Health Consequences of the Increasing Caesarean Section Rates

José M. Belizán, * Fernando Alhabe, * and Maria Luisa Cafferata†

Abstract: Caesarean section (C-section) rates are rising in many middle- and high-income countries, with the justification that higher rates of C-section are associated with better outcomes. A review of 79 studies comparing outcomes of elective caesarean sections with vaginal deliveries, including both observational studies and randomized trials, suggests that caesarean sections may have substantially greater risks than vaginal deliveries. In this issue of Epidemiology, Leung and colleagues present data from Hong Kong on morbidity in offspring related to C-section. Such studies are needed to widen the scope of possible health outcomes related to elective C-sections, including such endpoints as maternal satisfaction and women’s relationship with their child. Testing of interventions to reduce unnecessary C-sections is also needed, with strategies to enhance the role of women in the process of their obstetric care.

(Epidemiology 2007;18: 485–486)

In 1999, 27% of deliveries in Hong Kong were by caesarean section (C-section). This high rate of C-section prompted Leung et al. to explore the consequences of caesarean delivery for the infant’s health, with results presented in this issue. Hong Kong is not unique. There has been a striking increase in C-sections in medium- and high-income countries around the world. There are several and complex reasons for this trend. C-section is a surgical procedure developed to prevent or treat life-threatening maternal or fetal complications. Changes in medical indications do not explain the recent increases in C-section rates. One reason sometimes mentioned for the increase is women’s choice. However, at least in Latin American countries, pregnant women still favor vaginal delivery, either because recovery is faster or because it is the natural way to deliver. This preference is found even among women receiving a C-section and at hospitals with extremely high C-section rates.

What level of C-sections in the population is appropriate? Twenty years ago, the World Health Organization recommended that no more than 15% of deliveries should be delivered by C-section, pending evidence that higher levels benefit either mothers or their offspring. Of 60 medium- and high-income countries reviewed in a recent study, the majority (62%) had national rates of C-section above 15%. If we assume, based on the World Health Organization recommendations, that C-section rates above 15% lack medical justification, then there are 3.5 million medically unjustified interventions performed among these countries yearly.

What are the consequences of these trends for the health of women and babies? To the extent that high rates of C-sections are not medically indicated, they unnecessarily expose the mother and child to consequences that are not fully understood. In such procedures, the mother and her partner have no active participation in the birth of their child. The costs and benefits of this elective procedure, both physical and emotional, should be seriously explored before accepting the liberalization of its use.

Elective caesarean section may provide some benefits. A systematic review of 79 studies of elective C-sections versus vaginal deliveries, including observational and randomized trials, has shown that women with C-section have decreased urinary incontinence at 3 months and decreased perineal pain in comparison with those having a vaginal delivery. On the other hand, C-section was associated with a higher risk of maternal mortality, hysterectomy, ureteral tract and vesical injury, abdominal pain, neonatal respiratory morbidity, fetal death, placenta previa, and uterine rupture in future pregnancies. One limitation of observational studies is that associations with poor outcomes could be due to the conditions that trigger the C-section rather than the C-section itself, despite statistical efforts to adjust for these confounders. Consequently, the strength of this evidence should be considered with caution.

Two recent reviews of observational or ecological studies have examined the association of C-section rates with maternal and neonatal mortality and morbidity. One is the study mentioned above, using data on 60 medium- and high-income countries of all regions, and the other is based on data from Latin American countries. Both reviews found no evidence for reductions in maternal and neonatal mortality and morbidity with increases in C-section rates to above 10%. In fact, higher rates of C-section were associated with higher rates of maternal and neonatal mortality and morbidity. For example, Barros et al. showed that, between 1982 and 2004, the C-section rate in one city in southern Brazil increased from 28% to 43%, whereas the preterm birth rate has increased from 6% to 16%. The increase in preterm births occurred despite improvements in socioeconomic and nutri-
tional conditions in the population. The increase in C-section rates and also an increase in elective induction of labor contributed to this trend.

Most observational studies have focused on the outcomes of next pregnancy. The study by Leung et al. provides useful data on the postpartum morbidity of the offspring themselves delivered by C-section. While the authors found no clear evidence of either harm or benefit among the offspring delivered by C-section compared with vaginal delivery, their study is a good example of studies that expand the range of possible outcomes related to mode of delivery. Other outcomes might include short- and long-term maternal satisfaction and maternal-infant bonding.

Given the lack of evidence for substantial benefit from elective C-section and the possibility of substantial harm, research is also needed to better understand the reasons for the rising trends, and to design and test interventions that can reduce unnecessary C-sections. Recent attempts tested in a rigorous trial have resulted in only a small decrease in C-section rates.

All of the actors involved in women’s health care should be aware of the health, economic and social consequences of elective C-section. Women’s organizations need to play a relevant part in empowering women to play more participatory roles in their care and to improve their knowledge of the rationale for the use of C-sections and the consequences of unnecessary use.

From a different perspective, many are arguing about the need for a trial comparing elective C-section versus an attempt to deliver vaginally. Whether such a trial can be justified on an ethical and public health basis is still a matter of debate. In our view, this is not currently a priority question for the developing world.

ABOUT THE AUTHORS

JOSE M. BELIZÁN is an Argentinean obstetrician with a PhD in Biology of Reproduction. He has been involved in many research trials looking for interventions to improve obstetric care, and on the dissemination and implementation of evidence-based practices of care. He is currently working in a health research institution in Buenos Aires. FERNANDO ALTHABE is an Argentinean perinatal epidemiologist. He has conducted several intervention and observational studies in Latin American countries. He is currently working in a health research institution in Buenos Aires.

REFERENCES

3. What is the right number of caesarean sections? *Lancet*. 1997;349:815