Delivery at Term
When, How, and Why

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KEYWORDS

• Term • Induction of labor • Cesarean delivery • Antepartum stillbirth

KEY POINTS

- The optimal timing of delivery for the baby is 39 weeks, avoiding the morbidity associated with early term birth and reducing the risk of antepartum stillbirth.
- There is compelling evidence that among high-risk pregnancies and in settings where cesarean rates are high (>20%), induction of labor at 37 to 40 weeks does not, as previously thought, result in a further increased risk of cesarean delivery.
- The only advantage to planned cesarean delivery over induction of labor is the avoidance of the morbidity associated with emergency cesarean delivery; controversy exists on the other reported benefits.
- There is a growing number of well-conducted randomized controlled trials that provide some support for induction of labor shortly before term for a variety of indications (hypertensive disorders, gestational diabetes, suspected growth restriction, macrosomia, and advanced maternal age).

INTRODUCTION

A young, healthy primiparous woman attends your antenatal clinic requesting delivery at 39 weeks. There is no indication for delivery before 41 weeks' gestation. How do you counsel her? What is the optimal timing (when), method (how), and reason (why) for delivery at term? In this article, the authors aim to provide you with a summary of the relevant information to help you counsel this woman and help her to reach an informed decision about her care. When should we offer delivery? What gestation represents the optimal timing for delivery at term? As with all decisions in maternity care, optimal timing may be different for the mother than the baby and a balance must be sought. The authors examine how the timing of delivery across the gestational

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weeks (37–42 weeks) may influence the risk of complications for the mother and for the baby.

OPTIMAL DELIVERY TIMING

Baby

Antepartum risks

Risk of antepartum stillbirth Stillbirth accounts for two-thirds of perinatal deaths, and early neonatal deaths account for 33%.[1] Intrapartum causes of stillbirth account for just 8.8% of all stillbirths. Excluding intrapartum causes, antepartum stillbirth accounts for 61% of all perinatal deaths.[1] Twenty-eight percent of antepartum stillbirths are unexplained.[1] Antepartum stillbirth is by far the most common cause of perinatal death at term.[2] Six percent of stillbirths are due to congenital abnormalities, and 35% of stillbirths occur at 37 to 42 weeks (the most common gestation for stillbirths to occur). Term, singleton, normally formed, antepartum stillbirth (ie, potentially preventable stillbirths) made up one-third of all stillbirths (1039 [32%] out of 3286) in the United Kingdom in 2013.

Choosing the correct denominator The risk of perinatal death at gestational ages near term is often expressed as the number of all perinatal deaths at each week divided by the total number of births. However, near term a baby cannot be stillborn once it has been delivered. Thus, the risk of remaining undelivered at each gestational age is better expressed as the risk per 100 babies undelivered at that time point, termed the *perinatal risk index*. Although the perinatal mortality rate is lowest at 41 weeks, the gestational age associated with the lowest cumulative risk of perinatal death is 38 weeks.[2]

Neonatal risks

Risk of respiratory morbidity Most elective cesarean deliveries are performed at or after $39^{0/7}$ weeks' gestation.[3] The timing of this is advised because the risk of neonatal respiratory morbidity decreases with advancing gestation until $40^{0/7}$ weeks. The risk of respiratory morbidity in infants delivered by elective cesarean at $37^{0/7}$ weeks is 4-fold higher than infants delivered at 40 weeks, 3-fold higher compared with those delivered at 38 weeks, and 2-fold higher than those delivered at 39 weeks. The risk of developing neonatal respiratory symptoms for babies born by vaginal delivery decreases from a probability of 0.07 at 37 weeks to 0.04 at 39 weeks and thereafter plateaus.[4] Thus, induction of labor at 39 weeks is the optimal balance between the risk of respiratory morbidity for the neonate and the risk of antepartum stillbirth for the fetus.

Hyperbilirubinaemia There have been reports of an association between the use of oxytocin in labor and neonatal hyperbilirubinaemia.[5] However, it is difficult to disentangle possible confounding by the earlier gestational age of babies who were delivered following induction of labor. Although Cochrane reviews of high versus low doses of oxytocin[6] and early versus late use[7] do not report jaundice, at least one trial showed no effect.[8] Gestational age of less than 38 weeks is a risk factor for the development of significant hyperbilirubinaemia.[9] In an observational study comparing outcomes for low-risk singleton term newborns by gestational age, delivery at less than 38 weeks was an independent risk factor for the development of unexplained jaundice (odds ratio [OR] = 2.1, 95% confidence interval [CI] 1.7–2.5).[10] The DAME trial, a randomized controlled trial (RCT) of induction of labor at 37 to 38 weeks' gestation versus expectant management for suspected large-for-gestational-age babies, found higher rates of hyperbilirubinaemia requiring phototherapy in the induction group compared with the expectantly managed group.[11]