

ORIGINAL RESEARCH

Study of perinatal morbidity and mortality in postdated cases in tertiary care hospital

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ABSTRACT

Introduction: The obstetrician has to play pivotal role. In life, time plays an important role and nobody is blessed with immortality and so does the fetus. The problem of postdatism is subject of concern to couple and the obstetrician. With this objective present study was planned to study of perinatal morbidity and mortality in postdated cases in tertiary care hospital. **Material and methods:** A prospective study of 80 cases of uncomplicated prolonged pregnancies was done during the period of one year at teaching hospital in our hospital. Study was approved by Institutional Ethics Committee. Sample size estimation was done by expert. Age, Gravidity and parity Gestational age LMP (Last Menstrual Period) Early ultrasound Other associated risk factors Antepartum foetal surveillance. Induction was preceded with reactive NST Written valid informed consent taken. Depending on Bishops score and NST after 6 hrs. of cerviprime PGE_a gel instillation either augmentation with oxytocin was considered. In labour, patients were clinically monitored for progress of labour foetal distress & colour of liquor. **Results:** Thus it is evident that incidence of meconium stained amniotic fluid has increased from 21.6% in 40-41 weeks to 100% in 42 weeks i.e. with advancing gestational age. However MAS was seen only in 4 patients. In a study conducted by Shime et al meconium was 28% in prolonged pregnancy and 17.71% in control pregnancies which is not statistically significant. Also to study conducted by NICHHD meconium was detected with equal frequency in all age groups. None of the patients with thin or absent meconium develop meconium aspiration. Meconium stained liquor Meconium aspiration syndrome Apgar score < 7/10 Birth Asphyxia Postmaturity Syndrome Congenital Anomalies Perinatal Mortality. **Conclusion:** In conclusion, thus management of postdated pregnancy should be tailored for an individual case and depends on the obstetrician and facilities available. There should be harmonious blend of skill and judgement to give healthy baby to a healthy mother.

Keywords: Perinatal mortality, conception, delivery

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INTRODUCTION

The obstetrician has to play pivotal role. In life, time plays an important role and nobody is blessed with immortality and so does the fetus. The problem of postdatism is subject of concern to couple and the obstetrician.¹ The obvious reason is that postdatism is associated with increased risk of perinatal morbidity and mortality.² During the ensuing years the issue of postdated pregnancy its risk and its management have generated a great controversy the net effect is obstetrician is faced with a decision regarding the optimal management of the patients. Often this requires balancing of relative risks associated with expectant management versus delivery.³ It is difficult to have a uniform policy to manage post dated pregnancy. The management has to be tailored to suit the facilities available at each center. Thus the

management of postdated pregnancy remains obscure Authoritative opinion not just varies considerably but completely. Central to the whole controversy is whether the foetus is at increasing risk or not. With this objective present study was planned to study of perinatal morbidity and mortality in postdated cases in tertiary care hospital.⁴

MATERIAL AND METHODS

A prospective study of 80 cases of uncomplicated prolonged pregnancies was done during the period of one year at teaching hospital in our hospital. Study was approved by Institutional Ethics Committee. Sample size estimation was done by expert. Age, Gravidity and parity Gestational age LMP (Last Menstrual Period) Early ultrasound Other associated risk factors Antepartum foetal surveillance

-NST
 -USG Mode of Management and Delivery

SELECTION CRITERIA

Only those patients with exact dates by last menstrual date and with regular cycles and those who had not taken oral contraceptives for at least 3 cycles before last menstrual period were chosen.

1. Low Risk
2. 40 weeks by excellent dates.
3. Singleton pregnancy.
4. Minimum 4 antenatal visits.
5. Early ultrasound

The patients were divided into 2 groups

1.Spontaneous Labour Group

Patients who either came in spontaneous labour or in whom onset of labour was awaited.

2. Patient in whom labour was induced.

METHOD OF INDUCTION

Stripping of membranes Cerviprime instillation PGE₂ gel Oxytocin drip Elective Cesarean Section .Antepartum surveillance was done biweekly by Non stress test Ultrasound

NST

A corometrics 115 foetal monitor was used with paper speed of 1 cm / min to perform NST.

Foetal movements were recorded in the lower channel of graph as and when with a event marker foetal heart

rate recording was done by placing the ultrasound transducer after application of coupling jelly on the maternal abdomen. Strip of 20 min. was removed. If NST was non reactive 40 minutes strip was removed. All reactive NST repeated > 72 hours.

