Making Small Risks Even Smaller
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Cesarean sections performed without antecedent labor are associated with a higher risk of respiratory distress than those performed after the onset of labor, despite the fact that they may have been done at full term (at least 37 weeks of gestation). This respiratory distress is usually transient tachypnea of the newborn, which is generally milder in both severity and duration than respiratory distress syndrome due to hyaline membrane disease in premature babies. Unlike hyaline membrane disease, which results from a surfactant deficiency, transient tachypnea of the newborn results from delayed clearance of fetal alveolar fluid. The volume of fetal alveolar fluid decreases progressively but not linearly with advancing gestational age. In fetal guinea pigs, oxytocin-induced labor induces elevated levels of catecholamines, which stimulate β-adrenergic sodium channels that clear fluid from fetal lung alveoli to permit gas exchange in the neonate.

Tita et al. found that 35.8% of the elective repeat cesarean deliveries were performed at less than 39 completed weeks of gestation, despite best-obstetrical-practice recommendations to deliver after 39 weeks. No babies had necrotizing enterocolitis or hypoxic–ischemic encephalopathy, and only one baby died (after delivery at 39 weeks of gestation). However, the risk of neonatal complications increased with decreasing gestational age before 39 weeks and was increased even among babies delivered in the last 3 to 4 days of the 38th week of gestation. The higher risk of composite neonatal complications in babies delivered before 39 weeks of gestation was driven by adverse respiratory outcomes, hypoglycemia, suspected sepsis, and medical interventions (admission to the ICU, mechanical ventilation, and prolonged hospitalization) in response to these clinical conditions. There was no increase in proved sepsis at earlier gestational ages.

Since signs that lead pediatricians to suspect newborn sepsis include tachypnea, grunting, flaring of the nasal alae, intercostal retractions, decreased breath sounds, and apnea, it could reasonably be said that the composite outcome measure largely reflects clinical respiratory distress and hypoglycemia. The incidence of the primary outcome declined after 39 weeks of gestation but rose again after 41 weeks, leaving a relatively narrow 2-week window of minimal risk in which elective repeat cesarean deliveries could optimally be performed.

The differences between the women who delivered before 39 weeks of gestation and those who delivered at or after 39 weeks are revealing. The women who delivered earlier were more likely to be married, to be white, to have had a first- or second-trimester ultrasound examination, and...
to be privately insured. In short, a woman in this group was more likely to be a private patient and to place a premium on her own doctor's performing the delivery. The physicians probably reciprocated, wanting to deliver their own patients to foster the doctor–patient relationship and improve patient satisfaction. To accommodate busy schedules and to minimize the chance that a patient will begin labor and require a non-elective procedure when her doctor might not be available, procedures are frequently scheduled just before 39 weeks of gestation.

As desirable as it is to minimize neonatal complications, it is imperative to avoid perinatal death. This study was not a treatment trial to assess overall perinatal death resulting from alternative strategies of elective delivery at term. Such a trial would include an accounting of fetal deaths among women waiting to deliver at later gestational ages. Enrollment in the current observational study required a living fetus and did not include any fetal deaths. Among the 4743 viable babies delivered at less than 39 weeks of gestation in the current study, there were no neonatal deaths and there was no assessment of potential long-term complications. As the investigators correctly note, all the complications observed after delivery at 37 to 39 weeks of gestation must be weighed against the risk of fetal death while awaiting completion of the 38th week of gestation. That risk has been estimated at 1 in 1000 and could be greater than the risk of neonatal death associated with delivery during this 2-week gestational period. Antenatal surveillance of fetal well-being to prevent fetal death is unlikely to reduce the risk of fetal death below 0.8 in 1000.

Some have suggested that amniocentesis should be performed to determine fetal lung maturity before elective delivery earlier than 39 weeks of gestation. In two small case series of women undergoing amniocentesis in the third trimester, several patients required emergency deliveries, but there were no perinatal deaths. The combined size of the two series (1475 patients), however, does not rule out a procedure-related risk of perinatal death that is potentially greater than the risk of neonatal death among babies delivered at less than 39 weeks. Tita et al. point out that they had no information regarding the results of amniocenteses to determine fetal lung maturity that may have been performed for women in their study. Therefore, it is unknown whether testing for fetal lung maturity may have reduced the incidence of complications or death in the babies delivered at 37 to 39 weeks of gestation and whether some complications occurred despite reassuring results of testing.

Given the small risk of perinatal death at term (probably less than 1 in 1000), a randomized trial to demonstrate the elective delivery strategy resulting in the least risk of perinatal death and long-term complications would have daunting power and sample-size challenges. Even if the optimal strategy could be defined, its implementation might require overcoming the dread of late stillbirth and convincing patients (and their doctors) that having “their doctor” perform the delivery is less important than avoiding the complications associated with early term birth.

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