Original Research Paper

Volume-7 | Issue-12 | December-2017 | ISSN - 2249-555X | IF : 4.894 | IC Value : 86.18

Gynecology

ROLE OF ROUTINE INDUCTION IN POST DATED AND PROLONGED PREGNANCY

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ABSTRACT

AIM: To compare routine labor induction with expectant management for women who reach or exceed 41 weeks gestation.

METHODS: This is a hospital based prospective study which included a sample size 100, divided into Group 1 and Group 2. Group 1 includes 50 patients who are managed by Expectant management if they don't have any other complications of pregnancy, treated conservatively till the onset of labor. Group 2 includes 50 patients who are managed by Induction who had no additional complications of pregnancy, induced with low dose of Misoprostol 25mcg vaginally, repeated 4th hourly in primi gravida and 6th hourly in multi gravida.All cases progressed with 2 or 3 doses, maximum 4 doses. Comparison was done between Induction and Expectant management for uncomplicated, singleton live pregnancies of at least 41 weeks gestation and evaluated the following: Perinatal outcome, Mode of delivery,Meconium stained liquor, Fetal heart rate abnormality during labor,Apgar scores and Neonatal intensive care unit (NICU) admissions. The primary outcomes assessed were Caesarean delivery rate and Perinatal outcome.

RESULTS: As gestational age advances there was an increase in caesarean section rate. In Group 1 C S rate was 6% in women with 40-41 weeks gestation and 10% in women with 41-42 weeks gestation. In Group 2 C S rate was 6% in women with 40-41 weeks gestation and 22% in women with 41-42 weeks gestation. This difference in C S rate is statistically significant ($p < 0.05$).It was observed that Perinatal outcome was better in 40-41 weeks gestation when compared to 41-42 weeks gestation. Perinatal mortality was zero in both the groups.

CONCLUSION: Routine labor induction at 41 weeks gestation for otherwise uncomplicated singleton pregnancies reduce caesarean delivery rates with better perinatal outcome and zero perinatal morbidity and mortality.

KEYWORDS : Postdated pregnancy, Prolonged pregnancy, Post term pregnancy, Induction Of Labor (I O L)

INTRODUCTION:

The duration of pregnancy varies between 40(+0) and 41(+3) weeks. Conventionally and essentially arbitrarily, a pregnancy is considered to be "Prolonged" after 41(+0) weeks, but the infant is not considered "Post term" until 42(+0) weeks (Professional consensus). A term birth thus occurs during the period from 37(+0) to 41(+6) weeks. The incidence of prolonged pregnancies {> 41(+0) weeks} involves 15-20% of pregnant women, and the incidence of post term pregnancies {> 42(+0) weeks} is approximately 1%. It was as early as the beginning of the last century that Ballantyne first raised the issue of the harmful consequences of a fetus staying too long in the intrauterine environment(1). Little is known about its etiology, and controversies continue about the management of such cases (2). It has been reported that in a pregnancy which crossed the expected date of delivery, there is an increased risk of oligohydramnios, meconium stained amniotic fluid, macrosomia, fetal post maturity syndrome and caesarean delivery, all of which jeopardize the baby as well as the mother (3-8).In prolonged pregnancies the caesarean section rate, especially the emergency caesarean rate is multiplied by approximately 1.5. The risk of perinatal mortality increases regularly from 0.7% to 5.8%. Meconiun aspiration syndrome is responsible for substantial morbidity and mortality and it's incidence increases regularly between 38(+0) and 42(+6) weeks, from 0.24% to 1.42%. Similarly, the risks of Neonatal acidosis, 5 min. Apgar scores less than 7 and admission to Intensive care increase progressively between 38(+0) and 42(+6) weeks. These risks appear to be doubled for Post term growth restricted new borns. Prolonged pregnancy has always been regarded as a high risk condition because perinatal morbidity and mortality is known rise. The interest in Postdatism (just beyond expected date of delivery) has been recent and the management is controversial, more so with the advent of sonography providing information about placental aging and amount of amniotic fluid (4-6). The aim of the prospective study was to compare Routine labor induction with Expectant management for women who reach or exceed 41 weeks gestation.