REACTIVE PATTERN

Baseline heart rate 110 to 150 b/m 1 spontaneous movement in 20 minutes Foetal heart rate acceleration of about 15 b/m No spontaneous deceleration Baseline variability 5 to 15 b/min

NON REACTIVE NST

Not satisfying above criterion or occurrence of spontaneous decelerations. Ultrasound was done to estimate

1. Gestational Age
2. Placental Grade
3. Amniotic fluid index

AFI calculated by four quadrant technique AFI < 5 was considered as oligohydramnios in our study.

In the induced group of patients.

Induction was preceded with reactive NST Written valid informed consent taken. Depending on Bishops score and NST after 6hrs.ofcerviprimePGE_a gelinstillation either augmentation with oxylocin was considered.

In labour, patients were clinically monitored for progress of labour foetal distress & colour of liquor.

RESULTS

Table 1 Age

Sr.No.	Gestational Age	Spontaneous Labour Group A	Induced Labour Group (B)
1.	40-41 (37 Pts)	16(43.24%)	21 (56.75%)
2.	41-42 {38Pts}	6(15.78%)	32 (84.21%)
3.	42-43 (5 Pts}	2 (40%)	30 (60%)
	TOTAL	24	56

Incidence of induction increases with increasing gestational age. Postdated pregnancy is more common in the age group < 25

Table II: Parity

Parity	Spontaneous Labour Group A	Induced Labour Group (B)	Total
Primigravida	5 (20.83%)	36 (64.28%)	41 (52.57%)
Multigravida	19(79.16%)	20 (35.22%)	39 (48.5%)
TOTAL	24	56	80

Thus the incidence of post dated pregnancy was found be higher in primigravidas and in younger age group less than 25. These findings are similar to Evan KOEFF and MORLEM in a study conducted in 1963

at Royal women Hospital Melbourne. But we cannot come to a definite conclusion as this sample is randomly selected and is not obtained from screening the population.

Table IIIA: NST

	Group A (Spontaneous Labour)	Group B(Induced Labour)	Total
Reactive	15(62.50%)	22 (39.28%)	37
Non-reactive	0	34(60.71%)	34
Not done	9 (37.50%)	0	9
TOTAL	24	56	80

Table I11B: NST in relation to gestational age

NST	40-41 weeks	41-42 weeks	42-43 weeks	Total
Reactive	24(64.86%)	12(31.57%)	1(20%)	37
Non-reactive	09(24.32%)	22(57.89%)	3(60%)	34
Not done	4(10.81%)	4(10.52%)	1(20%)	9
Total	37	38	5	80
USG(Oligohydramnios)	6	15	4	25

Of the total 80 patients. NST was non-reactive in 34 patients. NST was reactive in 37 patients and was not done in 9 patients. From the above table it is clear that incidence of abnormal foetal surveillance also increases with increasing gestational age.

MODE OF DELIVERY

Of the 34 patients with non-reactive NST. 10 patients- Semi emergency LSCS section was done all had oligohydramnios AFF < 5. 24 patients -labour was induced 9 required emergency LSCS for foetal distress. 3 required emergency LSCS for failed induction. 6 delivered vaginally

6 required vacuum extraction This emphasizes the role of NST. Non-reactive NST did lead to foetal distress in labour. NST was reactive in 37 cases. Of these 22 were induced. Remaining 15 went in spontaneous labour. Of 22 induced patients ,9 required LSCS, amongst whom 8 patients failed induction , 1 patient CPD was diagnosed in labour 13 delivered vaginally None needed LSCS for foetal distress. 15 patients in spontaneous labour. 12 delivered vaginally ,2 LSCS for incidental causes CPD Non progress of labour 1 forceps for foetal distress with variable decelerations NST was not done in 9 patients who came in spontaneous labour. 5 delivered uneventfully vaginally. 2 required emergency LSCS for foetal distress. 2 required outlet vacuum for foetal distress.

Table IV: Mode of delivery in two groups

Mode of Delivery	Group A Spontaneous Labour	Group B Induced Labour	Total
Normal	17(70.83%)	19(33.92%)	36
Instrumental Forceps Vacuum	1(4.16%) 2(8.33%)	6(10.71%)	1 8
LSCS(Caesarean Section)	4(16.66%)	31(55.35%)	35
Total	24	56	80

Results of the two groups are comparable. In the induced group the incidence of LSCS and in instrumental delivery is more common due to abnormal foetal surveillance and failed induction.

