FETAL OUTCOME OF INDUCTION OF LABOUR AT TERM VERSUS EXPECTANT MANAGEMENT FOR ELDERLY NULLIPAROUS MOTHERS

BUTT F.,[1] ZAFAR R.[2] AND MAQBOOL M.[3]

[1,2]Department of Gynae and Obs, Sharif Medical and Dental College
Visiting Consultant Sharif Medical City Hospital, Raiwind Road, [3]Lady Willingdon Hospital, Lahore

ABSTRACT

Background and Objective: Maternal age is an important determinant of pregnancy outcome. The women of age 35 years or more undergoing there first pregnancy are often classified as high risk obstetrics patients. Induction of labor and expectant management is a serious challenge in these patients. The objective of the study was to determine the perinatal outcome of elective induction with expectant management in elderly nulliparous women ≥35 years of age at term (≥ 39 weeks of gestation)

Methods: In this study, 222 mothers of age ≥ 35 years were enrolled from the Obstetrical Department Lady Willingdon Hospital after informed consent. Randomization was done by convenient sampling into two groups 111 patients in each. In Group-A induction of labor and in Group-B expectant management was done. Data was analyzed by SPSS version 22.

Results: In this study mean age in induction (Group-A) was 37.30 ± 2.27 years and in expectant management (Group-B) was 37.40 ± 2.28 years. There were 55 (49.5%) obese and 56 (50.5%) non-obese and in group-B (expectant group) there were 44 (39.6%) obese and 67 (60.4%) non-obese female (p-value > 0.05). In group-A there were 5 (4.5%) and in group-B 13 (11.7%) perinatal mortalities were observed (p-value 0.049). There were 4 (3.6%) still births in group-A and 6 (5.4%) in group-B, (p-value 0.518). Neonatal deaths were significantly higher in group-B (6.3%) when compared to group-A (0.9%), p-value 0.031.

Conclusion: Expectant management had higher perinatal mortality as compared to induction of labour in elderly nulliparous women at term.

Key Words: Pregnancy, maternal age, maternal complications, perinatal death.

INTRODUCTION

Maternal age is an important determinant of pregnancy outcome. The women of age 35 year or more undergoing there first pregnancy are often classified as high risk obstetrics patients. This dilemma is seen in UK where childbirth has risenabove 35 years of age.[1] And the proportion of women giving birth rise from 8% in 1985 to 20% in 2006.[2] Main reason behind this is pursuit of education career, late marriages and improved contraception techniques.

Adverse maternal and fetal outcome were frequently observed in old age mothers.[3] The risk of intrauterine fetal demise is particularly important because of concern of future childbirth which less likely happened in these women. After 37 weeks of gestation the risk of intrauterine fetal demise has increased, therefore induction at or before term can be considered in these women to improve neonatal outcome. This age related risk of late stillbirth rise from 1/1000 at less than 35 years to 2/1000 in women above 40years.[4]

In a study by Stock SJ, et al, it was observed that at 40 weeks of gestation the perinatal mortality was 0.18% in expectant management group as compared to 0.08% in induced group (p > 0.05). This study was done for all age women.[5]

Most obstetricians are already inducing elderly women at term as induction of labour improve the perinatal outcome without increasing the rate of cesarean section.[6] Recently there are no guidelines available for older mothers whether induction of labor or expectant management should be carried out.

Previous studies have found that older nulliparous woman have no high risk for adverse outcome. This study was undertaken to see whether nulliparous women have high rates of pregnancy related complication and adverse neonatal outcome and whether an increased risk may be attributed to factor associated with increasing maternal age.

OBJECTIVE

To determine the perinatal outcome for elective induction of labour versus expectant management in elderly

nulliparous women ≥ 35 years of age at term.

Sample Size

A total of 111 females in each group (a total of 222) were taken in this study, sample size is calculated using results of our pilot study i.e. In group-A (induction group) there was 1 (5%) and in group-B (expectant management) there were 3 (15%) perinatal mortalities, at 80% power of study and 5% margin of error.

