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Short Communication

Elective Cesarean Section for No Medical Reason at 38 Weeks of Gestational Age Fails to Take into Consideration the Risks Associated with Early Term Delivery

Anibal Faundes*

Department of Obstetrics and Gynaecology, School of Medical Sciences, University of Campinas (UNICAMP), Campinas, São Paulo, Brazil

DESCRIPTION

Elective Cesarean section (C-section) has to be performed prior to the onset of spontaneous labor; consequently, this procedure will always reduce fetal maturity at the time of delivery. This may not be so important if delivery is brought forward by only a few days; however, the health of the newborn infant can be compromised when a C-section is performed more than a week before the due date.

An increasing trend in the percentage of births occurring prior to 39 weeks of pregnancy has been seen both in Brazil and throughout the developed world [1-3]. In Brazil, the convenience of both patient and physician is the motivation behind a large proportion of elective C-sections performed for no medical reason.

For physicians, an elective C-section on a predefined date and at a pre-established time avoids the inconvenience of the woman going into labor spontaneously, often interfering with other, already scheduled social or professional activities. To avoid the risk of waiting until 40 or even 39 weeks to schedule delivery safely, most elective C-sections are scheduled when the woman completes 38 weeks of pregnancy. Corticosteroids are often given prior to delivery with the erroneous idea of preventing hyaline-membrane disease, despite the fact that any possible effect of these drugs is limited to 34 weeks of gestational age [4]. Although it is assumed that women scheduled to undergo an elective C-section for no medical reason have made a free informed decision, one study revealed that around a quarter of the mothers surveyed reported having experienced pressure from their attending physician to opt for this mode of delivery [5].

In Australia, data from 1994 to 2009 showed a gradual and steady left-shift in the distribution of gestational age at birth, with a decline in modal gestational age from 40 to 39 weeks. The proportion of pre-labor C-sections also increased steadily at each gestational age and has doubled since 1994 [6].

In many middle-income and high-income countries, there appears to be an association between an increase in the rate of elective C-sections and a parallel increase in early term birth. Delivery interventions reduce gestational age, and earlier gestational age has been associated with adverse neonatal outcomes, including respiratory distress and jaundice, even among full-term infants [7]. In 2015, the rate of C-sections in Brazil reached as high as 55.5% of all births. The distribution in the gestational age of newborn infants reflects the rising number of preterm and early term births, and conversely, fewer full term infants [8].

Birth at 38 weeks of gestational age represents a disadvantage for newborns. Compared to those born at 39 weeks, early term birth at 37 or 38 weeks has been associated with an increase in neonatal morbidities such as respiratory distress syndrome or transient tachypnea, hypoglycemia, sepsis, seizures, necrotizing enterocolitis and hypoxic-ischemic encephalopathy, as well as with a need for cardiopulmonary resuscitation or breathing support within 24 hours of birth, with pH levels below 7.0 in umbilical cord arterial blood, a 5-minute Apgar score ≤ 3, need for admission to the neonatal Intensive Care Unit (ICU), and a longer hospital stay. The magnitude of the risk of any of those unfavorable outcomes increases up to 4-fold at 37 weeks and 2-fold at 38 weeks [9].

A large collaborative study based on registry data and conducted at 19 U.S. academic centers between 1999 and 2002 included 13,258 women who had undergone an elective C-section at term. Gestational age at delivery was confirmed by a first or second trimester ultrasound scan in 76.8% of cases. Postponing elective delivery to 39 weeks compared to performing a C-section at 37 or 38 weeks of pregnancy was found to avoid an unfavorable outcome in 48% and 27% of cases, respectively [9].

Likewise, elective C-section delivery at 38 to 39 weeks of gestation was associated with a higher rate of transient neonatal tachypnea and ICU admission compared to an elective C-section performed after 39 weeks of pregnancy [10].

Correspondence to: Anibal Faundes, Department of Obstetrics and Gynaecology, School of Medical Sciences, University of Campinas (UNICAMP), Campinas, São Paulo, Brazil**, E-mail:** afaundes@uol.com.br

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A study performed in Shanghai and including over 80,000 deliveries also reported a significantly greater risk of adverse neonatal outcomes when delivery occurred between 37 weeks/0-6 days and between 38 weeks/0-6 days compared to infants born at 39 weeks of gestational age [11].

In Canada, a retrospective cohort study analyzing 38,807 births found that late preterm and early-term infants had an elevated risk for triage/admission to a neonatal ICU and increased neonatal respiratory morbidity, showing that delivery prior to 39 weeks of pregnancy is associated with poor neonatal outcomes [12].

Furthermore, a large prospective cohort study conducted in China found that elective C-section at the mother's request prior to 39 weeks of pregnancy was an independent predictor of emotional and behavioral problems in pre-school children [13]. In a broad review of the subject, Signore and Klebanoff concluded that in order to reduce the potential risks to the neonate of an elective C-section, such interventions should not be undertaken prior to 39 weeks of pregnancy [14].

Cesarean deliveries may also exert direct adverse effects on the health of the newborn infant that are unrelated to gestational age. It has been suggested that going through the birth canal stimulates the infant's lungs, reducing the likelihood of neonatal respiratory distress [15] and favorably altering the infant's microbiome [16].

