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Cesarean Delivery on Maternal Request

Committee on Obstetric Practice

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ABSTRACT: Cesarean delivery on maternal request is defined as a primary cesarean delivery at maternal request in the absence of any medical or obstetric indication. A potential benefit of cesarean delivery on maternal request is a decreased risk of hemorrhage for the mother. Potential risks of cesarean delivery on maternal request include a longer maternal hospital stay, an increased risk of respiratory problems for the baby, and greater complications in subsequent pregnancies, including uterine rupture and placental implantation problems. Cesarean delivery on maternal request should not be performed before gestational age of 39 weeks has been accurately determined unless there is documentation of lung maturity. Cesarean delivery on maternal request should not be motivated by the unavailability of effective pain management. Cesarean delivery on maternal request is not recommended for women desiring several children, given that the risks of placenta previa, placenta accreta, and the need for gravid hysterectomy increase with each cesarean delivery.

Cesarean delivery on maternal request is defined as a primary cesarean delivery at maternal request in the absence of any medical or obstetric indication. Cesarean delivery rates in the United States are at the highest levels ever, with more than 1.2 million cesarean deliveries (30.2% of live births) performed in 2005 (1). The incidence of cesarean delivery on maternal request and its contribution to the overall increase in the cesarean delivery rate are not known, but it is estimated that 2.5% of all births in the United States are cesarean delivery on maternal request (2).

Cesarean delivery on maternal request is not a well-recognized clinical entity, and there are no accurate means of reporting it for research studies, coding, or reimbursement. There are few studies that directly compare the intended mode of delivery (ie, cesarean delivery on maternal request or planned vaginal delivery). Most of the current knowledge is based on indirect analyses that compare elective cesarean deliveries without labor (instead of cesarean delivery on maternal request) with the combination of vaginal deliveries and unplanned and emergency cesarean deliveries (instead of planned vaginal deliveries) or outcomes of actual modes of delivery.

At the National Institutes of Health State-of-the-Science Conference on Cesarean

Delivery on Maternal Request in 2006, a panel of experts was charged with reviewing the available literature and expert opinions on the subject (2). A systematic literature review of 1,406 recent articles was conducted to evaluate the relevance of existing studies on cesarean delivery on maternal request and the quality of evidence. The panel concluded that the available information comparing the risks and benefits of cesarean delivery on maternal request and planned vaginal delivery does not provide the basis for a recommendation for either mode of delivery. The panel identified the best information available on the short-term and long-term risks and benefits of cesarean delivery on maternal request and planned vaginal delivery for both the mother and her baby.

Benefits and Risks of Cesarean Delivery on Maternal Request Compared With Planned Vaginal Delivery

Maternal Outcomes

Potential short-term maternal benefits of planned vaginal delivery included a shorter maternal length of hospital stay, lower infection rates, fewer anesthetic complications, and higher breastfeeding initiation rates. However, at 3 months and 24 months after



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delivery, breastfeeding rates did not differ by mode of delivery (3, 4).

Potential short-term maternal benefits of planned cesarean delivery include a decreased risk of postpartum hemorrhage and transfusion, fewer surgical complications, and a decrease in urinary incontinence during the first year after delivery. Analysis of stress urinary incontinence at 2 years (3) and 5 years after delivery (5) showed no difference by mode of delivery. The benefit of a planned cesarean delivery may be eliminated by advanced maternal age and increased body mass index (5).

Maternal outcomes that favored neither delivery route include postpartum pain, pelvic pain, postpartum depression, fistula, anorectal function, sexual function, pelvic organ prolapse, subsequent stillbirth, and maternal mortality. Evidence for thromboembolism was conflicting. Potential risks of cesarean delivery on maternal request include greater complications in subsequent pregnancies, such as uterine rupture, placenta previa, placenta accreta, bladder and bowel injuries, uterine rupture, and the need for hysterectomy. A recent Canadian study of primiparous women with singleton pregnancies showed an increased risk of postpartum cardiac arrest, wound hematoma, hysterectomy, major puerperal infection, anesthetic complications, venous thromboembolism, and hemorrhage requiring hysterectomy in patients who had a planned primary cesarean delivery (6). These are also factors that may be influenced by parity and planned family size. Uterine scars put women at increased risk for uterine rupture in subsequent pregnancies. Although there is no difference between planned cesarean delivery or planned vaginal delivery in risk of peripartum hysterectomy in a woman's first delivery, there is a significant increased risk of placenta previa, placenta accreta, placenta previa with accreta, and the need for gravid hysterectomy after a woman's second cesarean delivery (Table 1). This emphasizes the need to consider the mother's total number of planned or expected pregnancies if cesarean delivery on maternal

request is discussed during her first pregnancy, realizing that many pregnancies are unplanned.

Neonatal Outcomes

Potential neonatal benefits of planned vaginal delivery include a lower risk of respiratory problems, fewer problems with iatrogenic prematurity, and shorter length of hospital stay. There are limited studies on cesarean delivery on maternal request and neonatal outcomes, so literature on elective cesarean delivery without labor has been evaluated. The risk of respiratory morbidity, including transient tachypnea of the newborn, respiratory distress syndrome, and persistent pulmonary hypertension, is higher for elective cesarean delivery compared with vaginal delivery when delivery is earlier than 39–40 weeks of gestation (7, 8). The literature on elective cesarean delivery without labor also shows an increased rate of complications related to prematurity, including respiratory symptoms, other neonatal adaptation problems such as hypothermia and hypoglycemia, and neonatal intensive care unit admissions, for infants delivered by cesarean delivery before 39 weeks of gestation (2). Because of these potential complications, cesarean delivery on maternal request should not be performed before gestational age of 39 weeks has been accurately determined unless there is documentation of lung maturity.

