Will there ever be an end to the Caesarean section rate debate?

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Abstract

Caesarean section rates continue to rise. To date, no serious attempt has been made to address this issue. There are no scientific grounds for identifying an ‘appropriate’ level for Caesarean section rates. A ‘Term Cephalic Trial’ may provide such information, but poses major logistic and ethical challenges. The authors propose that a combination of known and newly developed predictors of emergency operative delivery may allow an antenatal risk assessment that could make intervention trials both ethically sound and logistically feasible.

Key words: Caesarean section rate, operative delivery, pelvic floor trauma, risk assessment, Term Cephalic Trial.

The increasing Caesarean section rate has become a major public health issue. This is mainly due to the fact that more and more women are being delivered abdominally for poorly defined medical reasons. So far, no serious attempts have been made to address the issue, although a large proportion of the population and the medical profession perceive this, rightly or wrongly, to be a problem.

Over the last 30 years, there has been a seemingly inexorable rise in the rate of babies delivered by Caesarean section, and the trend shows no sign of reversing. The latest figures for Australia indicate that, in the higher age groups, Caesarean section rates in primiparous women have reached 44.2% in the private sector and 38% in public patients for women aged 35–39 years. Even higher rates are found in older women with 59.1% of women aged 40 and above in private hospitals and 46.2% in public hospitals delivered by Caesarean in 2000.1 A significant proportion of this rise is a result of elective surgery, with approximately half of all Caesarean deliveries currently attributable to elective procedures.1

Although the appropriate Caesarean section rate is not known, the rise in Caesarean section rates have been deplored almost universally. Alarm is expressed at high Caesarean section rates, whether in India,2 Chile,3 the UK,4,5 or Australia.1 The most common justification for such a negative assessment of current practice is a World Health Organization statement published in 1985, citing 15% as an appropriate level for Caesarean section rates6 and an International Federation of Gynaecology and Obstetrics committee report stating that Caesarean section should not be performed for ‘non-medical’ reasons.7 While many obstetricians in Australia and overseas would choose a Caesarean for themselves or their partners8–10 and are prepared to perform an elective Caesarean on request,11 negative voices prevail in the scientific literature. It is common for authors to state that ‘unnecessary Caesareans’ do more harm than good. Consequently, a rise in elective Caesarean section rates is assumed to have negative consequences on mother and child, as well as on the country’s public health system. The debate has become so emotional that some authors see a need to provide politically correct disclaimers in abstracts of scientific papers.12

Increasingly however, other voices are being heard. In an editorial in the New England Journal of Medicine in 2003,13 it is stated that ‘elective Caesarean delivery is no longer a marginal idea’. This shift in attitudes is largely the result of two developments, and neither of the two is likely to lose strength in the near future. First, the incidence of morbidity and mortality associated with elective Caesarean section continues to fall. The best data in this regard originates from the UK, with the relative risk of death associated with Caesarean delivery in the 1997–1999 triennium being two.14 This figure includes emergency deliveries, and as the mortality of emergency Caesarean section is likely to be a multiple of elective Caesarean section,13,15 it may be assumed that the true difference in mortality between an ‘intention to perform elective Caesarean section’ and ‘intention to deliver vaginally’ would be lower, possibly non-significant. Recent data from Israel support this contention.16 After all, one has to consider that elective Caesarean section is not an alternative to normal vaginal delivery, but rather an alternative to attempting a normal vaginal delivery which, in a nulliparous Australian, currently implies a 60–75% likelihood of normal vaginal delivery, a 10–20%
risk of emergency Caesarean section, and a 5–15% risk of operative vaginal delivery.

The main reservation regarding low morbidity and mortality figures for elective Caesarean section relates to the fact that future pregnancies are more likely to be complicated by placental abnormalities and/or uterine rupture and that scarring from previous Caesarean section may cause surgical problems several decades later – such as an increased risk of complications at hysterectomy. Nevertheless, the contention that elective Caesarean section carries an increased risk for the mother seems ‘increasingly tenuous’.13

In regards to the risk-benefit ratio for the baby, elective Caesarean section is usually performed between 38 and 39 weeks, that is, on average 7–14 days earlier than a spontaneous delivery. This implies ‘savings’ in unexplained intrauterine fetal deaths that would otherwise occur during this timespan.19 However, there is the potential risk of iatrogenic prematurity and increased stillbirth rates after Caesarean section.20 On balance, it seems evident that the effect of a policy of elective Caesarean section on maternal and perinatal morbidity and mortality is unlikely to be determined without a randomised controlled trial.

The second reason for the ongoing shift in attitudes, both among doctors and their patients, is our increasing knowledge of pelvic floor physiology. Urogynaecologists have a very different perspective on these matters,21 but then they tend to see only those women who have, presumably or demonstrably, suffered significant trauma in childbirth. There has been an inexorable accumulation of evidence suggesting that, for some women, vaginal delivery (or even the attempt at vaginal delivery) may not be a good idea. Neurophysiological investigations,22–24 imaging,25,26 urethral pressure measurements,27,28 and clinical data29 all indicate that vaginal delivery, in particular vaginal operative delivery, is associated with impairment of fascial pelvic organ support and levator ani structure and function, anal sphincter damage, as well as pudendal nerve trauma. The situation is somewhat less clearcut regarding the actual symptoms of prolapse or incontinence, rather than the signs of pelvic floor disorders that may describe an aspect of ‘pelvic compliance’, is associated with delivery mode.49 Clinical assessment of engagement of the fetal head also is a predictor, and ultrasound determination of the same seems to be even more strongly associated with delivery mode.50 Ultrasound estimation of fetal weight may be less useful,52,53 but fetal sex is associated with obstructed labour.51 Various parameters have been used to predict operative delivery due to fetal distress. These include fetal abdominal circumference, fetal growth velocity and amniotic fluid index.55

If all independently significant parameters were used to construct a predictive model, we should be able to identify those women most at (and least) likely to deliver normally. Future intervention trials could then be aimed at the extremes of the population distribution. Those women most likely to deliver normally could be offered care in a low-tech environment such as Birth Centres. This may be advantageous, particularly in areas where there is a shortage of medical back-up. At the other end of the spectrum, those at high risk of operative delivery may be offered elective Caesarean section. Intervention cut-offs could be adjusted to guarantee resource-neutrality. Potential outcome parameters would range from immediate (e.g. Apgar scores, cord pH, admission to neonatal unit) to short-term (febrile morbidity, length of stay, breast-feeding success, health economics, pelvic floor assessment by clinical examination, ultrasound, neurophysiology, etc.), to medium- and long-term domains (psychometric/psychosexual evaluation, continence, fertility, infant development). The task appears daunting enough and is unlikely to be accomplished without a major cooperative effort.

Antenatal risk assessment may well make such an intervention trial feasible by increasing the power of a given study design. We need to undertake the groundwork for such a trial now, before it becomes impossible due to a loss of equipoise.
The aim of reducing the incidence of emergency operative delivery is surely a worthwhile goal in itself. We may even be able to achieve the hitherto impossible and stabilise or even reduce Caesarean section rates.

References