Table V: Corelation mode of delivery & gestational age groups in the spontaneous labour group

Mode of Delivery	40-41 weeks	41-42 weeks	42-43 weeks	Total
Normal	13(81.25%)	4(66.66%)	0	17
Instrumental Forceps Vacuum	1(6.25%)	1(16.66%)	1(50%)	1 2
LSCS	2(12.5%)	1(16.66%)	1(50%)	4
TOTAL	16	6	2	24

Table VI: Corelation mode of delivery & gestational age groups in the induced labour group

Mode of Deliver	40-41 week	41-42 week	42-43 week	Total
Normal	12(57.14%)	7(21.87%)	0	19
Instrumental Forceps• Vacuum	1 (4.76%)	3(9.37%)	2(66.66%)	6
LSCS	8(38.09%)	22(68.75%)	1(33.33%)	31
TOTAL	21	32	3	56

Thus the incidence of normal vaginal delivery decreases and incidence of instrumental delivery and LSCS increases with advancing gestational age. Similarly in a study conducted by Shime et al the caesarean section rate was higher in induced patients in view of foetal distress due to advanced dysmaturity. Also study done by Denise Guidetti and Large had high incidence of caesarean section in age group of 41

- 42 weeks and in more than 42 weeks. Also in a study conducted by NICHHD the rate of caesarean section was 22% in induced labour group as compared to 18% in spontaneous labour group.

Table VII-A: Birth Weight

Birth Weight	Spontaneous Labour Group A	Induced Labour Group B
<2.5	1(4.16%)	2(3.57%)
2.5-3	13(54.16%)	22(39.38%)
3-3.5	6(25%)	27(48.21%)
3.5-4	4(16.66%)	5(8.92%)
>4	-	-
TOTAL	24	56

Table VII-B: Birth weight and gestational age

Gestational Age Groups	<2.5	2.5 to 3Kg.	3 to 3.5 Kg	3.5 to 4 Kg.	Total
4CMI Weeks	2(5.40%)	20(54.05%)	14(37.83%)	1(2.70%)	37
4 1-42 Weeks	1(2.63%)	13(34.21%)	18(47.36%)	6(15.78%)	38
42-43 Weeks	0	2(40%)	1(20%)	2(40%)	5
TOTAL	3	35	33	9	80

Thus there is direct correlation of birth weight with advancing gestation. However in a study conducted by Shime et al the mean birth weight and weight distribution was similar from week to week Difference in the birth weight was not significant and macrosomia was not a factor related to post datism,

Meconium stained liquor Meconium aspiration syndrome Apgar score < 7/10 Birth Asphyxia Postmaturity Syndrome Congenital Anomalies Perinatal Mortality

Table VIII: Distribution of perinatal morbidity & mortality in induced labour group and spontaneous labour group

Perinatal Morbidity	Spontaneous Labour Group A	Induced Labour Group B	Total
MS	8(33.33%)	20(35.71%)	28
MAS	2(12.5%)	2 (3.57%)	4
Ap<7/10	4(16.66%)	8(14.28%)	12
Birth Asphyxia	2(8.33%)	2(3.57%)	4
Post Maturity Syndrome	2(8.33%)	00	2
Congenital Anomalies	0	1(1.78%)	1
Perinatal Mortality	1(4.16%)	1(1.78%)	2
	19/24	34/56 --	53

Table IX: Distribution of perinatal morbidity & mortality with gestational age

Perinatal Morbidity	40-41 (37 patients)	41-42 (38 patients)	42-43 (5 patients)	Total
MS	8(21.62%)	15(39.47%)	5(100%)	28
MAS	1(13.5%)	1(26.31%)	2(20%)	4
Ap<7/10	4(10.81%)	7(18.42%)	1(20%)	12
Birth Asphyxia	1(2.70%)	2(5.26%)	1(20%)	4
PMS	0	0	2(40%)	2
Congenital Anomaly	0	1(2.63%)	0	1
Mortality	0	1(2.63%)	1(20%)	2

