

# Obstetrical and Pediatric Anesthesia

## Best evidence in anesthetic practice

### Prevention: planned Cesarean delivery reduces early perinatal and neonatal complications for term breech presentations

#### Article appraised

Hannah ME, Hannah WJ, Hewson SA, Hodnett ED, Saigal S, Willan AR, for the Term Breech Trial Collaborative Group. Planned caesarean section versus planned vaginal birth for breech presentation at term: a randomised multicentre trial. *Lancet* 2000; 356: 1375-83.

#### Structured abstract

**Question:** For the fetus that presents as breech at term, does a planned Cesarean birth reduce perinatal or neonatal mortality or serious neonatal morbidity compared to vaginal planned birth?

**Design:** Multicenter, randomized trial.

**Setting:** One hundred twenty-one hospitals in 26 countries.

**Patients:** Two thousand eighty-eight parturients, each with a singleton live fetus in frank or complete breech presentation at  $\geq 37$  weeks' gestation. Exclusion criteria were fetopelvic disproportion, clinically large (estimated weight  $\geq 4000$  g) fetus, hyperextension of fetal head, known lethal fetal congenital anomaly, clinically suspected fetal anomaly or condition that might cause mechanical problem at delivery, and contraindication to labour or vaginal delivery.

**Intervention:** One thousand forty-three women were allocated to planned Cesarean section at  $\geq 38$  weeks' gestation; 1045 women were allocated to planned vaginal birth by spontaneous labour unless an indication for induction or Cesarean section developed. Management of labour followed a predefined protocol; vaginal deliveries were performed by clinicians experienced in vaginal breech delivery. Randomization was stratified by parity (0 or  $\geq 1$ ).

**Main outcomes:** Perinatal / neonatal mortality at  $< 28$  days of age or serious neonatal morbidity were the primary outcomes. Six-week postpartum maternal mortality or serious maternal morbidity were the secondary outcomes.

**Main results:** Analysis was intention-to-treat. Maternal (age, parity, frequency of labour or ruptured membranes) and fetal (type of breech presentation, size or weight) characteristics; methods used to assess fetal size, attitude of fetal head, and adequacy of pelvis; attempts at external cephalic version; national perinatal mortality rates; and standard of care in participating centres were similar between both groups. Planned Cesarean section significantly reduced the risks of perinatal / neonatal mortality and serious neonatal morbidity compared to planned vaginal birth (Table). There were no significant

TABLE Perinatal / neonatal mortality at  $< 28$  days of age, serious neonatal morbidity, six-week maternal mortality, and serious maternal morbidity

Outcome	Cesarean section	Vaginal birth	Relative risk* (95% CI)	P-value
Perinatal / neonatal mortality or serious neonatal morbidity	17 / 1039	52 / 1039	0.33 (0.19; 0.56)	$< 0.0001$
Perinatal / neonatal mortality	3 / 1039	13 / 1039	0.23 (0.07; 0.81)	0.01
Serious neonatal morbidity	14 / 1036	39 / 1026	0.36 (0.19; 0.65)	0.0003
Maternal mortality or serious maternal morbidity	41 / 1041	33 / 1042	1.24 (0.79; 1.95)	0.35

\* Relative risk less than 1 favours the planned Cesarean section group; relative risk greater than 1 favours the planned vaginal birth group.

differences in maternal mortality or serious maternal morbidity between the two groups.

**Conclusion:** Planned Cesarean delivery of term singleton fetus in breech presentation significantly reduces early (<28 days) perinatal / neonatal mortality and serious morbidity without increased six-week maternal mortality or serious maternal morbidity.

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Commentary by P. McNiven, K. Kaufman and H. McDonald

The Term Breech Trial,<sup>1</sup> published in October 2000 randomly assigned, in 26 countries, 2,088 women with a singleton fetus in frank or complete breech presentation to a policy of planned Cesarean section or a policy of planned vaginal delivery. With a sample size sufficient to detect a significant difference in perinatal morbidity and mortality, the study found improved perinatal outcomes in the group assigned to planned Cesarean section without increase in maternal morbidity.

When Hannah *et al.* stratified the data by the country's perinatal mortality rate (PMR), the improvement associated with Cesarean delivery was greater in countries (like Canada) with a low PMR.<sup>2</sup> In countries with a high PMR the benefits of Cesarean delivery were less with almost no difference in the rate of serious neonatal morbidity. In countries with a low PMR, seven additional planned Cesarean sections are needed to prevent one serious perinatal complication. The number needed-to-treat in countries with a high PMR is 39. The authors state that the reduced benefit from planned Cesarean section in countries with a high PMR may be due to higher levels of experience with vaginal breech delivery in those countries. The implications of increasing the number of Cesarean births in developing countries are immense: greater numbers of women will have uterine scarring, its associated complications, as well as an increase in repeat Cesarean deliveries. Since these are the countries with the least resources, a policy of planned Cesarean section may be unjustified.

