

Comparison of Active & Conservative Management of Post-Term Pregnancy: A Quasi- Experimental Study

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ABSTRACT

Objective: To compare the maternal and perinatal outcomes of prolonged pregnancy between active and conservative group.

Study Design: Quasi experimental study.

Place and Duration of Study: This study was conducted at the Department of Obstetrics / Gynaecology Unit-1, Mother and Child Health Centre, Pakistan Institute of Medical Sciences, Islamabad from March 2003 to Feb. 2004.

Materials and Methods: There were one hundred cases, fifty in each group with a technique of convenient sampling. Women with uncomplicated pregnancies at ≥ 41 weeks & ≤ 43 weeks were included, excluding the women with obstetrical and medical risks. Women were divided into active and conservative groups. Active group was induced with PGE₂(Prostaglandin-E₂) and conservative group had follow ups twice weekly till 43 weeks. Pregnancy was intervened during this period if CTG (cardiotocogram) was abnormal, BPP (biophysical profile) was 6/8 with AFI (amniotic fluid index) ≤ 5 and/or woman complained of decreased fetal movements. Maternal outcome measures included duration of labor and mode of delivery and fetal/neonatal outcome measures included intra-partum fetal distress, one and five minutes Apgar score and NICU (neonatal intensive care unit) admissions.

Results: Comparison of both groups management showed that mean duration of labour in active group was prolonged than that of conservative group ($p=0.001$). Interventional deliveries rate was high in active group than conservative group with p value significant statistically. Comparison of intra-partum fetal distress, neonatal morbidity including 1 minute, 5 minute Apgar score and admissions to NICU in both groups was not statistically significant. There was no perinatal mortality in both groups.

Conclusion: Active management of prolonged pregnancy increases the maternal morbidity without improving perinatal outcome.

Key-Words: Prolonged pregnancy, Post-term pregnancy, Postdate pregnancy.

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INTRODUCTION

Post-term pregnancy is defined as a pregnancy that extends to 42 0/7 weeks and beyond¹. The reported frequency of post -term pregnancy is approximately 3-12%². Most frequent cause of a post-term pregnancy diagnosis is inaccurate dating³. Risk factors for actual post-term pregnancy are prior post-term pregnancy, primiparity, male gender of the fetus, and genetic factors⁴.

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Ballantyne for first time in 1902 described post-term pregnancy⁵. Because of global and frequent use of antenatal testing, post term pregnancy got prominence in the last ten years as a probable high-risk condition. Post term pregnancy is labeled as high risk condition as a result of the inability to find the appropriate sensitive antenatal tests rather than from the acceptance of its truly life threatening condition for some fetuses. This is further strengthened by review of publications that state, perinatal mortality is the same among prolonged and term gestations. Management of post term pregnancy is one of the most common clinical dilemmas that obstetricians face. The two methods of management of prolonged pregnancy have advantages and disadvantages. So which method of management to be selected is a question?⁶ The complications of induction include, high rate of operative vaginal delivery, prolonged labor, uterine rupture, uterine hyper stimulation, epidural analgesia, , failed induction, water intoxication, cord prolapse and low Apgar score at 1 & 10 minutes⁷.

Expectant management can result in maternal and neonatal complications, e.g. it increases the chance of operative delivery and can lead to problem of decreased

liquor, meconium aspiration, intra-partum asphyxia, stillbirths and neonatal deaths^{8,9}.

Development of several methods for the assessment of fetal well-being has allowed the obstetricians to consider expectant management. Best way is to assess the fetal well-being by using fetal monitoring modalities. If there is no evidence of fetal compromise, wait for spontaneous labour. In case of fetal compromise intervention can be done in form of induction of labour¹⁰.

MCH center is a tertiary care center where facilities for antepartum fetal surveillance like CTG and Ultrasound based Biophysical profile are available and most of the patients visiting this hospital are well educated and sensible enough to keep record of fetal movements at home. Therefore, at our center conservative management is feasible and possibly can be compared with the active management of such patients. This study was undertaken to compare the maternal and perinatal outcome between active and conservative group in the management of prolonged pregnancy.

MATERIALS AND METHODS

All the women with uncomplicated singleton pregnancies and gestational age of ≥ 41 weeks and ≤ 43 weeks were considered for the study. The gestational age was calculated by last menstrual period, (provided patient was sure of her dates and with regular cycles) urine pregnancy test, or by first or second trimester ultrasound (if patient was unsure of her dates, irregular cycles, lactational amenorrhoea or patient was on oral contraceptive pills). If first or second trimester ultrasound was not available and patient was not sure of her dates, she was excluded from the study. After confirming the gestational age, women were evaluated for other medical and obstetrical risks. Ultrasound based BPP and CTG were done. The women were recruited in the study if their BPP score was 8/8 or 6/8 with normal liquor and CTG was reactive, after taking their written informed consent. We also explained to them the pros and cons of both methods of management and about follow up visits twice weekly to those, in the conservative arm of the study. Women were divided into active and conservative groups.