Thus it is evident that incidence of meconium stained amniotic fluid has increased from 21.6% in 40-41 weeks to 100% in 42 weeks i.e. with advancing gestational age. However MAS was seen only in 4 patients. In a study conducted by Shime et al meconium was 28% in prolonged pregnancy and 17.71% in control pregnancies which is not statistically significant. Also to study conducted by

NICHHD meconium was detected with equal frequency in all age groups. None of the patients with thin or absent meconium develop meconium aspiration. Meconium stained liquor Meconium aspiration syndrome Apgar score < 7/10 Birth Asphyxia Postmaturity Syndrome Congenital Anomalies Perinatal Mortality

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Post Maturity Syndrome	2(8.33%)	00	2
Congenital Anomalies	0	1(1.78%)	1
Perinatal Mortality	1(4.16%)	1(1.78%)	2
	19/24	34/56 "	53

DISCUSSION

In our study the incidence of Apgar score < 7/10 and foetal distress increases with increasing gestational age 10% at 40 weeks to 20% at 42 weeks. Also the incidence of birth asphyxia increases to 20% at >= 42 weeks of gestation. We had only two cases of postmaturity syndrome at 44 weeks. The absence of many perinatal deaths in our study is typical of results of post term pregnancy because of modern surveillance techniques and timely intervention. Most randomized trials of post-term pregnancy indicated that the uncompromised normally grown fetus at term is at low risk of mortality or serious morbidity when modern surveillance is used.⁵

Therefore in an otherwise uncomplicated pregnancy there is little difference in perinatal outcome with expectant management or with immediate induction. Thus the conclusion of this study was prolonged gestation had a high perinatal mortality and morbidity and in the absence of active management i.e. induction, corrected mortality is still higher.⁶ Similar conclusion were derived from study by Kablan et al in which dangers to foetus associated with prolonged pregnancy were evaluated. The authors concluded that the foetal jeopardy with continued intrauterine existence as well as excellent results with timely induction i.e. at 42 weeks the active approach is justified.⁷ From our study it is clear that incidence of abnormal foetal surveillance also increases with increasing gestational age.

Similarly in a study carried out by Jerry Shime and M D Douglas perinatal events in 184 term control patients and 129 prolonged patients were prospectively compared with advanced gestational age the incidence of abnormal BPP and suboptimal non stress test was high.⁸

Similarly in a study done in NICHHD National Institute of Child Health and Human Development {Network of Maternal Foetal Medicine Units) on postdated pregnancy have proved that modern surveillance techniques like NST and AFI are sufficiently sensitive to detect foetal compromise in the infants who undergo deterioration with gestational age.⁹

Similarly in a study conducted by Guidetty, MD Michael for 18 months period on 293 patients more than 41 weeks of gestation, patients who were

delivered between 41 - 42 weeks had a significantly increased incidence of abnormal non stress test and digohydramnios.¹⁰

An observational study from Dublin examined the risks of foetal jeopardy after 42 weeks in which outcomes of 56803 pregnancies <= 42 weeks were compared with outcome of 6301 pregnancies > 42 weeks. In the latter group still birth was more (4 times) more common and early neonatal death 3 times more common.¹¹

In view of the above discussion we can conclude that there is an increased risk of foetal morbidity and mortality in postdated pregnancy more so after 42 weeks of gestation.

Pregnancy can be managed upto this expectantly. But foetal assessment should include twice weekly NST & Ultrasonic visualization of amniotic fluid.

Delivery should be attempted when

1. Easily includable cervix develops
2. Oligohydramnios occurs.
3. Foetal distress.

There is a consensus that delivery should be attempted when cervix is inducible otherwise it causes increased operative intervention for failed induction.¹² The patient should be advised benefits for early hospitalization for foetal surveillance by electronic monitoring. Before vaginal delivery is attempted an ultrasound estimate of foetal weight should be obtained to avoid vaginal delivery of microsomic infant.

At delivery aggressive management of meconium aspiration needed. However as the perinatal mortality rises after 42 weeks of gestation it should be reasonable to induce before 42 weeks.

CONCLUSION

In conclusion sample size of 80 subjects could not demonstrate difference in perinatal outcome when uncomplicated pregnancy of more than 40 weeks is managed either expectantly or by immediate induction which is in accordance with other studies done before. Thus management of postdated pregnancy should be tailored for an individual case and depends on the obstetrician and facilities available. There should be harmonious blend of skill and judgement to give healthy baby to a healthy mother.

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