Intrapartum interventions for preventing shoulder dystocia

01 March 2010

Data are too limited to support or refute the use of prophylactic manoeuvres for the prevention of shoulder dystocia.

RHL Commentary by Melo B

1. INTRODUCTION

Shoulder dystocia occurs when the fetal shoulder gets stuck behind the maternal pelvic bone following the delivery of the head. It is regarded as one of the high-risk situations in obstetrics and its unpredictability continues to be a major concern for obstetricians worldwide (1). Its estimated that the incidence of shoulder dystocia varies between 0.6% and 1.4% for infants of birth weight between 2500 g and 4000 g and between 5% and 9% for infant weighing between 4000 g and 4500 g (2).

Even though some risk factors for shoulder dystocia (such as gestational diabetes and macrosomia) are recognized, in the majority of cases the condition occurs unexpectedly, leading to episodes that can be very traumatic not only for the mother but also for the health-care professionals involved. Maternal complications may include perineal lacerations, uterine rupture and postpartum haemorrhage, while the consequences for the newborn may vary from different levels of asphyxia to transient or permanent brachial plexus injuries (3, 4).

In order to contribute to the reduction of incidence of this potentially stressful situation in obstetrics, a systematic review was conducted in which the effects of prophylactic manoeuvres in preventing shoulder dystocia were assessed (5).

2. METHODS OF THE REVIEW
The authors searched the Cochrane Pregnancy and Childbirth Group’s Trial Register for randomized controlled trials that had compared the use of intrapartum interventions for shoulder dystocia with routine or standard care. There were no language restrictions. The trials were assessed independently by two authors who evaluated the appropriateness and quality of the trials and allocation concealment. Due to the nature of the intervention, blinding was not feasible. A subgroup analysis was planned in order to examine the effect of intrapartum interventions for preventing shoulder dystocia in women identified as 'at risk' by the trial authors for reasons including suspected fetal macrosomia, maternal gestational diabetes mellitus, maternal obesity, multiparity and occurrence of previous births complicated by shoulder dystocia. The data are clearly presented throughout the review and in tables.

3. RESULTS OF THE REVIEW

Two trials with a total of 225 women were included in the review. In the first trial, 185 women had been admitted for delivery with a fetal weight (estimated by ultrasound or clinical examination) of greater than 3800 g. In this trial there were no contraindication to vaginal birth and women were randomized to the treatment group (90 women) and control group (95 women). However, only 128 cases were available for evaluation because of cesarean deliveries (in 42 women) and loss of data.

The second trial included 40 women with a history of vaginal birth for at least one term infant who had come to hospital in labour, or for induction of labour, with a term, cephalic, singleton gestation; 21 of them were assigned to the treatment group and the other 19 to the control group. Thirteen cases were excluded because of caesarean section (three women) and loss of data. Hence, only 27 cases were available cases for analysis.

Although in both studies the McRobert’s manoeuvre was used prophylactically, they differed with respect to the treatment attempted and outcome measures. In the first trial, suprapubic pressure commencing at crowning of the head was compared with therapeutic manoeuvres, such as McRobert’s manoeuvre, suprapubic pressure and delivery of the posterior arm, if shoulder dystocia was evident after delivery of the fetal head (prophylactic versus therapeutic). The second trial compared the prophylactic use of McRobert’s manoeuvre for birth versus lithotomy positioning (prophylactic versus lithotomy). With respect to evaluation of outcomes, while the first trial considered shoulder dystocia as corresponding to the use of a manoeuvre or a head-to-body delivery time greater than 60 seconds, in the second trial shoulder dystocia was defined as requiring manoeuvres other than moderate traction to deliver the shoulders.

The risk ratio (RR) for shoulder dystocia in the trial which compared prophylactic versus therapeutic manoeuvres was 0.44, with the 95% confidence interval (CI) being 0.17–1.14. The result became statistically significant in favour of the prophylactic group once the caesarean births were included (RR 0.33%; 95% CI 0.12–0.86). In the second trial, in which the prophylactic McRobert’s manoeuvre was compared with lithotomy, there was only one case of shoulder dystocia in each group. There was no statistically significant difference in the head-to-body delivery time in both trials.

A single case of brachial plexus injury occurred in the control group of the prophylactic versus therapeutic manoeuvres trial (RR 0.44; 95% CI 0.02–10.61). It was also in this same control group that there was one baby with five-minute Apgar score less than seven (RR 0.44; 95% CI 0.02–10.61) occurred.

In the prophylactic versus therapeutic manoeuvres trial, the therapeutic group had three cases of instrumental delivery, out of 73 vaginal births (RR 0.19; 95% CI 0.01–3.58) compared with women in the prophylactic group. In the prophylactic versus lithotomy position trial, there were two births out of 14 in the prophylactic group which required instrument assistance (RR 4.67; 95% CI 0.24–88.96).

There was a relevant increase in the rate of caesarean births in the prophylactic versus therapeutic trial among the prophylactic manoeuvres group (RR 2.97; 95% CI 1.59–5.55), and the most common indication among these was failure to progress (RR 2.56; 95% CI 1.12–5.89), while the rate of caesarean section for all
other indications had a RR of 3.69 with a 95% CI of 1.26–10.80.

No difference between groups on the prophylactic versus lithotomy trial was found with regard to the force of traction required for delivery (mean difference 0.80 peak force pounds, 95% CI -2.16 to 3.76).

Finally, there was no statically significant difference between the prophylactic versus therapeutic manoeuvres groups in relation to admission to special care nursery, since the RR was 0.80 with a 95% CI of 0.38–1.68.

4. DISCUSSION

4.1 Applicability of the results

Despite the correctness of the review methodology and the finding of statistically significant data in favour of the use of prophylactic manoeuvres, the limitations of the review such as the very small number of trials and participants, should be considered. In addition, the low incidence of shoulder dystocia in the prophylactic group was only statistically significant when the women giving birth by caesarean section were included in the analysis. Furthermore, the data favourable to the use of prophylactic manoeuvres with respect to the incidence of newborn injuries and Apgar scores less than seven at five minutes were discrete and had very large confidence intervals due to the small number of participants in each arm of the trial. As a consequence, no clear findings can be attributed to the review.

4.2 Implementation of the intervention

The relevant increase in the rate of caesarean birth in the women submitted to prophylactic manoeuvres, especially for failure of the delivery to progress, should also be considered. This may represent unnecessary maternal and child risk exposure, as well as avoidable costs.

Since the findings of the review were not very clear, it is not yet worthwhile to discuss the implementation of prophylactic manoeuvres for shoulder dystocia in different health-care setting and patients.

4.3 Implications for research

The unpredictability of shoulder dystocia events remains a main concern of this obstetric high risk setting. Further trials should be carried out in the close future aiming to properly assess the risk and benefits associated with the use of prophylactic manoeuvres for the prevention of shoulder dystocia.

Sources of Support:None.

Acknowledgements:I would like to thank Melania Amorim and Jitendra Khanna for their help in the writing this comment.

References