Active group (group-1): Women of active group were admitted in the antenatal ward and induced with Prostaglandin-E₂, irrespective of bishop score, at 12.00 mid night in high dependency area adjacent to labour ward (a separate set up for high risk cases). Single inducing agent was used in all women, as different inducing agents have different efficacies. Maximum three tablets were used to induce the labour. In case of failure, second mode of induction (extra amniotic saline infusion with Syntocinon) was used. If still labour could not be induced, induction was labelled failed and Caesarean section was performed.

Conservative group (group 2): Women of conservative group had follow up twice weekly and on each visit had ultrasound based biophysical profile, CTG, and bishop score till 43 weeks, provided they did not go into spontaneous labor themselves. They were directed to keep record of fetal movements at home and advised to report to the hospital if they had decreased movements (less than 10 movements in 12 hours). Pregnancy was intervened during this period if CTG was abnormal, BPP was 6/8 with AFI ≤ 5 and woman complained of decreased fetal movements.

RESULTS

Total of 100 cases (50 in each group) of low risk pregnancies, fulfilling the study criteria were recruited in the study. All the patients regularly paid visits to the hospital and there was no loss to follow up case. Both groups were successfully matched in age, parity, height and weight to rule out confounding factors (Table 1). Mean duration of labor in active group was more than conservative group with *p* value equal to 0.0001 (Table 2).

Table No.1: Comparison of maternal demographic characteristics

Variable	Active group n=50	Conservative group n=50	P-value	
Age (YEAR \pm SD)	27.4 \pm 4.9	27.6 \pm 4.8	0.838	
• Primi	22.8 \pm 2.42	22.7 \pm 2.5		
• Multi	30.9 \pm 3.06	30.8 \pm 3.04		
Height (CM \pm SD)	162 \pm 4.8	161 \pm 4.9	0.6	
Weight (KG \pm SD)	62 \pm 8.1	63 \pm 8.2	0.75	
Parity (%)	Primi	42	42	1
	Multi	58	58	1

Table No.2: Comparison of maternal outcome.

Maternal outcome		Active group n= 50	Conservative group n=50	P-value
Duration of Labour	All patients	9.02 \pm 1.87	5.45 \pm 1.61	0.001
	Primipara	10.47 \pm 1.33	7.03 \pm .83	0.001
	Multipara	8.04 \pm 1.51	4.44 \pm 1.05	0.001
Mode of Delivery	SVD	33	42	0.03
	C- section	12	7	0.03
	Instrumental Delivery	5	1	0.03

Interventional deliveries (instrumental deliveries and C-section) rate was high in active group than in conservative group (Table2). Intra-partum fetal distress monitored by CTG and color of liquor was not much different between two groups (Table 3). One minute and five minute Apgar score was same between the two groups with non-significant *p* values of .631 and .534, respectively (Figure1&2). Neonate's admissions to

NICU were 12.2% (6) in active group and 16.3% (8) in conservative group and difference is not significant statistically (Table 3). No perinatal mortality was observed between two groups.

Table No.3: Comparison of perinatal outcome

Perinatal outcome		Active group n=50	Conservative group n=50	P-value
Intrapartum CTG	Reactive	43	42	0.94
	Non-reactive	4	5	0.90
	Pathological	3	3	0.94
Intrapartum Meconium Staining of Liquor	No	42	39	0.77
	Grade-I	3	6	0.74
	Grade-II	3	3	0.71
	Grade-III	2	2	0.74
Neonatal Admission to NICU	No	43	41	0.56
	Yes	7	9	0.54

