajog.2022.04.023](https://doi.org/10.1016/j.ajog.2022.04.023)

Provided by Wayne State University

Citation: Progress toward personalized prevention of preterm birth: When progesterone works and when it does not (2022, June 7) retrieved 13 July 2023 from <https://medicalxpress.com/news/2022-06-personalized-preterm-birth-progesterone.html>

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