Journal of Cardiovascular Disease Research

ISSN: 0975-3583,0976-2833 VOL13, ISSUE 08, 2022

## ORIGINAL RESEARCH

# Assessment of fetal hyperbilirubinemia in postdated deliveries

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Received: 22 September, 2022 Accepted: 24 October, 2022

**Abstract**

**Background:** Postdated pregnancy is found as one of the dominant causes of fetal as well as maternal complications. The present study was conducted to assess increased incidences in fetal hyperbilirubinemia in postdated deliveries.

**Materials & Methods:** 104 postdated deliveries were studied and parameters such as age, parity, gestational age, type of induction, mode of delivery, indications for caesarean, maternal complications, fetal complications such as hyperbilirubinemia were recorded.

**Results:** Gestational age 40-41 weeks was seen in 58 and 41-42 weeks in 46. There were 40 vaginal and 64 caesarean deliveries. Type of induction was oxytocin in 36, misoprostolin 26 and dinoprostone gel in 42. Bishop's score<4 was seen in 60, 4-6 in 34 and >6 in 10.The difference was significant (P< 0.05).Fetal complications were birth asphyxia in 2, hyperbilirubinemia in 8, meconium aspiration syndromein2, low birth weightin 4 and neonatal death in 1. The difference was significant (P< 0.05).

**Conclusion:** The postdated pregnancy is a high- risk factor for maternal and perinatal outcome. Most commonly hyperbilirubinemia was seen.

**Key words:** hyperbilirubinemia, caesarean, postdated deliveries

## Introduction

Postdated pregnancy is found as one of the dominant causes of fetal as well as maternal complications. When pregnancy has crossed the expected date of delivery or gestation longer than 40weeks or 280 days from the first day of last menstrual period is called postdated pregnancy that complicates up to 10% of all pregnancies and carries increased risk to the mother and fetus.[1] It has been reported that postdated pregnancy is associated with increased risk of hyperbilirubinemia and intrapartum fetal distress mostly due to oligohydramnios, meconium- stained liquor, macrosomia, fetal post maturity syndrome and caesarean delivery.[2] The maternal risks include an increase in labor dystocia (9-12% vs 2-7% at term), an increase in severe perineal injury (3rd and 4th degree perineal lacerations) related to macrosomia (3.3% vs 2.6% at term) and operative vaginal delivery and a doubling in the rate of caesarean delivery (14% vs 7% at term) and post- partum hemorrhage. Both maternal and perinatal risk increases with increase of gestational age beyond 40 weeks[3].

Infants without identified risk factors rarely have total serum bilirubin levels above 12 mg per dL (205 μ mol per L). As the number of risk factors increases, the potential to develop markedly elevated bilirubin levels also increases.[4]Common risk factors for

ISSN: 0975-3583,0976-2833 VOL13, ISSUE 08, 2022

hyperbilirubinemia include fetal-maternal blood group incompatibility, prematurity, and a previously affected sibling. Cephalohematomas, bruising, and trauma from instrumented delivery may increase the risk for serum bilirubin elevation.[5] Delayed meconium passage also increases the risk. Infants with risk factors should be monitored closely during the first days to weeks of life.[6]The present study was conducted to assess increased incidences in fetal hyperbilirubinemia inpostdated deliveries.

## Materials & Methods

The present study comprised of 104 patients of postdated deliveries. All gave their written consent for the participation in the study.

Data such as name, age, gender etc. was recorded. Parameters such as age, parity, gestational age, type of induction, mode of delivery, indications for caesarean, maternal complications, fetal complicationssuch as hyperbilirubinemiawere recorded.Fetal monitoring was done with the help of ultrasonography, non-stress test, biophysical profile and daily fetal movement count. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

## Results

**Table I Demographic characteristics**

| Parameters | Variables | Number | P value |
|---|---|---|---|
| Gestational age (Weeks) | 40-41 | 58 | 0.92 |
| | 41-42 | 46 | |
| Type of induction | Oxytocin | 36 | 0.05 |
| | Misoprostol | 26 | |
| | Dinoprostone gel | 42 | |
| Bishop's score | <4 | 60 | 0.04 |
| | 4-6 | 34 | |
| | >6 | 10 | |
| Type of delivery | Vaginal | 40 | 0.05 |
| | Caesarean | 64 | |

Table I shows that gestational age 40-41 weeks was seen in 58 and 41-42 weeks in 46. Type of induction was oxytocin in 36, misoprostol in 26 and dinoprostone gel in 42. Bishop's score<4 was seen in 60, 4-6 in 34 and >6 in 10.There were 40 vaginal and 64 caesarean deliveries. The difference was significant (P< 0.05).

