Comparative study of post term and term pregnancy in Nepal Medical College Teaching Hospital (NMCTH)

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ABSTRACT

Post term pregnancy (PTP) is one of the commonest obstetric conditions. Pregnancy is called term when it lies between 37 completed weeks to 42 completed weeks (259 to 294 days) from the last menstrual period. If the pregnancy exceeds this period (above 42 completed weeks) it is classified as post term pregnancy. The over all incidence of PTP is 10.0% of all pregnancies. The incidence of PTP varies depending on whether the calculation is based on the history and clinical examination alone, or whether early pregnancy ultrasound examination is used to estimate gestational age. Because of increased risk of maternal and perinatal morbidity and mortality, it is taken as high risk pregnancy. The published data on risk of unexplained intrauterine death associated with PTP vary. It is mostly due to decrease in amniotic fluid volume; meconium passed in utero, placental changes like calcification, abruption placentae and big baby. In present study the prevalence of PTP is 4.6% which is much less than those in different studies. Maternal and neonatal outcomes of pregnancy and related complications were compared with normal term pregnancy. This comparative study revealed increased risk to mother and fetus as pregnancy advances beyond term.

Keywords: Post term pregnancy, apgar score, delivery.

INTRODUCTION

The World Health Organization and International Federation of Gynecologists and Obstetricians define the term delivery as that occurring between 259 and 294 days of pregnancy from the last menstrual period.[1] If the pregnancy exceeds this period, it is classified as post term pregnancy (PTP). Although the last menstrual period (LMP) has been traditionally used to calculate the estimated date of delivery (EDD), many inaccuracies exist using this method in women who have irregular cycles, have been on recent hormonal birth control, or who have first trimester bleeding. Ultrasonographic dating early in pregnancy can improve the reliability of the EDD; however, it is necessary to understand the margin of error reported at various times during each trimester. A calculated gestational age by composite biometry from a sonogram must be considered an estimate and must take into account the range of possibilities.

Despite intensive research, management of PTP is still controversial and varies, not only among different countries and hospital units, but also among different clinicians in the same unit of the same hospital. The incidence of PTP varies, ranging from 3.0% to 14.0%, with the average of about 10.0%.[1,2] The true proportion of pregnancies prolonged beyond 42 weeks should be calculated from a population in which every event is recorded. Pregnancy should be known from conception, no pregnancy should be lost from the follow-up and there should be no interference with the natural course of pregnancy, all of which are virtually impossible to obtain in clinical practice. Another difficulty is uncertain date of the last menstrual period, which is often the case. The incidence of PTP varies depending on whether the calculation is based on the history and clinical examination alone, or whether early pregnancy ultrasound examination is used to estimate gestational age.[2-4] The assessment of the gestational age by early ultrasound examination has reduced the "incidence" of PTP by 50.0%.[2] Several reports associate PTP with increased perinatal mortality[5] and increased maternal morbidity related to operative delivery following spontaneous or induced labor.[6] Induction of labor is also related to the increased risk for mother and fetus. A large survey in 1970 reported the perinatal mortality following induced PTP to be twice as high as that following spontaneous labor.[7] At present, data from randomized control trials favor a policy of inducing labor after 41 completed weeks of gestation because induction of labor is not as hazardous as it was claimed in the past and, if performed appropriately, it can even reduce the likelihood of cesarean section.[4] In expectant conservative management, fear of intrauterine death is present in both pregnant women and physicians. The published data on risk of unexplained intrauterine death associated with

Table-1: Type of delivery

Types of Delivery	Term pregnancy		Post term pregnancy	
	n.	%	n.	%
Normal delivery	814	88.0	88	81.4
Instrumental delivery	20	2.4	3	2.7
Caesarean delivery	166	9.3	17	15.7
Total	1000	100	108	100

PTP vary. It is mostly due to decrease in amniotic fluid volume; meconium passed in utero, placental changes like calcification, abruption placentae and big baby. Some authors claim that risk is low, whereas other studies present the risk as being twice as that in term births.[8] Despite these risks, Cardoso reports that increased fetal monitoring is the most acceptable management of PTP.[9] Many women also express their preference for minimal interference in childbirth. The data from randomized control trials suggest that induction of labor may reduce perinatal mortality in PTP.[4]

MATERIALS AND METHODS

This is a retrospective study conducted in Nepal Medical College (NMC) Teaching Hospital, Jorpati, Kathmandu, Nepal. Permission for the study was taken from the head of department of Obstetric and Gynecology.

