

# **ASSOCIATION OF MATERNAL SERUM ALPHA-FETOPROTEIN WITH PERSISTENT PLACENTA PREVIA**

## **ABSTRACT**

### **AIM OF THE STUDY**

1. To evaluate the relationship between maternal serum Alpha fetoprotein and the risk of persistent placenta previa
2. To evaluate and know about correlation of different values of MSAFP and the degree of invasion of placenta previa.
3. To decide on early termination of pregnancy and to save life of both mother and the baby.

## **METHODOLOGY**

**STUDY:** A prospective analytical study

**PLACE:**Institute of Obstetrics and Gynaecology

**PERIOD:**April 2014 - September 2014

**SAMPLE SIZE:**100 cases

### **INCLUSION CRITERIA:**

Pregnant women with sonographic evidence of placenta previa at 15-20 weeks of gestation

**EXCLUSION CRITERIA:**

Delivery before 24 weeks of gestation

Anomalous foetus

Multiple pregnancy

IUFD

Placental abnormalities

**STUDY MATERIAL:**

3 ml of venous blood was collected from antenatal mothers with sonographic evidence of placenta previa at 15-20 weeks of gestation who attended in ANOP at IOG.

Estimation of MSAFP was done by chemiluminescence assay from the serum which was collected. Multiples of median (MOM) values had been derived for our population, adjusted for gestational age.

**PRIMARY OUTCOME:**

The pregnancies in which caesarean delivery was performed for persistent placenta previa is our primary outcome.

Additional outcomes are indicated caesarean hysterectomy and pathological evidence of placental invasion.

## RESULTS

- 100 Antenatal women had sonographic evidence of placenta previa at 15-20 weeks of gestation were subjected for maternal serum alpha fetoprotein screening.
- All 100 women were delivered either vaginally or by caesarean section of non anomalous live born infants at or after 24 weeks of gestation. Out of 100 patients, 45 (45%) had persistent placenta previa confirmed at the time of delivery.
- Of these 45 women who had placenta previa at the time of delivery, 18 cases (40%) underwent caesarean hysterectomy . out of these 18 cases of caesarean hysterectomy, 13 cases(72%) had abnormal placental invasion, which was confirmed by histopathological study .Out of these 13 cases, 6 cases were placenta accreta,2 cases were increta and 5 cases were placenta percreta. In these 18 cases most of them had preterm delivery.
- In this study 27 cases had previous caesarean delivery . , out of 27, 26 cases had persistence of placenta previa at term compared to 19 out of 54 cases with non prior caesarean delivery. So Women who had prior caesarean delivery had a higher incidence of persistence of placenta previa in this study There was good statistical significance with parity, previous lscs, previous vaginal delivery but there was no statistical significance with maternal age, previous abortion regarding persistence of placenta previa.

- The likelihood of persistence increased significantly with increasing MSAFP in MOM value. The mean MSAFP in MOM value for persistent placenta previa was  $>1.1$  and the mean MSAFP in MOM value for caesarean hysterectomy was  $>1.7$ .
- Mid trimester MSAFP  $<1.1$  MOM was associated with decreased incidence of persistence of placenta previa. The 1.1 MOM cut off was then applied to subgroups of women with incomplete and complete previa and found that women with incomplete placenta previa who have  $<1.1$ MOM are not presented with persistence of placenta previa at term. Thus when MSAFP  $>1.1$  MOM there is significant statistical correlation of persistence of placenta previa since p value is 0.0001 (95% CI 60-87%).
- Using multiple logistic regression, traditional risk factors for placenta previa persistence were compared with MSAFP MOM value. Thus MSAFP is considered as an independent risk factor and can be used as predictor for detecting persistence of placenta previa at term, in the second trimester itself.

## CONCLUSION

- Antenatal women with sonographic evidence of placenta previa between 15-20 weeks of gestation have a greater likelihood of persistent placenta previa with increased values of MSAFP.
- If MSAFP values  $<1.1$  MOM there is a decreased likelihood of persistence of placenta previa at term.
- MSAFP proved to be particularly useful in subgroup of women having incomplete placenta previa at 15-20 weeks of gestation.
- MSAFP value more than 1.1 MOM is significantly associated with the risk of persistence of previa comparable to other risk factors such as complete placenta previa, multi parity and previous caesarean delivery.
- In this study the risk factor associated with highest risk of placenta previa persistence is prior caesarean delivery.
- Also found that there is a great association between MSAFP and occurrence of placenta accreta, thus deficient decidualization is likely responsible for elevated MSAFP due to disruption of placental barrier.

In the present scenario, clinicians and patients are interested in having a suitable serum marker which represents a persistence of placenta previa at term in early pregnancy. Thus this data confirms the above mentioned statement.

- In this study if the value of MSAFP is  $>1.1\text{MOM}$  then there is high chance of occurrence of persistent placenta previa and if the values are  $>1.7\text{MOM}$  there is higher chance of occurrence of adherent placenta.
- This study reveals elevated MSAFP is an adjuvant tool to diagnose the persistence of placenta previa in addition with Sonography. So if MSAFP level  $>1.7\text{ MOM}$  and Sonography reveals the placental invasion, patient can be counselled for increase risk of caesarean hysterectomy.
- It helps the clinician to motivate the patient to have tertiary level of care and plan for elective surgery.
- The combination of Ultrasound and MSAFP is cost effective compared with MRI in diagnosing persistent placenta previa and its invasion.
- Thus the estimation of maternal serum alpha fetoprotein in 16-20 weeks of gestation in these patients can predict the persistence and invasion of placenta previa at term.

## KEYWORDS

MSAFP –maternal serum alpha fetoprotein

PP-placenta previa

MOM-multiple of median

APH-anti partum haemorrhage

TVS-trans vaginal sonography

CS- caesarean section

MRI- magnetic resonance imaging

PMR-peri natal mortality rate

MMR-maternal mortality rate

RCOG-royal college of obstetrics and gynaecology

Prev.VD- previous vaginal delivery

Prev.LSCS-previous lower segment caesarean section

CESA.HYS-caesarean hysterectomy

AUC- area under curve

p.value- probability value