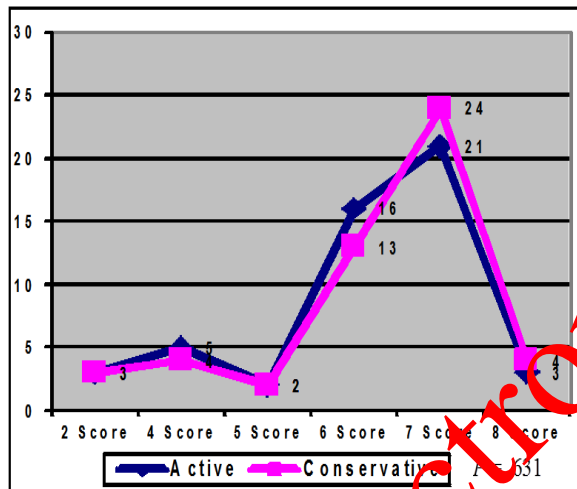


Figure No.1: Comparison of one minute apgar score

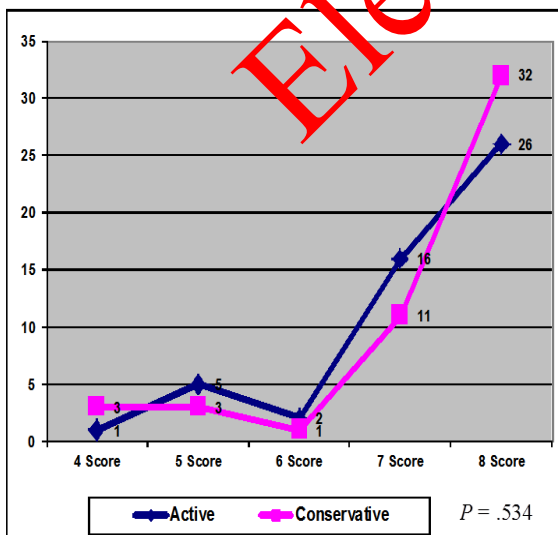


Figure No.2: Comparison of five minute apgar score

DISCUSSION

The two methods of management of prolonged pregnancy, active and conservative management have pros and cons. The correct choice of management remains controversial. Major studies to resolve these questions have been done in many parts of the world. Hannah et.al, concluded that labour induction in management of post-term pregnancy results in better outcome as it results in lower cesarean section rate¹¹. Randomized trial of induction versus conservative management conducted by Maternal-Fetal Medicine Network has supported the validity of either management option¹². A large review of births in United States of America stated that routine induction of labor at forty-one weeks is likely to increase labour complications and operative delivery without significantly improving the neonatal outcome¹³.

To unravel this question we did a prospective study of 100 cases (50 each group) comparing two management options with a hypothesis that conservative approach will decrease the maternal morbidity without increasing the perinatal/neonatal morbidity/mortality.

In our study mean duration of labour in active group (9.02 ± 1.87) was more than conservative group and difference was statistically significant. The rate of interventional deliveries (caesarean section and instrumental delivery) was high in active group as compared to conservative group and this difference was also significant statistically, as evident from the p value 0.03.

Alexander JM et.al & Thorsell M et.al also concluded that there is an increased chance of labor complications (increased duration of labor and operative deliveries) by routine induction at 41 weeks^{13,14}. James C et.al. reported, Caesarean section and instrumental delivery rate do not differ significantly between two groups¹⁵.

The data reported by Hermus MA and colleagues and one recent systemic review however showed different results stating that induction group has lower caesarean section rate than observed group^{16, 17}. A recent study concluded that induction of labour in obese women with post-term pregnancy is a safe management option and a reasonable way of avoiding caesarean section¹⁸.

In our study, the difference between the two groups was not significant statistically as far as intra-partum fetal distress, 1 min & 5 min Apgar score and admission to NICU were concerned. Sanchez RL et.al. also reported that no significant differences were observed for NICU admission rates, meconium aspiration, meconium below the vocal cords, or abnormal Apgar scores between two groups¹⁹. Opposite results are reported in systemic review with meta-analysis. It states that a policy of elective IOL for pregnancies at or beyond 41 weeks results insignificantly fewer perinatal deaths (RR=0.31; 95% CI: 0.11-0.88) and significant decrease in incidence of neonatal morbidity from meconium

aspiration (RR = 0.43, 95% CI 0.23-0.79) and macrosomia. (RR = 0.72; 95% CI: 0.54 – 0.98) compared to expectant management. So it concluded that induction of labour is a good option for reducing perinatal morbidity and mortality associated with post-term pregnancies. It should be offered to women with post-term pregnancies after informing them about advantages and disadvantages of induction of labor²⁰.

A Cochrane review of 19 RCTs found that routine labor induction at 41 weeks' gestation resulted in lower perinatal mortality rates but similar cesarean delivery rates. But to avoid or prevent one perinatal death about 500 women were needed to be induced and the number may be higher in current-day practice²¹. In a more recent meta-analysis of 16 RCTs comparing induction at 41 weeks versus conservative management, the induction group had lower cesarean section rates. A non-significant reduction in perinatal mortality rates also was recorded in the induction group. About 6,600 women were entered in this meta-analysis and to find a 50 percent reduction in mortality about 16,000 were required. No significant difference was found in neonatal intensive care unit admissions, meconium aspiration, meconium below the vocal cords, or low Apgar scores¹⁹.

All schools of thought do not agree with routine intervention in prolonged pregnancies. A commentary which was based on a re-analysis of CMPPT data argues strongly against the SOGC guidelines. It describes that the risks of post-term pregnancies are very small and that the benefits of policy of routine labor induction were overestimated because of cesarean deliveries resulting from fetal distress²². While studies consistently demonstrate a rise in morbidity and mortality rate with advancing age, perinatal deaths are rare and actual risk of either mortality or morbidity remain small. Further research is needed to assess more accurately those fetuses, which are really at risk. Currently new methods of evaluation are being analyzed. Doppler flow studies of post term fetuses have been evaluated to identify fetuses at risk. In addition, fetal echocardiography is an area that might further delineate fetuses with considerable risk for perinatal morbidity and mortality. With this new technology, it is hoped that significant morbidity and mortality in post-term gestation can be reduced considerably.

CONCLUSION

Active management of prolonged pregnancy increases the maternal morbidity without improving perinatal outcome.

Recommendation: Further research is needed to assess more accurately those fetuses, which are really at risk. Currently new methods of evaluation are being analyzed. Doppler flow studies of post term fetuses have been evaluated to identify fetuses at risk. In

addition, fetal echocardiography is an area that might further delineate fetuses with considerable risk for perinatal morbidity and mortality. With the use of this new technology, morbidity and mortality associated with post-term pregnancy can be reduced significantly.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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