Keeping in mind post term pregnancy causing lots of threats to mother and fetus, in our hospital labor is induced at 41 completed weeks so that delivery occurs before 42 weeks. In this study we tried to find out the prevalence of PTP (pregnancies beyond 42 weeks), it's maternal and fetal outcome and compare the same with term pregnancy (37-42 weeks).

To fulfill those objectives we went through the records of out patient and in patient department of obstetrics, labor room, operation theatre and neonatal unit. Cases with incomplete history, unsure LMP, irregular menstrual cycle, multiple pregnancy, malpresentation, antepartum hemorrhage, medical conditions like heart disease and hypertension were excluded from both study and comparison groups. This study tried to compare the maternal and fetal outcome of term and post term pregnancy such as type of delivery, maternal complications, birth weight of the baby, apgar score given at 5 minutes and admission in neonatal unit.

RESULTS

The study group consists of all the deliveries in three years period from 14th of April 2005 to 13th April 2008 (1st Baisakh 2062 to last Chaitra 2064). Total no. of deliveries was 2346 out of which 108 were post term. The overall prevalence of post term pregnancy came out to be 4.6%. Comparison was made with consecutive 1000 term pregnancies fulfilling the inclusion criteria.

There was almost equal incidence of normal delivery and instrumental delivery but significantly higher rate of caesarean delivery in post term group.

It is clear from the above table that extreme low birth weight (less than 2 kg) as well as big baby (4.1 kg and above) are more common in post term as compared to term pregnancy. The average birth weight in term group was 2.7 kg and 3.2 kg in post term group.

Women who delivered at term were mostly primigravida (51.0%) and 4.0% of grand multigravida delivered at term. About 54.0% of cases who had post term deliveries were multigravida.

Cases were broadly divided into three groups according to the Apgar score at 5 minutes after birth. Perinatal mortality was significantly high as 37 per 1000 births

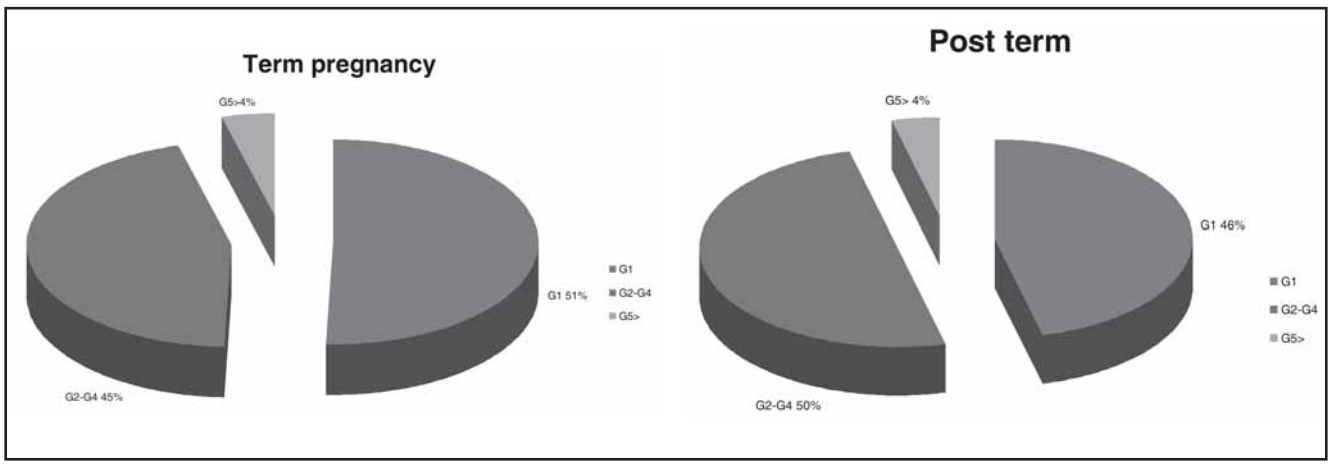

Fig. 1. Comparison of gravidity

Table -2: Comparison of Birth weight

Birth weight in Kg	Term pregnancy		Post term pregnancy	
	n.	%	n.	%
Less than 2	20	2.0	4	3.7
2.1-2.4	80	8.0	6	5.6
2.5-3.5	350	35.0	40	37.0
3.6-4.0	535	53.5	52	48.1
4.1 and above	15	1.5	6	5.6
Total	1000	100.0	108	100.0

