

INSULIN LIKE GROWTH FACTOR BINDING PROTEIN I IN CERVICAL SECRETION AND CERVICAL LENGTH AS A PREDICTOR OF PRETERM LABOR

ABSTRACT

AIM OF THE STUDY

To assess the efficacy of insulin like growth factor binding protein 1 and cervical length at first admission in symptomatic women with intact membranes for the prediction of impending preterm delivery.

METHODOLOGY

This is a prospective study of 100 antenatal women, who presented to labor ward, **INSTITUTE OF OBSTETRICS AND GYNECOLOGY, MMC, CHENNAI** in a time period between JAN 2014 To AUG 2014. Ethical committee clearance was obtained from the institution to undergo this study.

After getting the consent all women were examined. Detailed obstetrics history and general examination was done. Per abdominal examination followed by sterile speculum examination done. Any draining pv or signs of infection were noted. We took cervical swab for a quantitative assay of ph-IGFBP-I. The swab was kept in the cervix for 15 seconds.

Then the swab was kept in the test tube containing 0.5 ml of extraction buffer. The specimen was extracted immediately from the swab by swirling the

swab vigorously in the solution for 15 secs. Press the swab against the wall of the specimen extraction solution tube. Swab was discarded after that.

Insulin like growth factor binding protein-I was measured in cervical swab Samples obtained using immunoenzymometric assay by bedside kit

Value more than 10 microgram/lit considered as positive. It is shown as two dark line in the bedside kit. The cervical length was measured by transvaginal ultrasound.

RESULT

- In this study 100 women with preterm pains and less than 3cm cervical dilatation were selected
- General and obstetrics examination was done for all Cases including pelvic examination.
- Cervical swab for phIGFBP-1 was taken for all patient. The test was done by using bedside kit by immunoenzymometric assay. The test kit shows two dark line if phIGFBP-1 level more than 10 microgram. It was considered as positive.
- In 100 patient 38 patient delivered as preterm. 35 cases were phIGFBP-1 test positive. Out of 35, 32 was delivered as preterm. 65 cases were test negative. Out of 65, 6 cases were delivered as preterm

- 73% of the patient were in the age group of 20-30 yrs, with average of 24 yrs. 57.9% were primi, 42.1% were multi.
- NICU admission was more in preterm (100%) compared to term deliveries. The main cause of admission was low birth weight and respiratory distress syndrome.
- In 35 test positive patient, 96% patient had 1-2 cm cervical dilatation (p=0.0001). There was a statistical significance between the test and preterm delivery, cervical dilatation and NICU admission. In this study, the average weight of the baby in test positive patient was 1.9 kg.
- The sensitivity and specificity of cervical length to predict preterm labor was 97.4% and 79.2%. The cervical length cut off was 2.5 cm. If cervical length was 2.5 cm, the mean final gestational age was 35-36 weeks. If it was less than 2 cm, the mean final gestational age was 32-33 weeks. So cervical length measurement was an independent predictor of preterm delivery.
- If the test was negative and cervical length was 2.5 cm, the sensitivity of the test to predict preterm delivery was 83.3%, specificity was 76.3%.
- If the test was positive and cervical length was less than 2.3 and the test was positive, the sensitivity was 81.2% and specificity was 100%. If patient had

less than 2.3 cm cervical length and the test was positive, she more likely delivered as preterm

- In test positive patient(35), most of them delivered less than 35 weeks of gestation. Mean final gestational age in test positive was 33.3 weeks.so there was a strong association between gestational age at delivery and cervical length in test positive patient.
- The ROC curve showed that 2.5 cm of cervical length was the best cutoff value for predicting preterm labor.
- The positive and negative predictive value of this test to predict preterm delivery were 91.43% and 90.77%
- The positive and negative predictive value of the cervical

Length (<2.5cm) to predict preterm delivery were 69.81% and 97.87%

- According to this study the diagnostic accuracy of cervical length was 83% . the diagnostic accuracy of phIGFBP-1 was 91%

CONCLUSION

- According to this study the phIGFBP-1 measurement in cervical secretion is a rapid and highly applicable test to predict preterm delivery in symptomatic women

- Cervical length measurement is also an independent predictor for preterm delivery. The best cutoff value of cervical length was 2.5 cm
- When the test was combined with cervical length Measurement ($\leq 2.5\text{CM}$) to predict preterm delivery, the sensitivity and specificity were increased.
- The diagnostic accuracy was more in the test group (91% than cervical length measurement (83%) to predict preterm delivery.
- So the pHIGFBP-1 test can be used as bedside kit test to predict preterm delivery solely or in combination with cervical length measurement.
- So this test can be used to avoid unnecessary obstetrics intervention like tocolysis and hospitalization. In positive patient it will help to decide inutero transfer of the patient to tertiary care level.

KEY WORDS

PhIGFBP-1- Phosphorylated insulin like growth factor binding protein -1

PTL- Preterm labor

PTD- Preterm delivery

FFN- Fetal fibronectin

ACOG- American college of obstetrics and gynecology

IUGR- Intra uterine growth restriction

UTI- Urinary tract infection

TNF- Tumour necrosis factor

HPA-Hypothalamic pituitary axis

IL-Interleukin

PGE 2- prostoglandin e 2

TxA2 –Thromboxane a 2

NSAID- Nonsteroidal anti inflammatory drugs

COX- cyclooxygenase

NICU- Neonate intensive care unit

RDS- Respiratory distress syndrome

GDM- Gestational diabetes mellitus

PPROM- preterm premature rupture of membranes