Study Design

Interventional study.

Sample Technique

Non probability convenient sampling.

MATERIAL AND METHODS

After informed consent222 mothers of age at or > 35 years were enrolled from the obstetrical department of LWH in three year duration who fulfill the inclusion criteria. Patients weredivided in two equal groups of 111 each: induction of labor (group A), expectant management (group B) as per operational definition.

Data was collected regarding booking status and pregnancy complications. In order to decrease the bias maternal age was confirmed by date of birth from patient identity card and duration of gestation was confirmed by the ultrasound performed before 22 weeks of gestation. Both groups were informed about the risks of induction versus expectant management. Women with group B were explained about spontaneous onset of labour till 41 weeks or unless situation developed necessitating either induction of labour or cesarean section. During this period she had regular antenatal visits at weekly interval in obstetrical department and assessment of fetal well-being by doing cardiotocography and liquor volume was assessed by ultrasound at each visit.

Women with group A (induction of labour) was informed about the method of induction and preliminary CTG performed for assessment of fetal health. Bishop score was assessed and prostaglandin E2 was used vaginally for total doses of 3 after every 6 hours. Once labour was established artificial rupture of membranes was done to see color of liquor and where progress of labour was slow than augmentation of labour was done with syntocinon infusion. Labour was monitored on partogram to detect dysfunctional labour. Fetal monitoring was done by intermittent auscultation of fetal heart rate.

Assisted instrumental delivery was carried out if required in second stage of labour .Cesarean section was carried out if there is fetal distress or instrumental delivery not possible. At birth Apgar score of baby was assessed at 1 and 5 minutes. All babies were assessed for perinatal mortality. All the information was collected on proforma.

Inclusion Criteria

Patients included in study were all nulliparous patients of 35 or more years of age at ≥ 39 weeks of gestation (assessed on USG) with singleton live fetus and cephalic presentation.

Exclusion Criteria

Patients excluded from study were those women suffering from medical disorders like diabetes mellitus, anemic (less than 11gml/dl), major degree placenta previa, treated infertility with IVF, previous myomectomy and late booking after 22 weeks of gestation (assessed by antenatal record).

Operational Definition
Expectant Management

The women will go into spontaneous labour without any medical or surgical intervention.

Induction of Labor

It is initiation of uterine contractions by artificial means prior to their spontaneous onset leading to progressive dilatation and effacement of cervix and delivery of baby. Labor will be induced after gestational age of 39 weeks by prostaglandins.

Perinatal Mortality

It includes intrauterine deaths after 39 completed weeks of gestation (stillbirth) and death before 7 completed days of life (neonatal deaths).

Data Analysis

All the collected data was entered and analysed by SPSS version 20. Qualitative data like perinatal mortality (yes or no) was presented as frequency distribution. Quantitative data like age (in years) and gestational age (weeks) was presented as means ± standard deviation. The two groups were compared for perinatal mortalities and Chi-square test applied with P-value ≤ 0.05.

RESULTS

During this study 222women were enrolled .Mean age of females in Group A was 37.05 ± 2.16 and in Group-B 37.40 ± 2.28 years. In group-A (induction group) there were 55 (49.5%) obese and 56 (50.5%) non-obese and in group-B (expectant group) there were 44 (39.6%) obese and 67 (60.4%) non-obese females, with statistically same BMI, (p-value 0.137). In Group-A there were 5 (4.5%) and in Group-B 13 (11.7%) perinatal mortality, p-value 0.049 (Table 1).

Rate of still birth was statistically same in both study groups, i.e. 4 (3.6%) in group-A and 6 (5.4%) in group-B, p-value 0.518. Rate of neonatal death was significantly higher in group-B (6.3%) when compared to group-A (0.9%), p-value < 0.031

When data was stratified over BMI, we found no

significant difference of prenatal mortality in obese (p value 0.084) and non-obese females (p value 0.230) (Table 2).