(three intrauterine fetal deaths and one neonatal death) in post term group as compared to 5 per 1000 births (three intrauterine fetal deaths and two neonatal deaths) in term group.

Regarding the complications associated with delivery there were 11 cases of post partum haemorrhage (1.1%) in term and 3 cases (2.7%) in post term group. Similarly 3 cases had caesarean wound infection in term (0.3%) and 2 (1.8%) in post term group.

DISCUSSION

In this retrospective study the incidence of post term pregnancy was 4.6% which was less than those reported by other studies, (8.3%) by Ingemarsson and Kallen,[10] 7.6% by Ahanya *et al*.[11] Another study conducted by Anner *et al* in different cities of Komi republic, Russia showed the prevalence rate of post term pregnancy in an average 3.1%.[12] Zeitin *et al*[13] found the incidence as 0.4 to 7.1% with an average of 3.7% in different countries of Europe. In a five years study done in Bombay consisting of 3200 deliveries, 85 cases showed post datism, thus giving an overall incidence of 2.6%.[14]

Some variability in these rates may be due to difference in methods for determining gestational age, which has broader implications for international comparisons of gestational age, including rates of post term and preterm births and small-for-gestational-age newborns and it is also directly affected by the availability of modern technology regarding intrauterine fetal monitoring and good neonatal unit. Mother of low socioeconomic status, and maternal body mass index >35 kg/m^2 are associated with increased risk for recurrent post term birth. Mothers with an initial post term birth are at increased risk for post term birth in subsequent pregnancies independent of race. Maternal age, education, marital status, parity, and prenatal care usage were associated with ethnic group-specific post term delivery rates according to Collins *et al*.[15]

PTP is a subject of interest because of its presumed association with increased fetal/maternal mortality and morbidity.[8,9,14] There was no significant difference in incidence of post term pregnancy in different age groups. We also saw only a slightly higher incidence in the age group of 30-40 years.

We found more primigravida delivering at term and more multigravida delivering post term. The average birth weight at term was 2.9 kg whereas in post term babies it was 3.2 kg which was very similar to a study done by Kassis[16] showing 3.4 kg and 3.2 kg respectively.

The rate of cesarean section was higher (15.7%) among post term pregnancy in comparison to term group (9.3%). This higher incidence may be due to big baby, presence of meconium in liquor and placental maturation leading to fetal jeopardy during labor.[12,15-18]

Regarding the birth weight of babies both the groups had maximum number of babies with weight 3.6-4.0 kg. More babies with birth weight above 4.0 kg were post term (5.5%) as compared to 1.6% in term group.

A study done in Denmark by Olessen and colleagues showed the risk of perinatal and obstetric complications to be high in post term delivery compared with term delivery. The risk of perinatal death was 1.33. There is more chance of neonatal morbidity and mortality due to meconium aspiration in post term babies as reported by Adhikari *et al*.[18]

Aspiration of meconium during intrauterine life may result in or contribute to meconium aspiration syndrome, representing a continued leading cause of perinatal death as reported by Kistka *et al*.[19]

The rate of still birth in our study at term was 0.3% in comparison to 3.7% in post

Table-3: Apgar score at 5 minutes

Apgar Score	Term		Post term	
	No.	%	No.	%
0	3	0.3	3	2.8
1-3	12	1.2	7	6.5
4-7	20	2	5	4.6
>7	965	96.5	93	86.1
Total	1000	100.0	108	100.0

term group. Similar result were noticed in a studies where stillbirth rate was lowest at 40 weeks and gradually increased as pregnancy advanced.[19,20]

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