METHODS:

A prospective study of 100 (50+50) women was done to know the outcome of pregnancies beyond 40 weeks with regards to mode of delivery, maternal and perinatal outcome. The Inclusion criteria for study subjects were - Regular cycles with known L.M.P., Singleton pregnancy, Vertex presentation, Gestational age beyond 40 weeks and Delivery at our teaching hospital. Cases with Polyhydramnios, Eclampsia, Antepartum haemorrhage and Congenital anomalies visible on ultrasonography were excluded. Study subjects were further divided into 2 groups depending on gestation, 40-41 weeks and 41-42 weeks. 100 of such women were included in the present study. These women were divided into 2 groups. Group I-Non induced group in which women who had no other complication of pregnancy but were just postdated, treated conservatively till the onset of Spontaneous labor. Group II –Induced group in which there were no additional complications of pregnancy but were induced just for Prolonged pregnancy. Close clinical observations were made during the period of waiting for any evidence of fetal and maternal compromise and the following clinical parameters were serially observed in antenatal period.

1. Confirmation of G.A. and fetal well being by Ultrasound examination.
2. Daily fetal movement record by Cardiff count to Ten method or daily fetal movement count.
3. Maternal weight, B.P., Height of uterus and amount of liquor was adequate or not, clinically as well as sonographically.
4. Fetal compromise was detected clinically and by Non stress test (N.S.T.).
5. Intranatal record of fetal heart variations and meconium staining of liquor were observed and Fetal outcome assessed by noting 1) Apgar score at 5 min.,2) Fetal weght,3) Meconium aspiration syndrome,4) Perinatal mortality rate,5) Congenital anomalies of baby and 6) Placental anomalies.

As a routine, women with pregnancy beyond dates were treated expectantly and induced, if the amount of liquor was adequate clinically as well as sonographically.In Group II, 50 women were induced with low dose of Misoprostol 25 mcg. vaginally, repeated 4th hourly in Primigravida and 6th hourly in Multigravida. All cases progressed with 2 or 3 doses with maximum 4 doses.

RESULTS:

In Group I (Non induced), between 40-41 weeks gestation 10 (20%) were in 18-20 years age, 22(44%) were in 21-25 years, 2 (4%) were in 26-30 years and none of them were in 31-35 years age. In Induced Group, between 40-41 weeks G.A., 15 (30%) were in 18-20 years age, 19 (38%) were in 21-25 years, 6 (12%) were in 26-30 years and 1 of

them was in 31-35 years age. In Group I, between 41-42 weeks G.A., 5 (10%) were in 18-20 years age, 10 (20%) were in 21-25 years, 1 (2%) was in 25-30 years and none of them were in 31-35 years age. In Group II, between 41-42 weeks G.A.,2 (4%) were in 18-20 years age,7 (14%) were in 21-25 years age and none of them were between 26-30 years or 31-35 years age. In Group I, 21 (42%) were Primigravidas and 12 (24%) were Multigravidas between 40-41 weeks G.A. and 10 (20%) were Primigravidas, 7 (14%) were Multigravidas between G.A. 41-42 weeks. In Group II, 24 (48%) were Primigravidas, 17 (34%) were Multigravidas in G.A. between 40-41 weeks and 4(8%) were Primigravidas, 5 (10%) were Multigravidas between 41-42 weeks G.A.

In Group I, 13 (26%) were Primigravidas in the age 18-20 years, 15 (30%) were in 21-25 years, 3 (6%) were in 26-30 years and none of them were in the age group 31-35 years. Multigravidas were 2 (4%) were in age group 18-20 years, 16 (32%) were in 21-25 years, none were in 26-30 years and 31-35 years. In Group II, Primigravidas were 16 (32%) in 18-20 years age, 11 (22%) were in 21-25 years, 1 (2%) was in 26-30 years and none of them were in 31-35 years age. Multigravidas were 2(4%) in 18-20 years, 15 (30%) were in 21-25 years,4 (8%) were in 26-30 years age and 1 (2%) was in 31-35 years. Majority of them were Primigravidas in 21-25 years age in Group I. More Primigravidas were in 18-20 years and Multigravidas were more in the age group 21-25 years in Group II. In Group I, 33(66%) were in Postdated pregnancy (40+0 days) and 17 (34%) were in Prolonged pregnancy (41+0 days). In Group II, 10 (20%) were in Prolonged pregnancy (41+0 days) and 40 (80%) were in Postdated pregnancy (40+0 days).Amongst the study subjects with spontaneous labor, the C.S. rate was 8 (16%) and Instrumental delivery rate was 3 (6%).The indications for C.S. and Instrumental deliveries were Fetal distress, C.P.D. and Meconium stained liquor.39 (78%) delivered vaginally with good perinatal outcome. In Group II, C.S. rate was 14 (28%), Instrumental deliveries were 4 (8%) and 32 (64%) delivered vaginally with good perinatal outcome. Table 1 shows $p > 0.05$ which was not significant.