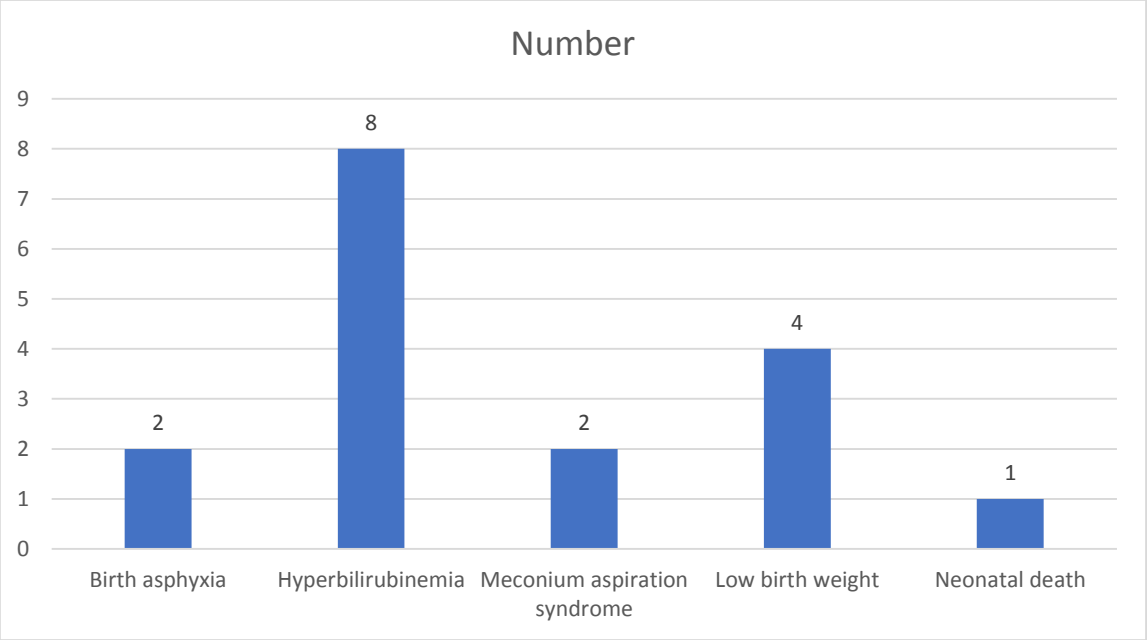
**Table II Assessment of fetal complications**

| Fetal complications | Number | P value |
|---|---|---|
| Birth asphyxia | 2 | 0.05 |
| Hyperbilirubinemia | 8 | |
| Meconium aspiration syndrome | 2 | |
| Low birth weight | 4 | |
| Neonatal death | 1 | |

Table II, graph I shows that fetal complications were birth asphyxia in 2, hyperbilirubinemia in 8, meconium aspiration syndrome in 2, low birth weight in 4 and neonatal death in 1. The difference was significant (P< 0.05).

ISSN: 0975-3583,0976-2833 VOL13, ISSUE 08, 2022

**Graph I Assessment of fetal complications**




## Discussion

Post-dated pregnancies may be due to multiple etiologies. Exact etiology is not known but some risk factors are associated with post term pregnancy like parity, maternal age, past history of post term pregnancy, genetics and obesity.[7,8] Management protocol for post-term pregnancy is fetal surveillance for prolonged pregnancy, induction of labour, during intrapartum care proper monitoring of labour.Complications to both mother and fetus are seen in postdated pregnancies.[9] It has been reported that in apregnancy which has crossed the expected date of delivery; there is an increased risk of oligohydramnios, meconium- stained amniotic fluid, macrosomia, fetalpostmaturity syndrome, and caesarean delivery, all of which jeopardize the baby as well as the mother. Prolonged pregnancy has always been regarded as a high-risk condition because perinatal morbidity and mortality is known to rise.[10.,11]The present study was conducted to assess increased incidences in fetal hyperbilirubinemia inpostdated deliveries.

We found that gestational age 40-41 weeks was seen in 58 and 41-42 weeks in 46. Type of induction was oxytocin in 36, misoprostol in 26 and dinoprostone gel in 42. Bishop's score<4 was seen in 60, 4-6 in 34 and >6 in 10.There were 40 vaginal and 64 caesarean deliveries. Singh et al[12]assessed maternal and fetal outcome in postdated pregnancy. The incidence of postdated pregnancy was found to be 5% and number of normal deliveries was 66 (66%), LSCS were 32 (32%) and 2 (2%) were instrumental delivery. Maternal complications were seen in 14 (14%) cases and fetal complications were found in 23 (23%) cases. Postdated pregnancy was associated with perinatal complications like fetal distress, meconium aspiration syndrome and fetal asphyxia. There was increased risk of obstetrics complications like postpartum haemorrhage (PPH), perineal tear, cervical tear and shoulder dystocia. Management of postdated pregnancy is a challenge to obstetrician and a careful advice and monitoring can alleviate maternal anxiety and untoward complications.

We found that fetal complications were birth asphyxia in 2, hyperbilirubinemia in 8, meconium aspiration syndrome in 2, low birth weight in 4 and neonatal death in 1. Sharma et al[13]assessed the maternal and perinatal mortality and morbidity in uncomplicated postdated pregnancies in a tertiary care centre and found out the causes and rates of different modes of delivery in uncomplicated postdated pregnancies in a tertiary care centre. Majority of women belonged to age group 20 to 25 years (51.8%). 60% of them delivered vaginally,

ISSN: 0975-3583,0976-2833 VOL13, ISSUE 08, 2022

7.2% had instrumental delivery whereas 32.8% women required caesarean section, the most common indication being meconium stained liquor (25%). 49.1% of women were given induction by various means and 45.5% of them had successful vaginal delivery.12.7% babies had NICU admission with respiratory distress (28.6%) being the most common reason.
OzdemirciSet al[14]evaluated the mode of delivery's influence on development of neonatal hyperbilirubinemia in term or near term infants.The hyperbilirubinemic neonates were divided into two groups according to their mode of delivery (i.e., vaginal or caesarean). The birth weight and gestational age at the time of birth, the age of the neonates in days, and the serum levels of bilirubin of the neonates at the time of hyperbilirubinemia were compared from the date of hospitalization until treatment. The vaginal delivery group consisted of 157 infants (16.8%) with hyperbilirubinemia, whereas the caesarean group included 131 (22.6%) infants with hyperbilirubinemia. Neonates in the caesarean group had a significantly higher rate of hyperbilirubinemia ($p = 0.01$).
The limitation the study is small sample size.

## Conclusion

Authors found that the postdated pregnancy is a high- risk factor for maternal and perinatal outcome. Most commonly hyperbilirubinemia was seen.

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ISSN: 0975-3583,0976-2833 VOL13, ISSUE 08, 2022

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