Medicine by the Numbers

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Fetal Fibronectin Testing in Threatened Preterm Labor

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Details for This Review

Study Population: Women with singleton pregnancies and threatened preterm labor undergoing fetal fibronectin testing between 23 and 35 weeks' gestation

Efficacy End Points: Reduction in preterm deliveries at less than 37 weeks, less than 34 weeks, and less than 32 weeks

Harm End Points: Increase in maternal hospitalization

Narrative: In the United States, approximately 9.6% of live births are preterm (before 37 weeks). This rate has been declining due to increased effort to reduce non–medically indicated deliveries before 39 weeks' gestation.[1] Hospitalization of infants after preterm birth may cost as much as $5.8 billion annually, representing approximately one-half of the costs for all infant hospitalizations in the United States.[2] Because many women who present with threatened preterm labor symptoms deliver at term, identifying the subset of women with preterm labor symptoms who will have a preterm delivery would be useful. Fetal fibronectin testing is a common clinical test, performed via cervicovaginal secretion swab after 22 weeks of pregnancy, and is used to identify women at increased risk for preterm delivery. One national claims database study found that 12% of patients presenting with threatened preterm labor symptoms had fetal fibronectin testing performed in the emergency department or the emergency labor and delivery unit.[3] Guidelines from the American College of Obstetricians and Gynecologists do not recommend the use of fetal fibronectin testing alone to guide the management of acute patients.[4]

FETAL FIBRONECTIN TESTING IN THREATENED PRETERM LABOR

Benefits	Harms
No preterm deliveries were prevented	No increase in maternal hospitalizations

The Cochrane review discussed here included six randomized controlled trials with a total of 546 women with singleton pregnancies and threatened preterm labor at 23 to 35 weeks.[5] Three out of five studies evaluating the risk of preterm birth found that knowledge of fetal fibronectin was associated with a reduced risk of preterm birth before 37 weeks. The meta-analysis found that in patients who underwent fetal fibronectin testing, the overall relative risk (RR) for preterm labor before 37 weeks' gestation was nonsignificant (0.72; 95% CI, 0.52 to 1.01). Preterm births before 34 weeks and before 32 weeks were studied in four of the trials, with RRs of 1.09 (95% CI, 0.54 to 2.18) and 0.79 (95% CI, 0.16 to 3.96), respectively.

The primary adverse event considered in this review was maternal hospitalization associated with fetal fibronectin testing. No difference was found after pooling the results of five randomized controlled trials (RR = 1.06; 95% CI, 0.79 to 1.43).

The NNT Group Rating System

Green	Benefits greater than harms
Yellow	Unclear benefits
Red	No benefits
Black	Harms greater than benefits

Caveats: The overall quality of the studies included in this review was very low to low. Two of the trials that showed a reduction in preterm birth risk after testing were funded by Adeza Biomedical, the producer of the fetal fibronectin test used in

the studies, and were a source of bias. All the studies had small sample sizes.

None of the examined end points found statistical significance. However, in a secondary sensitivity analysis performed after the removal of one trial, preterm birth before 37 weeks was significantly lowered with the use of fetal fibronectin testing (RR = 0.67; 95% CI, 0.46 to 0.97). This trial was removed because of unclear risk of allocation concealment. The data from this secondary analysis showed a number needed to treat of 9.5 patients to prevent one preterm birth before 37 weeks.

Because none of the trials had a standardized protocol for patient care after fetal fibronectin testing, it is impossible to control for any potential treatment variations. Although this makes it difficult to pool results from different trials, it may give an accurate picture of the outcomes of fetal fibronectin testing performed by clinicians in the clinical setting, where it is even less likely that the testing has a significant effect on preterm deliveries.

Conclusion: Fetal fibronectin testing is performed in many clinics, emergency departments, and hospitals across the country, but it is still unclear how testing impacts clinical outcomes. Further studies need to be performed with clearly specified intervention protocols to determine perinatal outcomes with fetal fibronectin testing.

This series is coordinated by Dean A. Seehusen, MD, MPH, *AFP* assistant medical editor, and Daniel Runde, MD, from the NNT Group.

A collection of Medicine by the Numbers published in *AFP* is available at https://www.aafp.org/afp/mbtn.

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