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Impact of the mode of delivery on maternal and neonatal outcome in spontaneous-onset breech labor at 32^{+0}–36^{+6} weeks of gestation: A retrospective cohort study

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ABSTRACT

Objective: To compare neonatal and maternal outcomes in spontaneously onset preterm breech deliveries after trial of labor (BTOL) and intended cesarean section (BCS), and between BTOL and vertex control deliveries, in singleton fetuses at 32^{+0}–36^{+6} weeks of gestation.
Study design: Retrospective single center cohort study in a Finnish University Hospital including all spontaneous-onset preterm breech deliveries with 32 completed gestational weeks in 2003–2015. The study population comprised a total of 176 preterm breech and 103 vertex control deliveries, matched by gestational age and whether the mother had given birth vaginally before or not. Infants with severe malformations and antepartum fetal distress were excluded. Subgroup analyses were made in two cohorts according to gestational age. Main outcome measures were maternal and neonatal mortality and morbidity, low cord pH and Apgar score.
Results: No mortality was observed, and severe morbidity was rare. No difference in incidence of low cord pH or five-minute Apgar score was observed between the groups. Apgar scores at the age of one minute were comparable in the breech groups but more often low in the BTOL group compared to the vertex control group. 16.5% of neonates in the BTOL group, 23.3% in the BCS group and 7.8% in the vertex group needed intensive care. In logistic regression analysis, lower gestational age and being small for gestational age were associated with the need for neonatal intensive care. Being allowed a trial of labor was not associated with the need for neonatal intensive care. Maternal morbidity was similar across the groups, but median blood loss was more pronounced in the BCS group compared to the BTOL group.
Conclusion: In breech deliveries at 32^{+0}–36^{+6} gestational weeks, trial of labor did not increase neonatal morbidity compared to intended cesarean delivery. Infants born after a trial of labor in breech presentation display low one-minute Apgar score and need intensive care more often compared to vertex controls.

Introduction

Preterm birth occurs in 6–11% of deliveries and predisposes infants to excess mortality and morbidity [1]. Randomized data on the optimal mode of preterm delivery are sparse, and a 2013 Cochrane review could not recommend a policy of either vaginal or planned cesarean delivery for preterm deliveries irrespective of the fetal presentation [2]. In premature breech deliveries the optimal mode of delivery is even more controversial, as evidence concerning term breech deliveries is conflicted [3–7], and the circumstances of preterm breech delivery do not permit randomized controlled trials [8,9].

Although the incidence of breech presentation is highest in very preterm deliveries and decreases as gestational age advances [10], it is also more common in moderately and late preterm deliveries than term deliveries. Furthermore, as the majority of preterm deliveries consist of late preterm deliveries and morbidity is still higher than in term deliveries [11–13], their impact on the healthcare system is considerable.

Abbreviations: TOL, trial of labor; BTOL, breech trial of labor; CS, cesarean section; BCS, breech cesarean section; NICU, neonatal intensive care unit.

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The aim of this study was to compare the neonatal and maternal outcomes of moderately and late preterm breech deliveries with spontaneous onset of labor at 32^{+0}–36^{+6} gestational weeks between groups of intended vaginal and intended cesarean deliveries. A secondary goal was to compare the neonatal outcomes between preterm breech and vertex deliveries after a trial of vaginal delivery.

Materials and methods

All singleton preterm breech deliveries at 32^{+0}–36^{+6} weeks of gestation from April 2003 to December 2015 in Tampere University Hospital were evaluated for inclusion. Fig. 1 demonstrates the composition of the study population. As the cause necessitating iatrogenic delivery may affect both neonatal and maternal outcome, only deliveries with spontaneous onset of labor were included. Fetuses with severe malformations were excluded, as well as fetuses whose prognosis was unfavorable due to antepartum fetal distress, as in cases with pathological antepartum cardiotocography trace necessitating acute cesarean section.

Breech deliveries were grouped by intended mode of delivery, resulting in 103 deliveries in the breech trial of labor cohort (BTOL) and 73 in the intended breech cesarean delivery cohort (BCS). Furthermore, for every delivery in the BTOL group, a vertex control was established using the delivery room logbook. All 103 controls were intended vaginal deliveries with spontaneous onset of labor, matched by gestational age at delivery (±5 days) and whether the mother had given birth vaginally before or not. These deliveries formed the vertex trial of labor group (TOL). Data were collected from the medical records of mothers and infants.