DISCUSSION

In the past few decades, significant increase in maternal age between 40 – 45 years at child birth in many income countries. Advance maternal age associated with adverse pregnancy outcome low birth weight, unexplained fetal death, perinatal mortality and increased rate of cesarean section. Two confounding factors which affect the pregnancy outcome include parity and BMI on advance maternal age.[7] In this study nulliparous women were selected and body mass index calculated to see the impact of adverse pregnancy outcome on advance maternal age. Mean maternal age in Group-A was 37.30 ± 2.27 years and in group-B 37.40 ± 2.28 years.

This study was conducted because there are no studies conducted in Pakistan to see the effect of advance maternal age on fetal outcome so larger studies will be conducted. Although the reason behind this pathogenesis of adverse pregnancy outcome in advance maternal age is not known but pre-pregnancy weight and lower socioeconomic status have confounding effect. When obesity was compared high BMI (> 30 Kg/m2) there were 55 (49.5%) women in Group A and 44 (39.6%) in group B while low BMI (< 30 kg/m2) seen in 56 (50.5%) in Group A and 67 (60.4%) in Group B respectively (p value 0.137). When we studied perinatal mortalities all were non obese women. The results werecomparable to study conducted by Loiuis C keny of advance maternal age on adverse pregnancy outcome.[8]

Co-morbidities like hypertension and diabetes were increasingly prevalent in old mothers and this increased likelihood of macrosomia, preterm delivery and perinatal mortality. Cleary-Goldman et al in cohort 36,056 study confirmed association of these comorbidities. In this study we have excluded mothers suffering from these disorders.[9]

A multicenter prospective randomised control trial by Kate WF Walker is going on to see the cesarean section rate and perinatal outcome in induction versus expectant group in old age mothers. As most of the obstetrician did not induce these women because of personal preference of women or fear of emergency cesarean section in induced group and increased perinatal mortality.[6] A recent trial by Jhonson M of induction of labour at term have found that more woman had successful vaginal deliveries, less likely neonatal admissions, adverse perinatal outcome, and cesarean section rate remain the same despite high risk of emergency cesarean section in induced group.[10]

In this study we observe the impact of perinatal outcome (Still birth and neonatal deaths) in induced

Table 1: *Comparison of Perinatal Mortality among Study Group.*

	Study Group		P value
	Group A N = 111	Group B N = 111	
Stillbirths	4 (3.6%)	6 (5.4%)	0.049
Neonatal Deaths	1 (0.9%)	7 (6.3%)	
Perinatal Mortality	5 (4.5%)	13 (11.7%)	

Table 2: *Comparison of Perinatal Mortality among Obese and Non Obese Group.*

Body Mass Index	Perinatal Mortality	Group A	Group B	P Value
Obese (>30kg/m2)	Yes	3 (5.5%)	7 (15.9%)	0.084
	No	52 (94.5%)	37 (84.1%)	
Non Obese (<30kg/m2)	Yes	2 (3.6%)	6 (9.0%)	0.230
	No	54 (96.4%)	61 (91.0%)	

and expectant mothers 5 perinatal deaths (4.5%) were found in expectant mothers as compared to 13 (11.7%) in induced group (p value 0.049).

A study by Rath Won increased risk of still births in older mother – a rationale for induction of labour before term that independent of maternal age the cumulative probability of perinatal deaths increase from 1.8/1000 deliveries at 38 weeks of gestation to 9.3/1000 deliveries at 42 weeks of gestation and 40% high risk of cesarean section. So induction of labour at 39 weeks should be offered in high risk women of advance mother age.[11] Till such time a conseusis being made an individual risk – benefit analysis regarding the obstetric management is mandatory and the final decision should be made in agreement between the pregnant women and obstetrician.

It is ***concluded*** that pregnancy in elderly primigravida considered as high risk so induction of labour at term women can improve the pertinatal outcome as compared to expectant management.

Contribution of Authors

FB: Suggested proposal, designed research work, analyse the data, writing manuscript. RZ: Helped in writing manuscript, helps in collection of data and interpretation of results. MM: Collected data, and help in compilation of results and contributed in writing results.

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