

Evidence Update

Maternal Health Series

April 2004

How does vacuum extraction compare to forceps delivery?

Vacuum extraction results in less maternal trauma, but cephalohaematoma in the baby is more frequent.

Inclusion criteria

Studies:

Randomized and quasi-randomized controlled trials.

Participants:

Women of all parties requiring assisted delivery.

Intervention:

Vacuum extraction versus forceps delivery.

Outcome measures:

Fetal outcomes; maternal injury to the perineum; maternal perception of short and long-term pain.

Results

- Ten trials included of variable quality (n = 2923).
- Vacuum extraction was associated with an increased number of women with failed delivery in some studies, but not in others.
- Vacuum extraction was less likely to cause significant maternal injury than forceps (RR 0.46, 95%CI 0.38 to 0.56), and was associated with less use of regional or general anaesthesia, and fewer women experiencing severe pain at 24 hours (0.57 95% CI 0.34 to 0.94).
- Vacuum extraction was associated with more infants with cephalohaematoma (RR 2.34 95%CI 1.64 to 3.35) and retinal haemorrhage (RR 1.46, 95%CI 1.17 to 1.83). Serious neonatal injury was uncommon with either instrument.
- Vacuum extraction was associated with more maternal worries about the baby.
- No differences were detected between Apgar score at 1 minute, 5 minutes or perinatal deaths.

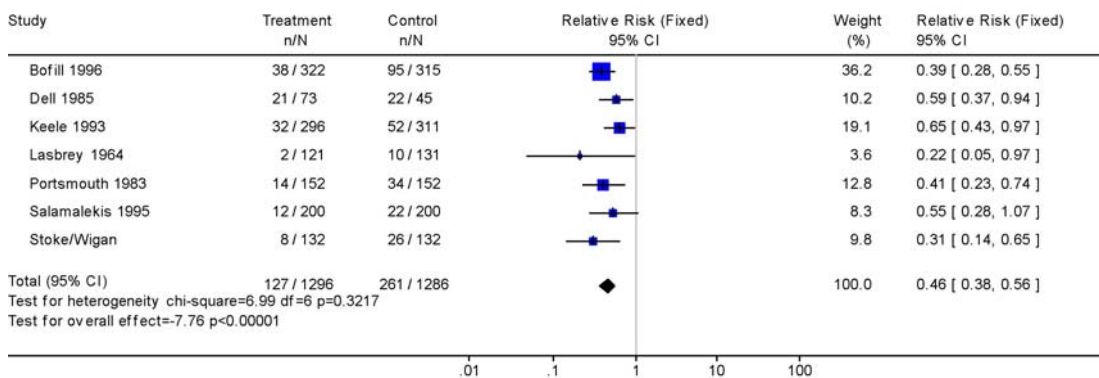


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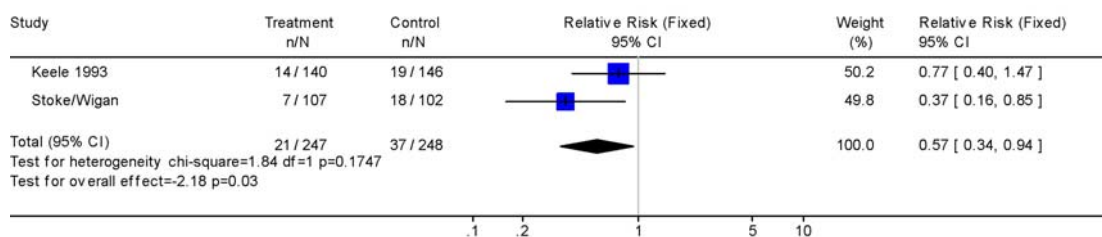
Adapted from Johanson RB, Menon V. Vacuum extraction versus forceps for assisted vaginal delivery (Cochrane Review). In: The Cochrane Library, Issue 1, 2004. Chichester, UK: John Wiley & Sons, Ltd.

Produced by the Effective Health Care Alliance Programme, Liverpool School of Tropical Medicine, supported by the Department of International Development UK, (<http://www.liv.ac.uk/evidence>).

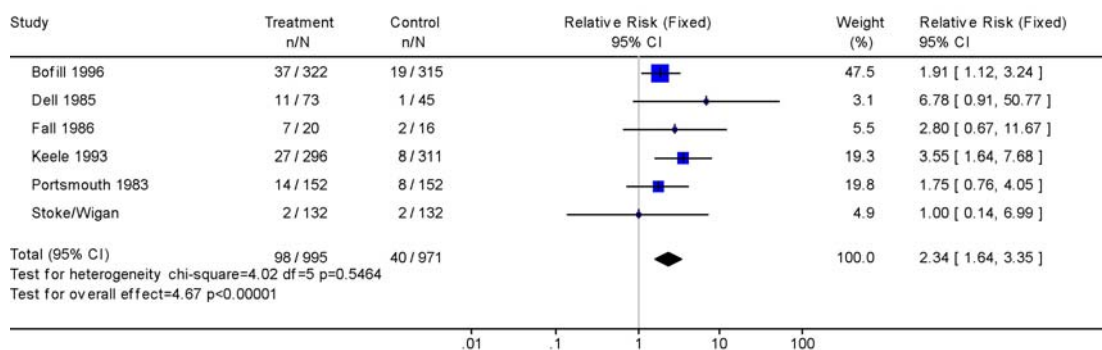
Review: Vacuum extraction versus forceps for assisted vaginal delivery
 Comparison: 01 VACUUM EXTRACTION VS FORCEPS DELIVERY
 Outcome: 04 Significant maternal injury



Review: Vacuum extraction versus forceps for assisted vaginal delivery
 Comparison: 01 VACUUM EXTRACTION VS FORCEPS DELIVERY
 Outcome: 07 Severe perineal pain at 24 hours



Review: Vacuum extraction versus forceps for assisted vaginal delivery
 Comparison: 01 VACUUM EXTRACTION VS FORCEPS DELIVERY
 Outcome: 10 Cephalhaematoma



Reviewer's conclusions

Implications for practice:

Use of the vacuum extractor reduces significant maternal injuries. Maternal and neonatal injury may be increased when a vacuum extraction failure is followed by an attempt to deliver with forceps. Vacuum extraction is associated with cephalohaematoma.

Implications for research:

It remains to be shown which instrument results in fewer major adverse neonatal effects: the increase in retinal haemorrhages and trend to low 5-minute Apgar scores in the vacuum should be investigated further. Research examining which mothers are at particular risk of trauma, and which babies are at risk of cranial injuries would be valuable.