To control confounding in delivery outcome due to different degrees of prematurity, subgroup analysis was conducted in two cohorts according to gestational age. The moderately preterm cohort consisted of deliveries from 32^{+0} to 33^{+6} gestational weeks and included 19 BTOL deliveries, 18 BCS deliveries, and 17 vertex TOL deliveries. The late preterm cohort covered deliveries from

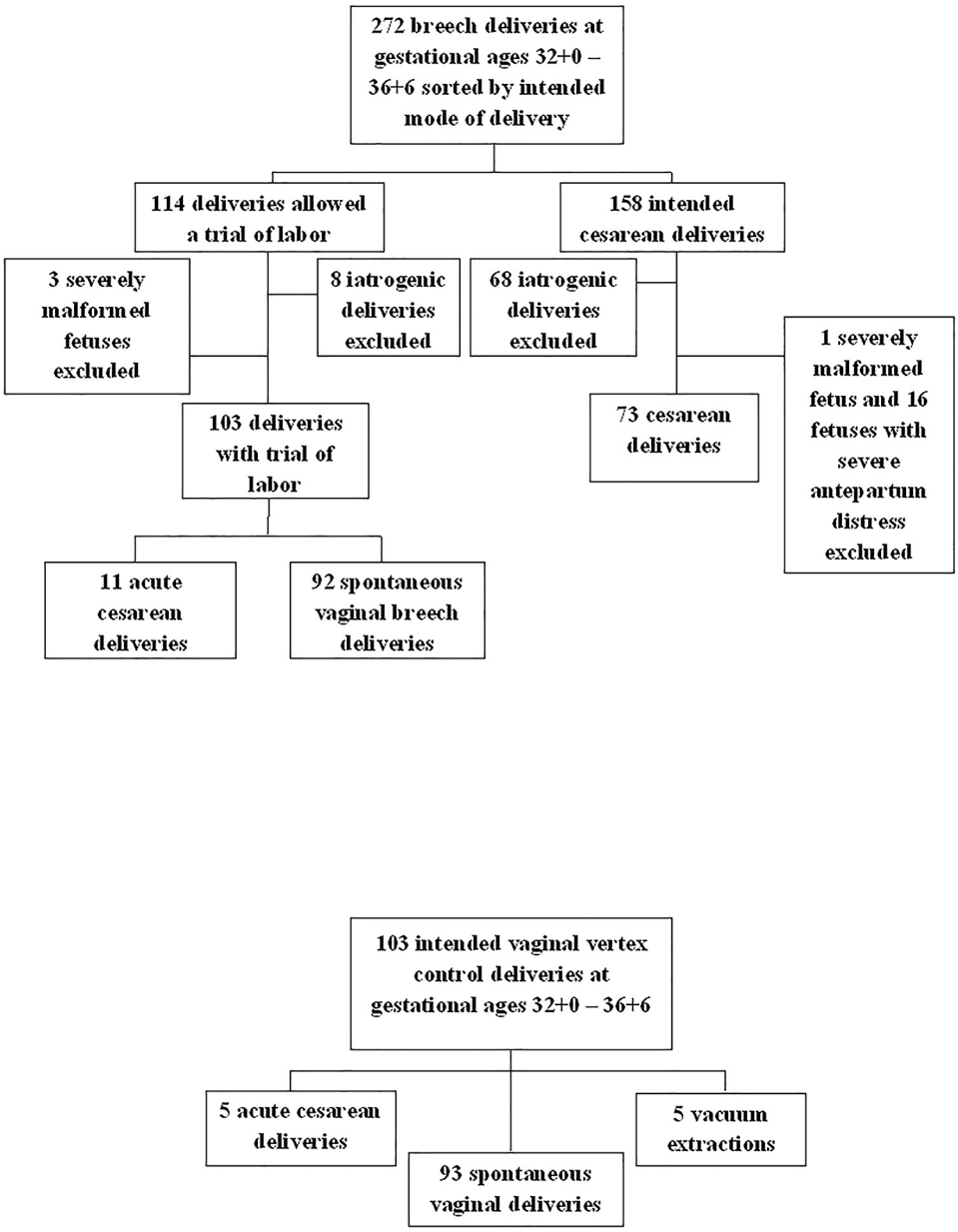

Fig. 1. Intended and actual modes of preterm breech and vertex control deliveries.