



C-Obs 26

Use of Cervical Fetal Fibronectin as a Screening Test for Preterm Birth

Women presenting with symptoms of preterm labour pose a common clinical problem, and a challenge for all delivering obstetric care. The majority will go on to deliver at term, but, for the minority who are destined to deliver preterm, there are some beneficial obstetric interventions. These include the use of tocolytic agents to defer delivery to allow transfer to a tertiary centre and or the administration of corticosteroids to enhance fetal lung maturation. These interventions are costly to health care systems and disruptive to the woman and her family when remote transfer is necessary. It is beneficial to be able to identify those pregnancies at *low* risk of preterm birth, to minimise intervention...

Fetal fibronectin (fFN) is a glycoprotein promoting adhesion between the fetal chorion and maternal decidua. Fetal fibronectin is typically absent from cervicovaginal secretions between 24 and 36 weeks' gestation, becoming detectable again as term approaches. Elevated levels of fFN (typically > 50ng/ml) in cervicovaginal secretions between 24 and 36 weeks' gestation are associated with an increased risk of preterm birth. Following a positive test result the likelihood ratio of symptomatic women delivering within 7-10 days is 5.4. The sensitivity of fFN for predicting preterm birth within 7 days among symptomatic women is approximately 80%. Given the background low prevalence of preterm birth even among symptomatic women, this translates to a positive predictive value of 13-30% for preterm birth in the next 7 days, and 40-65% for any preterm delivery.

The greatest clinical utility for fetal fibronectin, however, is in its negative predictive value in symptomatic women. A negative fFN is associated with a 99% Negative Predictive Value for delivery in the next 7 days. A negative fFN in symptomatic women has been associated with reduced transfers to tertiary centres, reduced admissions for threatened preterm labour, reduced use of tocolytic agents and corticosteroids and reduced mean cost of treatment. Avoiding the financial and personal burden of transfer of women from remote areas is particularly relevant in Australian and New Zealand obstetric care.

Recommendations:

Efforts should be made to minimize possible unnecessary interventions associated with threatened preterm labour, given the burden these impose on women and health care providers. .

1. The high Negative Predictive Value of fFN in cervicovaginal secretions can be used clinically to minimise potentially dangerous or expensive interventions, such as tertiary transfer, admission to hospital, administration of corticosteroids and tocolytics.
2. Ideally, all units providing obstetric care should have access to bedside fFN testing to assist with clinical decision making in women presenting with ALL of the following;

- a) Symptomatic preterm labour, between 24 and 34+6 weeks' gestation
 - b) Intact membranes
 - c) At less than 3cm cervical dilatation
3. Testing technique. The specimen should be collected from the posterior fornix during a speculum examination.
 4. Clinicians should be aware of factors that may affect test reliability. These include:

False positive results:

Increased false positive results may occur in situations where there has been cervical manipulation within the previous 24 hours, such as coitus, digital vaginal examination and transvaginal ultrasound examination. Fetal fibronectin is found in blood and semen, and these may cause false positive results, However, negative results in any of these settings can still be considered reliable,.

False negative results:

The use of intravaginal lubricants and disinfectants may interfere with the antibody reaction, leading to an increase in false negative results.

5. Cervical length may be used to better refine which patients will benefit from fFN testing. Where fFN is restricted to women with a measured cervical length <30mm on transvaginal ultrasonography, 55% of fFN tests can be avoided. Nevertheless, this strategy can only be employed where there is ready access to transvaginal ultrasound equipment and expertise, which limits its value in many settings.
6. fFN has been used as a screening test in asymptomatic women at high risk for preterm birth. Its value in this group is limited by the lack of an effective treatment intervention. A recent study found that prescribing antibiotics for women at high risk of preterm birth with a positive fFN was associated with a non-significant trend toward increased preterm birth and thus possibly worse outcomes. . A positive fFN at 24 weeks' gestation among high risk women, while associated with a likelihood ratio of 15 for delivery <30 weeks' gestation, was also associated with high levels of maternal anxiety. The exact role of fFN among asymptomatic women remains to be determined.
7. fFN has been shown to have similar test characteristics in women with multiple pregnancies presenting with preterm contractions, with sensitivity, specificity, PPV and NPV of 71%, 74%, 19% and 97% respectively.
8. The value of repeating the fFN testing (eg. to assist discharge planning from a tertiary centre) has not been formally evaluated, but may be considered on an individual basis.

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