In countries with a low PMR, women must be adequately informed about the comparison of vaginal breech delivery and Cesarean section. This is not a

simple task. While outcomes are improved, vaginal birth cannot be dismissed as unsafe when the vast majority of the babies (94%) were well nor can Cesarean section be guaranteed to prevent all perinatal complications.

Midwives in Ontario are required to seek a medical consultation for breech presentations persisting after 36 weeks of pregnancy. They must discuss with women the reasons for the referral and information about breech presentations. The impact of this trial is just beginning to be felt. Many questions arise. Will women have any opportunity to choose a trial of labour? Will obstetricians decline all except precipitous vaginal breech births? How will competency in vaginal breech birth be maintained?

Increasingly important is recognition of the breech presentation prior to labour and consideration of external cephalic version (ECV) to reduce the probability of Cesarean section. Research has shown that ECV at term reduces the risk of breech presentation at birth.<sup>2</sup> However, for nulliparous women and those with a frank breech regardless of parity, ECV at term has a higher failure rate.<sup>2</sup> A multicentre randomized clinical trial is underway to test the effectiveness of ECV at 34 to 36 weeks gestation compared to 37 to 38 weeks.<sup>2</sup> The findings of this trial will contribute to the information that can be provided to women with fetuses in breech presentation.

Obstetrical care providers who promote policies to reduce interventions in childbirth may be disappointed with the findings, but it is important that they communicate the findings to women in their care. Research evidence should inform policy but should not be used as a dictum. Women are entitled to receive objective, detailed explanations and, in the words of Michael Helawa, "non-coercive counselling",<sup>3</sup> which will enable women to exercise their own decision-making capacity rather than be subjected to institutional rules.

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## References

- 1 Hannah ME, Hannah WJ, Hewson SA, Hodnett ED, Saigal S, Willan AR, for the Term Breech Trial Collaborative Group. Planned caesarean section versus planned vaginal birth for breech presentation at term: a randomised multicentre trial. *Lancet* 2000; 356: 1375-83.
- 2 Hutton EK, Hannah ME, Amankwah K, Kaufman K, Hodnett ED External cephalic version (ECV) and the

early ECV trial. *J Soc Obstet Gynaecol Can* 1999; 21: 1316–26.

- 3 Helewa ME. 2000: Year of the breech. *J Soc Obstet Gynaecol Can* 2001; 23: 313–8

Commentary by D.C. Campbell

The publication of the results of this monumental multicentered (121 centers), multinational (26 countries) investigation has completely altered obstetric practice not only at the University of Saskatchewan, but throughout Canada. The investigators appropriately analyzed the two treatment groups on an intent-to-treat basis. All women with a term breech presentation, regardless of parity and obstetric history are now being advised to undergo an elective Cesarean delivery.<sup>1</sup>

However, upon review, several concerns must be illustrated. Most importantly, the investigators did not include a control group of healthy women with singleton fetus in cephalic presentation undergoing planned vaginal delivery. Due to the multicentered, multinational study design, it is extremely important to be able to compare the morbidity and mortality rates in each center for vaginal cephalic delivery. The lack of such a control group cannot eliminate the possibility that the observed lower rates of significant perinatal mortality and neonatal morbidity and mortality with Cesarean delivery may have been the result of complications of vaginal birth rather than specific risks attributable to breech vaginal delivery. This concern is highlighted by the fact that, although the investigators report similar vaginal breech delivery experience, the experience of the delivering clinician is only reported for 646 (Cesarean delivery, 88; vaginal delivery, 558) of the 2,088 women allocated to the two treatment groups. Instead of rates from a prospective control group of vaginal cephalic deliveries, the investigators chose to use each participating country's perinatal mortality rate. Unfortunately, such information is not applicable to the clinicians specifically participating in this clinical trial. One can only wonder whether the profound adverse effects observed in the vaginal delivery group might, in fact, have been attributable to the inexperience of the delivering clinicians, particularly in the countries with high perinatal mortality rates. Unfortunately, the lack of a control group with vaginal cephalic delivery significantly reduces the scientific impact of this tremendous undertaking and consequently the clinical applicability of the investigators' recommendations.

Another concern is the observation that the incidence of perinatal morbidity or mortality increases as the obstetrical caregiver's experience with breech deliveries decreases. With its publication and wide-

spread acceptance, this investigation has immediately resulted in a significant reduction in exposure to breech vaginal deliveries. Consequently, opportunities to maintain this skill amongst experienced clinicians or the development of this skill by trainees may ultimately be lost. It will be very difficult for even the most experienced clinician to offer vaginal breech delivery without peer criticism and, perhaps more importantly, the fear of litigation. Of significant concern will be the gradual erosion of expertise to deal with an emergent, precipitous vaginal breech delivery and unfortunately may result in increased perinatal morbidity and mortality, which ironically are the very complications the investigators' intend to reduce.

Although this publication has had an immediate and significant impact on the management of parturients with a breech presentation, hopefully Canadian obstetrical practice will be tempered by an understanding of the limitations of this landmark investigation.

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#### Reference

- 1 *The Society of Obstetricians and Gynaecologists of Canada*. SOGC Statement on Vaginal Breech [press release]. SOGC News 2001 March.