Preterm birth may also have a long-term effect, as shown by lower educational assessment scores compared to those of children born at full term [-0.46 (-0.84 to -0.07)]. However, this difference decreases during development, with greater progress being made between ages 5 and 11 and slower progress between ages 12 and 16 [0.10 (0.01 to 0.19)] [17].

Efforts have been made to minimize the incidence of elective C-sections. A policy limiting elective delivery prior to 39 weeks of pregnancy at one center resulted in a decrease in deliveries before 39 weeks from 33.1% to 26.4%; however, this coincided with an increased risk of stillbirth at 37-38 weeks (0.3-0.9 per 1,000) and of macrosomia [18]. The cumulative probability of antepartum stillbirth was estimated as 0.08% at 38 weeks of pregnancy, increasing to 0.34% at 41 weeks [19].

In summary, cumulative evidence in different countries shows that elective delivery before the 39th week of pregnancy is associated with a higher risk of adverse neonatal outcomes compared to delivery at 39 weeks. This information should be widely communicated, bearing in mind the high frequency of elective C-sections performed at 38 weeks of gestational age.

CONFLICTS OF INTEREST

None

REFERENCES

1. Silveira MF, Santos IS, Barros AJ, Matijasevich A, Barros FC, Victora CG. Increase in preterm births in Brazil: Review of population-based studies. Rev Saude Publica. 2008;42:957-64.
2. Beck S, Wojdyla D, Say L, Betran AP, Merialdi M, Requejo JH, et al. The worldwide incidence of preterm birth: A systematic review of maternal mortality and morbidity. Bull World Health Organ. 2009;88(1):31-38.
3. Lopez PO, Bréart G. Trends in gestational age and birth weight in Chile, 1991-2008. A descriptive epidemiological study. BMC Pregnancy Childbirth. 2012;12:121.
4. Roberts D, Brown J, Medley N, Dalziel SR. Antenatal corticosteroids for accelerating fetal lung maturation for women at risk of preterm birth. Cochrane Database Syst Rev. 2017;3(3):CD004454.
5. Ramachandrappa A, Jain L. Elective cesarean section: Its impact on neonatal respiratory outcome. Clin Perinatol. 2008;35(2): 373-393.
6. Nassar N, Schiff M, Roberts CL. Trends in the distribution of gestational age and contribution of planned births in New South Wales, Australia. PLoS One. 2013;8:e56238.
7. Reichman NE, Teitler JO, Moullin S, Ostfeld BM, Hegyi T. Late-preterm birth and neonatal morbidities: population-level and within-family estimates. Ann Epidemiol. 2015;25(2):126-132.
8. Barros FC, Rabello Neto DL, Villar J, Kennedy SH, Silveira MF, Diaz-Rossello JL, et al. Caesarean sections and the prevalence of preterm and early-term births in Brazil: Secondary analyses of national birth registration. BMJ Open. 2018;8:e021538.
9. Tita AT, Landon MB, Spong CY, Lai Y, Leveno KJ, Varner MW, et al. Timing of elective repeat cesarean delivery at term and neonatal outcomes. N Engl J Med. 2009;360:111-120.
10. Pirjani R, Afrakhteh M, Sepidarkish M, Nariman S, Shirazi M, Moini A, et al. Elective caesarean section at 38-39 weeks gestation compared to >39 weeks on neonatal outcomes: A prospective cohort study. BMC Pregnancy Childbirth. 2018;18:140.
11. Yong H, Shen H, Landon MB, Cheng W, Liu X. Optimal timing for elective caesarean delivery in a Chinese population: A large hospital-based retrospective cohort study in Shanghai. BMJ Open. 2017;7:e014659.
12. Brown HK, Speechley KN, Macnab J, Natale R, Campbell MK. Neonatal morbidity associated with late preterm and early term birth: The roles of gestational age and biological determinants of preterm birth. Int J Epidemiol. 2014;43(3):802-814.
13. Huang K, Yan S, Wu X, Zhu P, Tao F. Elective caesarean section on maternal request prior to 39 gestational weeks and childhood psychopathology: A birth cohort study in China. BMC Psychiatry. 2019;19:22.
14. Signore C, Klebanoff M. Neonatal morbidity and mortality after elective cesarean delivery. Clin Perinatol. 2008;35(2):361-371.
15. Tutdibi E, Gries K, Bücheler M, Misselwitz B, Schlosser RL, Gortner L. Impact of labor on outcomes in transient tachypnea of the newborn: Population-based study. Pediatrics. 2010;125:e577-e583.
16. Azad MB, Konya T, Maughan H, Guttman DS, Field CJ, Chari RS, et al. Gut microbiota of healthy Canadian infants: Profiles by mode of delivery and infant diet at 4 months. CMAJ. 2013;185(5): 385-394.
17. Odd D, Evans D, Emond AM. Prediction of school outcome after preterm birth: A cohort study. Arch Dis Child. 2019;104:348-353.
18. Ehrenthal DB, Hoffman MK, Jiang X, Ostrum G. Neonatal outcomes after implementation of guidelines limiting elective delivery before 39 weeks of gestation. Obstet Gynecol. 2011;118:1047-1055.
19. Smith GC, Pell JP, Cameron AD, Dobbie R. Risk of perinatal death associated with labor after previous cesarean delivery in uncomplicated term pregnancies. JAMA 2002;287(20):2684-2690.