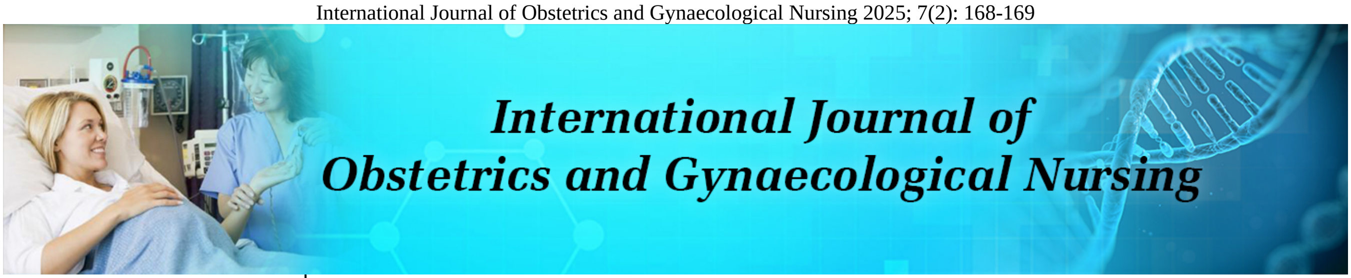

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Fetal fibronectin: Prognosticator of preterm birth

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Abstract
Fetal fibronectin (fFN) is a glycoprotein formed from the fetal cells that serves as a binder that glues the membrane and placenta to the decidua. Fetal fibronectin testing is used to screen for a woman's risk of preterm birth. It is usually found in the cervical and vaginal secretions early in pregnancy (until 20-22 weeks) and again at or near term. If it appears too early, it suggests that labour may begin early, similarly to the way cardiac enzymes rises in the person with a myocardial infraction. Around 22 weeks, the chorion completely joins with the decidua, which blocks fibronectin from leaking into the vagina until term. Therefore, the presence of fetal fibronectin between 27 to 34 weeks can serve as an important marker of preterm birth.

Keywords: Fetal fibronectin, preterm birth, glycoprotein marker, cervical secretions

Introduction
Fibronectin is a protein found in the extracellular substance of many tissues and in blood plasma. It plays a crucial role in cell binding, motility, and differentiation, and is involved in wound repair, tissue development, and other biological processes.
During pregnancy, it is produced by the chorionic tissue at the maternal and fetal junction, and is present in amniotic fluid, placental tissue, and decidua basalis. It acts as "biological glue" that binds the fetal sac to the uterine membrane. The fetal fibronectin is an excel screening test for excluding preterm labour than establishing that preterm labour has started and help the physician make a better judgement about whether the woman's symptoms are true preterm labour that should be treated aggressively or a variant of normal pregnancy symptoms that can be managed more conservatively. The test is performed by collecting fluids from woman's cervix and vagina using a swab during a vaginal examination.

Indication
In most cases, the fetal fibronectin test is performed if a woman exhibits signs of preterm labor.
These signs may include:
- Pain in the back or abdomen
- Abnormal vaginal discharge
- Cervical dilation (more than 3cm)
- Pelvic pressure
- Uterine contractions (pain)

In high risk pregnancies the testing is performed even if there are no signs of preterm labor. Factors that raise the risk for preterm birth include:
- History of preterm birth or surgeries on the cervix or uterus
- Lifestyle factors (smoking during pregnancy and low pre-pregnancy weight)
- Short cervix
- Short interval between pregnancies
- Abnormal vaginal bleeding during pregnancy

Preparations for the procedure:
- Avoid douches, lotions, or lubricants prior to testing, as they interfere with the results.

- Avoid sexual intercourse for 24 hours prior to testing, as the semen may give a false positive result.
- The sample for testing should be collected before performing a physical examination.
- Sample: Cervical or vaginal secretion
- Process: The cervical or vaginal fluids collected with a swab from the posterior part of the vagina, or from the area near the opening of the cervix.

Results

Positive

- Positive results indicate an increased chance of a preterm birth, and hence, close supervision is necessary.
- However, not every woman with a positive result goes into premature labor.

Negative

- It shows that there is very little likelihood (< 1%) of giving birth within the next two weeks.
- In such a situation, the test may be done again after 2 weeks if symptoms persist.
- On every occasion, a negative result remains valid for 7-14 days.

The test results should be interpreted after correlating with suitable clinical findings and additional information.

The status of membrane (intact/ rapture)

- Nature of vaginal bleeding.
- Condition of cervix
- Infections (Vaginal yeast infections)
- Medications (including any herbal supplements may influence the outcome of the test)

Conclusion

fFN is a protein primarily concentrated in the area between the placenta and the decidua of the uterus that helps to bind the amniotic sac to the uterus. From 22 - 35 weeks of gestation, a trace amount, about 50 mg/mL, can generally be found in the cervical and vaginal secretions of the pregnant woman. The fFN level is often tested to assess for imminent preterm birth. Common qualitative protocol for fFN testing is to take an fFN swab for a woman below 34 weeks of gestation who are 3 cm or more dilated with a short cervix. A negative result, meaning a lack of fFN in the maternal and cervical secretions, is reassuring and indicates a high likelihood that birth will not occur within the next 2 weeks. A positive test, however, is not diagnostic measure of preterm birth and only indicates a higher likelihood.

The problem is that even if the test predicts preterm birth, there is no intervention to date that reduces the risk of preterm delivery. Therefore, this test should not be used for routine screening of low-risk, asymptomatic women. An advantage of the high negative predictive value of the fFN test is that it can be used to detect impending premature birth, avoid unnecessary intervention, and reassure expectant women that their risk for the next 7-14 days is low.

Conflict of Interest

Not available

Financial Support

Not available

Recommendations

Similar study can be under taken for large samples so that results can be generalize.

1. The same study can be done with an experimental research approach having a control group.
2. A comparative study can be conducted using two different teaching strategies to educate the students in relation to procedural preparation, management, and care of upper respiratory tract infection in children.
3. The chapter deals with the summary of the research study, bringing forth the major finding of the study, conclusion, nursing implication and recommendation given at the end of the study.

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