

Perinatal Outcome Predictor in Low Risk Pregnancy at Term is Low Amniotic Fluid Index (AFI)

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ABSTRACT

Background: Amniotic Fluid Index (AFI) is an estimate of quantity of amniotic fluid. Amniotic fluid index is the score, which express in cm, given to amniotic fluid amount seen during ultrasonography of pregnant womb.

Aim: To discover clinical importance of low amniotic fluid index (AFI) on perinatal outcome in low risk pregnancy at term.

Methods: A case control perspective study was done at Shahida Islam Teaching Institute, Lodhran from August 2016 to December 2017 in which hundred consecutive females having low AFI of ≤ 5 cm with term pregnancy attended the delivery room without high risk factor match with the same figure of control admitted promptly after index cases with standard amniotic fluid index. The including and excluding criteria was matched in both groups except amniotic fluid index. Cardiotocography changes, delivery type, meconium presence, apgar score at 5 minutes, neonatal unit admission need & perinatal death were the results measures.

Results: In this study no any considerable disparity in incidence of cardiotocography changes (CTG), rate of C-section, staining of meconium, apgar score at five minutes among females with ≤ 5 cm amniotic fluid index and females with ≥ 5 cm amniotic fluid index. Further no admission to neonatal unit as well as no any perinatal death.

Conclusion: During this study, we observed that there was no any effect of low amniotic fluid index (AFI) on maternal and in pregnant females perinatal outcome with low risk pregnancy at term.

Keywords: Perinatal Outcome, Amniotic Fluid Index (AFI), Low Risk Pregnancy.

INTRODUCTION

In 1987 by Phelan et al firstly described the AFI, a semi quantitative ultrasound demarcate use to indicate quantity of amniotic fluid.¹ As per indications by ultrasound examination, there is a increase risk of intra-partum fetal anguish in pregnant females with oligohydramnios²⁻⁵. The accurate pathophysiologic method of oligohydramnios has not been identified, but during uterine contractions umbilical cord risk is one likely explanation. The aim of present study is to evaluate low amniotic fluid as a forecaster of perinatal outcome in low risk pregnancy at term.

MATERIAL AND METHOD

The case control prospective study was conducted at Shahida Islam Teaching Institute, Lodhran during the period from August 2016 to December 2017. Pregnant females were separated into two groups i.e. Group-A and Group-B, first 100 consecutive pregnant females with amniotic fluid index (AFI) of ≤ 5 cm with low risk pregnancy at term were included and in Group-B, subsequently 100 pregnant females with amniotic fluid index of ≥ 5 cm & ≤ 20 cm were included. In our study, the the criteria for inclusion

were females with singleton, non anomalous pregnancy with intact membrane, term. The females were excluded from this study were previously perinatal loss, previous caesarean section, recurrent missed abortions, post term pregnancy, intrauterine growth restriction (IUGR) evidence, medical disorder which has effect on feto-maternal results e. g. hypertension, diabetes as well as cardiac disease. In present study, in all cases an admission to cardiotocography (CTG) was done. Both group-A and group-B matched for parity, age, non anomalous conceptus, gestational age & intact membranes. The outcome measures were delivery type, meconium presence, CTG (cardiotocography) changes, at five minutes apgar score, neonatal unit admission and perinatal mortality. The statistical analysis was performed. On quantitative variables student's *t* test apply. Fisher exact test / chai square were applied on qualitative variables.

RESULTS

During the period of study there were 100 females with amniotic fluid index ≤ 5 cm and 100 females with amniotic fluid index ≥ 5 cm. Both group-A and group-B matched for including & excluding criteria.

In present study between these two groups there was not difference significantly in fetal abnormalities of heart rate. Although variable

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decelerations in females with ≤ 5 cm AFI, i.e. group-A, were more common but it was not significant dissimilarity in the rate of caesarean section. Likewise no significant dissimilarity in instrumental vaginal delivery incidence among these two groups. In group-A, there were 12 females with meconium stained liquor and in group-B 10 females with meconium stained liquor and this outcome was not statistically significant. In each group, no baby with ≤ 7 apgar score. In both groups A&B, there is no neonatal unit admission & no perinatal mortality (Tables 1-4).

Table-1: Cardiotocographic (CTG) Changes

| Cardiotocographic CTG Changes | Group | |
|-------------------------------|---------------------------|---------------------------|
| | A (n=100) ≤ 5 cm AFI | B (n=100) ≥ 5 cm AFI |
| Reactive | 80 | 86 |
| Non reactive | 2 | 6 |
| Persistent Fetal Tachycardia | 2 | 0 |
| Variable Deceleration | 8 | 2 |
| Fetal Bradycardia | 8 | 6 |

$p \geq 0.05$

Table-2: Delivery Type

| Type of Delivery | Group A | Group B |
|------------------------|---------|---------|
| Vaginal (Normal) | 70 | 72 |
| C-Section | 24 | 20 |
| Vaginal (Instrumental) | 06 | 08 |

$p \geq 0.05$

Table 3: Meconium Presence

| | Group A | Group B |
|------------------|---------|---------|
| Meconium Present | 12 | 10 |
| Meconium Absent | 88 | 90 |

$p \geq 0.05$

Table-4: APGAR Score at five minutes

| Score | Group A | Group B |
|----------|---------|---------|
| ≤ 7 | 0 | 0 |
| ≥ 7 | 100 | 100 |

$p \geq 0.05$

DISCUSSION

In high risk pregnancies lessen amniotic fluid carries increased risk of intra-partum complications.^[6] However, conflicted views expressed in different studies therefore the picture in low risk pregnancies is not clear^{7,8}. After excluding the cases of high risk from this study, we did not find significant dissimilarity in females with low amniotic fluid index at term.

Deceleration variable is identifying to be the outcome of cord compression in labour. Increase risk of variable deceleration in female with low amniotic fluid index was observed in this study which is not statistically significant. Between the two groups, there was no difference significantly pertaining to Cardiotocographic changes. Further, no important difference in C-Section rate among the two groups. These outcomes were coherent with trials held by

Ghosh and Desai.^{7,9} But these were not consistent with the outcomes of Jandial et al and Umber which showing the incidence of non-reassuring fetal heart rate increased significantly, C-Sections and decelerations in females with low amniotic fluid index¹⁰⁻¹¹.

Indicator for fetal distress in meconium staining and in new born it has own complications. No significant difference of meconium staining incidence in two groups was present. There was no admission to neonatal unit and no baby with ≤ 7 APGAR score at five minutes and no perinatal death in each group. These outcomes were not consistent with some trials but consistent with certain studies^{7,9-12}.

CONCLUSION

In this study, it is conclude that these outcomes pointed out that there is no significant difference pertaining to cardiotocography changes, delivery type, and perinatal outcome in low risk females with decreased and normal amniotic fluid index at term and meconium staining.

This can be the base evasion of needless induction for low amniotic fluid index in low risk females at term. There is need for larger trials in this regard because there is very litter / some trials on low risk females with lessen amniotic fluid index (AFI).

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