Potential neonatal benefits of planned cesarean delivery include lower fetal mortality; lower newborn infection rate; reduced risk of intracranial hemorrhage diagnosis, neonatal asphyxia, and encephalopathy; and fewer birth injuries. In epidemiologic models, cesarean delivery on maternal request by 40 weeks of gestation would reduce fetal mortality because planned vaginal delivery could occur at up to 42 weeks of gestation, and there is a finite risk of stillbirth between 40 and 42 weeks of gestation. Rates of intracranial hemorrhage are similar for spontaneous vaginal deliveries and cesarean deliveries without labor but are higher in operative vaginal deliveries and cesarean deliveries with labor (2).

Table 1. Risk of Placenta Accreta and Hysterectomy by Number of Cesarean Deliveries Compared With the First Cesarean Delivery

| Cesarean Delivery | Accreta [n (%)] | Odds Ratio (95% CI) | Hysterectomy [n (%)] | Odds Ratio (95% CI) |
|-------------------|-----------------|---------------------|----------------------|---------------------|
| First | 15 (0.2) | – | 40 (0.7) | – |
| Second | 49 (0.3) | 1.3 (.7–2.3) | 67 (0.4) | 0.7 (0.4–0.97) |
| Third | 36 (0.6) | 2.4 (1.3–4.3) | 57 (0.9) | 1.4 (0.9–1.2) |
| Fourth | 31 (2.1) | 9.0 (4.8–16.7) | 35 (2.4) | 3.8 (2.4–6.0) |
| Fifth | 6 (2.3) | 9.8 (3.8–25.5) | 9 (3.5) | 5.6 (2.7–11.6) |
| Six or more | 6 (6.7) | 29.8 (11.3–78.7) | 8 (9.0) | 15.2 (6.9–33.5) |

CI, confidence interval.

Silver RM, Landon MB, Rouse DJ, Leveno KJ, Spong CY, Thom EA, et al. Maternal morbidity associated with multiple repeat cesarean deliveries. National Institute of Child Health and Human Development Maternal–Fetal Medicine Units Network. *Obstet Gynecol* 2006;107:1226–32.

There is also weak quality evidence of a lower risk of neonatal encephalopathy and asphyxia with elective cesarean delivery without labor compared with the combined risks of spontaneous vaginal delivery, operative vaginal delivery, emergency cesarean delivery, and cesarean delivery with labor (9, 10). The incidence of brachial plexus injury is significantly lower for cesarean delivery than vaginal delivery, with the highest incidence for assisted vaginal delivery. The incidence of fetal laceration at the time of cesarean delivery is lower for elective cesarean delivery without labor (0.8%) than unscheduled cesarean delivery (1.4–1.5%) (11). Studies on neonatal mortality and long-term neonatal outcomes lacked statistical power and quality data to assess the effect of the planned delivery route.

Summary of Data

In summary, only five outcome variables have moderate quality evidence regarding delivery route: 1) maternal hemorrhage, 2) maternal length of stay, 3) neonatal respiratory morbidity, 4) subsequent placenta previa or accreta, and 5) subsequent uterine rupture. The remaining outcome assessments are based on weak evidence, which limits the reliability of the results. A potential benefit of cesarean delivery on maternal request as compared with planned vaginal delivery is a decreased risk of hemorrhage for the mother. Potential risks of cesarean delivery on maternal request include a longer maternal hospital stay, an increased risk of respiratory problems for the baby, and greater complications in subsequent pregnancies, including uterine rupture and placental implantation problems.

Other Factors

When a woman desires a cesarean delivery on maternal request, her health care provider should consider her specific risk factors, such as age, body mass index, accuracy of estimated gestational age, reproductive plans, personal values, and cultural context. Critical life experiences (eg, trauma, violence, poor obstetric outcomes) and anxiety about the birth process may prompt her request. If her main concern is a fear of pain in childbirth, then prenatal childbirth education, emotional support in labor, and anesthesia for childbirth should be offered.

Further research is needed to get direct evidence for better counseling in the future. This includes surveys on cesarean delivery on maternal request, modification of birth certificates and Current Procedural Terminology coding to facilitate tracking, prospective cohort studies, database studies, and studies of modifiable risk factors for cesarean delivery on maternal request versus planned vaginal delivery. Short-term and long-term maternal and neonatal outcomes as well as cost need further study.

Conclusions

The available data on cesarean delivery on maternal request compared with planned vaginal delivery is mini-

mal and mostly based on indirect comparisons. Most of the studies of proxy outcomes do not adequately adjust for confounding factors and, thus, must be interpreted cautiously.

Recommendations

- Cesarean delivery on maternal request should not be performed before gestational age of 39 weeks has been accurately determined unless there is documentation of lung maturity.
- Cesarean delivery on maternal request should not be motivated by the unavailability of effective pain management.
- Cesarean delivery on maternal request is not recommended for women desiring several children, given that the risks of placenta previa, placenta accreta, and gravid hysterectomy increase with each cesarean delivery.

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