Table (2) shows comparison of Mode of delivery in relation to G.A. in both the groups. C.S. rate was 6% in both the groups in G.A. 40-41 weeks where as C.S. rate was more (22%) in G.A. 41-42 weeks. Instrumental delivery rate was 6% in both the groups in G.A. 41-42 weeks.

Instrumental delivery rate was 6% in Group I and 8% in Group II in G.A. 41-42 weeks where as in 40-41 weeks Instrumental delivery rate was 0% in both the groups. Normal vaginal deliveries were 23(46%) in 40-41 weeks in Group I and 26(52%) were in Group II whereas as G.A. advances Normal vaginal deliveries were reduced to 16(32%) in Group I and 6(12%) in Group II and this difference is significant. Table 2 shows p value less than 0.05 and this is significant.

In Group I one C.S. due to fetal distress with meconium stained liquor and one C.S. due to Cephalopelvic disproportion with fetal distress in 40-41 weeks G.A. was present. There were 3 C.S. due to fetal distress with meconium stained liquor and 3 C.S. due to Cephalopelvic disproportion with fetal distress in 41-42 G.A. In Group II, 3 C.S. were due to fetal distress with meconium stained liquor, one C.S. was for Cephalopelvic disproportion with fetal distress in 40-41 weeks G.A.There were 8 C.S. for fetal distress with meconium stained liquor and 2 for Cephalopelvic disproportion with fetal distress in 41-42 weeks G.A.This difference was not significant ($p > 0.05$) as shown in Table(3).

In Group I, 31(62%) babies were with Apgar 9-10 and 2 (4%) were with Apgar 8-9 in 40-41 weeks G.A. 3 (6%) babies were with Apgar 9-10 and 14 (28%) babies were with Apgar 8-9 in 41-42 G.A. In Group II, 31 (62%) babies were with Apgar 9-10, 1 (2%) baby was with 8-9 in 40- 41 weeks G.A. and 10 (20%) babies were with Apgar 9-10, 8(16%) babies were with Apgar 8-9 in 41-42 weeks G.A. This difference is significant (p value < 0.05) shown in Table (4).

In Group I, in 40-41 weeks G.A. weight of babies was 2600-3000 grams in 16 (32%), 18 (36%) were in 3100-3500 grams and 1 (2%) baby was in 3600-4000 grams. In 41-42 weeks G.A., 7 (14%) babies were in between 2600-3000 grams, 5 (10%) babies were in 3100-3500 grams and 3 (6%) babies were in 3600-4000 grams. In Group II, in 40-41 weeks G.A.,4 (8%) babies were in 2100-2500 grams, 16 (32%) babies were in between 2600-3000 grams,17 (34%) were in between 3100-3500 grams and 4 (8%) babies were in between 3600-4000 grams. In 41-42 weeks G.A., 2 (4%) babies were in between 2100-2500, 3 (6%) babies were in between 2600-3000 grams and 4 (8%) babies were in between 3100-3500 grams.

DISCUSSION:

Some pregnancies last longer than 40 weeks and the risk of perinatal mortality is believed to increase in pregnancies that last one or more weeks after the expected date of delivery. It is debated whether or not the Induction of labor would result in a better pregnancy outcome in women who cross the expected date of delivery. There is reluctance on the part of some to advocate routine induction because of the presumed possibilities of increased operation deliveries and hence increased morbidity. Recent reports indicate that induction of labor by 41 weeks G.A. is actually associated with reduced risk of perinatal mortality(9) and a decrease in C.S. rate for fetal distress(10).The results of the Cannadion multi center post term pregnancy trial (11) also provides evidence to support induction of labor at 41 weeks G.A. Our observations are similar.In the present study 39 women (78%) had spontaneous delivery, 3 women (6%) had instrumental delivery and 8 women (16%) delivered by C.S. in Group I ,whereas in Group II 32 women (64%) delivered vaginally, 4 women (8%) had instrumental delivery and 14 women (28%) delivered by C.S.,Table (1).Table(2) shows Group I, 23 women (46%) delivered vaginally in 40-41 weeks G.A., whereas in Group II 26 women (52%) delivered zvaginally. There was no significance in this G.A. In G.A. 41-42 weeks, C.S. rate was 10% (Group I) and 22% (Group II), This C.S. rate was more when compared to outcome in G.A. 40-41 weeks. In 41-42 weeks G.A., Instrumental deliveries were 6% in Group I and 8% in Group II which shows that, as G.A. increases the C.S rate and Instrumental deliveries have increased. As G.A. advances, there was difference in Apgar score. In Group I, 3 babies were with Apgar 9-10 between 41-42 weeks compared to 31 babies were with Apgar 9-10 in 40-41 weeks G.A. In 40-41 weeks G.A., 2 babies were with Apgar 8-9 whereas 14 babies were with Apgar 8-9 in 41-42 weeks G.A. In Group II, 8 babies were with Apgar 8-9 in 41-42 weeks G.A. and only 1 baby was with Apgar 8-9 in 40-41 weeks G.A. 31 babies were with Apgar 9-10 in 40-41 weeks G.A. compared to 10 babies with Apgar 9-10 in 41-42 weeks G.A. More babies (8) were with Apgar 8-9 in G.A. 41-42 weeks compared to 1 baby with Apgar 8-9 in 40-41 weeks G.A. This study shows an increase in C.S. rate as G.A. advances, compared to doubling in C.S. rates (14% versus 7% at term)(Rand et al.,2000.,Campbell et al.,1997.,Alexander et al.,2000.,Tregar et al.,2002). In this study elective induction resulted in a lower C.S. rate (6% versus 22%) compared to C.S. rate (21.2% versus 24.5%)(Hannah et al.,1992). By elective induction at 41 weeks G.A., the risk of meconium stained liquor was reduced, but the risk of meconium aspiration syndrome and neonatal seizures were unaffected (Crowley., 2004).Hence the decision regarding the Expectant versus Active management of Postdate/Prolonged pregnancy should depend on balancing the effectiveness of induction against the effectiveness of increased fetal surveillance for preventing fetal and neonatal loss (6, 12). It was also observed that elective induction was not associated with increase in operative delivery. Overall there was significant difference in perinatal outcome as the G.A. advances. If a woman with prolonged pregnancy has adequate amount of liquor and there is no fetal compromise, she could be managed expectantly and routine induction by 41 weeks G.A. Routine induction reduces C.S. rate (JFAMPRACT.2003).

CONCLUSION:

Forty two weeks of gestation does not represent a threshold under which risks are uniformly distributed and there is evidence that fetal, neonatal and maternal complications do increase before 42 weeks (From 38-39 weeks onwards with an obvious rise after 40 & 41 weeks gestation). Therefore the definition and management of Postdated and Prolonged pregnancy have been challenged in several studies in recent years. In the light of the current evidence earlier intervention with IOL at 41 weeks appears appropriate management. So we conclude that in the light of the current evidence IOL at 41 weeks is justified to minimize both fetal and maternal complications. A policy of labor induction at 41 weeks gestation for otherwise uncomplicated singleton pregnancies reduces C.S. delivery rates without compromising perinatal outcomes.

TABLE-I

Mode of delivery In Spontaneous and Induced Groups

Group I&II	NVD	%	Forceps Deliver	%	LSCS	%
Spontaneous group	39	78%	3	6%	8	16%
Induced Group	32	64%	4	8%	14	28%

Not significant - P value more than 0.05

Table.II

Mode of delivery in relation to Gestational Age

GA in weeks	Spontaneous group						Induced group					
	NVD	%	Forceps delivery	%	LSCS	%	NVD	%	Forceps Delivery	%	LSCS	%
40-41 Weeks	23	46%	0	0%	3	6%	26	52%	0	0%	3	6%
41-42 Weeks	16	32%	3	6%	5	10%	6	12%	4	8%	11	22%

Table.II significant - P value less than 0.05

TABLE.III

Indications for Caesarean Section

GA in W	Spontaneous Group				Induced Group			
	Foetal distres	%	CPD with FD	%	FD+Meconium Staining	%	CPD with FD	%
40-41 W	1	2%	1	2%	3	6%	1	2%
41-42 W	3	6%	3	6%	8	16%	2	4%

Not Significant- P value more than 0.05

TABLE IV

Perinatal outcome in Both groups

GA in W	Spontaneous group -Apgar Score				Induced group-Apgar Score			
	8-9	%	9-10	%	8-9	%	9-10	%
40-41 W	2	4%	31	62%	1	2%	31	62%
41-42 W	14	28%	3	6%	8	16%	10	20%

Table IV significant- P value less than 0.05

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