Choice of instruments for assisted vaginal delivery

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For situations in which there is no clear clinical indication for a specific instrument to facilitate delivery, the findings of this review support the use of vacuum extraction as the first-line method for assisted birth. When a relatively easy procedure is anticipated, soft-cup vacuum extraction is indicated. When it is expected that more traction force may be needed, vacuum extraction with a metal cup should be the method of choice, except in women known to have HIV or hepatitis infection.

RHL Commentary by Althabe F

1. INTRODUCTION

Assisted vaginal delivery is still a frequent intervention in developed countries, but the current rates of its use in developing countries are low. In Latin America, for example, data from hospital deliveries in 18 countries show that rates do not exceed 6% and are below 2% for half of them (Unpublished data from Perinatal Information System, Latin American Centre for Perinatology, Pan American Health Organization, 1985–1995). More recent data from Argentina show rates of 1% in a region accounting for half of the country births (1). In regions with high caesarean section rates, such as Latin America (2), when operative delivery is indicated during the second stage of labour, clinicians are more likely to ask whether assisted vaginal delivery or caesarean section would be better for the mother and her baby. However, in settings in which caesarean section is not easily available, the question for clinicians becomes which instrument for assisted delivery is best in terms of maternal and perinatal health outcomes, which was the main objective of this Cochrane review (3). Additional research questions were whether forceps should be used and which type of forceps would be best, and whether vacuum extraction should be used and which type would be best.

2. METHODS OF THE REVIEW

The methods of the review were sound. The authors included only randomized controlled trials including women in the second stage of labour due for instrumental vaginal delivery. Studies including any type of forceps or a vacuum device were considered. The main outcomes were failed delivery with allocated instrument, maternal trauma, and neonatal injuries. The search for eligible studies was based on the Cochrane search strategy and no language restrictions were applied, making it unlikely that relevant studies would not be found. Selection of eligible studies for data extraction, and their quality assessment followed rigorous standard methods. Appropriate subgroups analyses were planned and conducted where possible.

3. RESULTS OF THE REVIEW

Thirty-two studies involving 6597 women were included in this review. The main results showed that the use of forceps was associated with significantly more maternal trauma: third- and fourth-degree perineal
tears were more common with forceps use [ten studies, 2810 women, relative risk (RR) 1.89, 95% confidence interval (CI) 1.51–2.37]. Moreover, facial injuries in the newborn were also more common with forceps (RR 5.10, 95% CI 1.12–23.25). The caesarean section rate was lower with vacuum extraction: after vacuum extraction failed, an attempt to deliver by forceps was more likely than the use of vacuum extraction after failure to deliver with forceps. In addition, there was a trend towards fewer cases of cephalhaematoma with vacuum extraction. On the other hand, forceps were less likely than vacuum extraction to fail in achieving a vaginal birth with the allocated instrument (RR 0.65, 95% CI 0.45–0.94).

With regard to the type of cup for vacuum extraction, metal-cup vacuum extraction was more effective in achieving vaginal birth than the soft cup, but was associated with higher a frequency of newborn scalp injury and cephalhaematoma.

4. DISCUSSION

4.1 Applicability of the results

Most trials included in the review had been conducted in hospitals where the instrumental delivery rate was more than 8%, whereas in low- and middle-income countries this figure seems to be much lower. However, it is improbable, and without any theoretical basis, that the comparison between instruments for assisted delivery would show significantly different results in country settings with lower rates of operative vaginal delivery.

The authors of the review have very well expressed the main implications for practice of the observed results. For situations in which there is no clear clinical indication for a specific instrument to facilitate delivery, the findings of this review support the use of vacuum extraction as the first-line method for assisted birth. When a relatively easy procedure is anticipated, soft-cup vacuum extraction is indicated. When it is expected that more traction force may be needed, vacuum extraction with a metal cup should be the method of choice, except in women known to have HIV or hepatitis infection. However, it is very important to acknowledge that training and experience of the operator with a particular instrument is likely to be the main determinant for a successful and safe assisted vaginal procedure.

4.2 Implementation of the intervention

In settings where there is little or no experience with the use of vacuum extraction, training programmes in vacuum extraction at residency and senior level should be developed. The adoption of vacuum extraction as the first choice for instrument-aided delivery should be promoted only after a minimum standard of training has been reached.

Training of birth attendants would be among the main expected difficulties in the introduction of any instrument for assisted delivery. In Latin America, where forceps is the most prevalent instrument (4), it would be necessary to initiate teaching programmes in vacuum extraction, but it may be difficult to find professionals prepared to undergo the training. Also, the teaching programmes would have to be based partially on simulated situations. It is possible that one prognostic factor of vacuum delivery performance to achieve vaginal delivery and good neonatal outcomes is the training of the operators. So while learning the minimum skills needed to perform the procedure, these professionals should not use vacuum extraction in real patients. Training programmes of this nature imply costs which present real difficulties for under-resourced regions with economic constraints. These costs would need to be balanced against the potentially beneficial effects of using vacuum extraction as the instrument of choice.

4.3 Implications for research

The most relevant questions that remain to be answered are: Which are the best training modules or programmes to attain a good level of expertise with any instrument? For settings in which caesarean section
is widely available, is assisted vaginal delivery or caesarean section the best mode of delivery for mother and baby when operative delivery is indicated during second stage of labour?

References


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