PROSPERO
International prospective register of systematic reviews

Maternal postures for fetal malposition in labour for improving the health of mothers and their infants

Jennifer Barrowclough, Bridget Kool, G Justus Hofmeyr, Caroline Crowther

Citation
Jennifer Barrowclough, Bridget Kool, G Justus Hofmeyr, Caroline Crowther. Maternal postures for fetal malposition in labour for improving the health of mothers and their infants. PROSPERO 2021 CRD42021214341 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42021214341

Review question
This review will assess the effect of maternal posture for women with fetal malposition in labour on maternal and infant morbidity.

Searches

Electronic searches
We will search Cochrane Pregnancy and Childbirth's Trials Register by contacting their Information Specialist.

The Register is a database containing over 25, 000 reports of controlled trials in the field of pregnancy and childbirth. It represents over 30 years of searching. For full current search methods used to populate Pregnancy and Childbirth's Trials Register including the detailed search strategies for CENTRAL, MEDLINE, Embase and CINAHL; the list of handsearched journals and conference proceedings, and the list of journals reviewed via the current awareness service, please follow this link.

Briefly, Cochrane Pregnancy and Childbirth's Trials Register is maintained by their Information Specialist and contains trials identified from:
1. monthly searches of the Cochrane Central Register of Controlled Trials (CENTRAL);
2. weekly searches of MEDLINE (Ovid);
3. weekly searches of Embase (Ovid);
4. monthly searches of CINAHL (EBSCO);
5. handsearches of 30 journals and the proceedings of major conferences;
6. weekly current awareness alerts for a further 44 journals plus monthly BioMed Central email alerts.

Search results are screened by two people and the full text of all relevant trial reports identified through the searching activities described above is reviewed. Based on the intervention described, each trial report is assigned a number that corresponds to a specific Pregnancy and Childbirth review topic (or topics), and is then added to the Register. The Information Specialist searches the Register for each review using this topic number rather than keywords. This results in a more specific search set that will be fully accounted for in the relevant review sections (Included, Excluded, Awaiting Classification or Ongoing).

In addition, we will search ClinicalTrials.gov and the WHO International Clinical Trials Registry Platform (ICTRP) for unpublished, planned and ongoing trial reports.

Searching other resources
We will search the reference lists of retrieved studies.
We will not apply any language/date restrictions.

Types of study to be included

We will include randomised or cluster-randomised controlled trials (RCTs) (published or unpublished) only. Quasi-randomised trials or cross-over studies will be excluded. Trials reported as only abstracts will be included if sufficient information is provided to assess methodology and risk of bias.

Information from other study designs may be included in the background and discussion but will not be used to inform the results or conclusions of this review.

Condition or domain being studied

To assess the effect of maternal posture for women with fetal malposition in labour on maternal and infant morbidity.

Participants/population

Women in labour with a malposition of the fetus (occipito posterior, occipito transverse(lateral), mento anterior/transverse (lateral)) diagnosed by digital vaginal examination or ultrasound.

Intervention(s), exposure(s)

Specified maternal postures for women in labour with a fetal malposition compared with standard care or alternative maternal postures. This may include use of maternal side lying on same side as fetal spine, maternal side lying on opposite side to fetal spine, maternal side lying with hyperflexed hip/s, hand and knees, standing, semi-recumbent/recumbent (lying flat on back), sitting, squatting or other postures.

Comparator(s)/control

The intervention will be compared with usual care, i.e. use of unspecified postures that exclude the intervention postures or specified postures that exclude the intervention postures.

Context

.

Main outcome(s)

Maternal outcome:
Operative birth (composite outcome defined as caesarean section, instrumental vaginal birth)

Neonatal outcome:
Serious neonatal morbidity (composite outcome defined as death, admission to neonatal intensive care, neonatal encephalopathy or as defined by trialists)

Measures of effect

Dichotomous data
For dichotomous data, we will present results as summary risk ratio with 95% confidence intervals (CI).

Continuous data
For continuous data, we will use the mean difference with 95% CIs if outcomes are measured in the same way between trials. We will use the standardised mean difference to combine trials that measure the same outcome, but use different methods; these will be presented with 95% CIs.

Additional outcome(s)

Maternal:

Short term outcomes
Fetal malposition (OT/OP) after the intervention
Duration of labour (in hours)
Oxytocin augmentation
Pain score (as defined by trialists using standardised tools)
Epidural use
Occipito-posterior/transverse position at birth
Occipito-transverse arrest
Caesarean section
Instrumental vaginal birth
Episiotomy
Severe perineal tears (3rd degree or higher, as defined by trialists)
Postpartum haemorrhage (as defined by trialists)
Maternal satisfaction (as defined by trialists using standardised tools available)
Postnatal depression (as defined by trialists)
Any breastfeeding on discharge

Long-term outcomes
Operative pelvic floor repair post discharge
Post traumatic stress referrals

Neonatal:
Death (stillbirth or death of liveborn infant)

Apgar scores less than seven at five minutes
Admission to neonatal intensive care
Neonatal encephalopathy (as defined by trialists)
Need for respiratory support
Neonatal jaundice requiring phototherapy
Increased cord lactates (as defined by trialists), or low pH (as defined by trialists)
Birth trauma (as defined by trialists)

Long-term outcomes:
Disability including developmental delay (as defined by trialists)

Measures of effect

Dichotomous data
For dichotomous data, we will present results as summary risk ratio with 95% confidence intervals (CI).

Continuous data
For continuous data, we will use the mean difference with 95% CIs if outcomes are measured in the same way between trials. We will use the standardised mean difference to combine trials that measure the same outcome, but use different methods; these will be presented with 95% CIs.

Data extraction (selection and coding)

All potential studies identified as a result of the search strategy will be assessed by two review authors independently for inclusion or exclusion. Any disagreement on inclusion or exclusion between review authors will be resolved through discussion or, if required, we will consult a third review author. We will create a study flow diagram to map out the number of records identified, included and excluded.

We will design a data extraction form based on the Cochrane Pregnancy and Childbirth Group's data extraction form. Two review authors will collect information from the eligible studies relating to type of intervention, timing of intervention, concomitant treatments and maternal and infant outcomes. Sources of funding and any declarations of interest by trialists will be collected. Any disagreements will be resolved through discussion. All data from the data extraction forms will be entered into Review Manager 5.3 software (Rev Man 2014) and checked for accuracy. Attempts to contact authors of original reports will be made if required to provide clarity or further information.

Risk of bias (quality) assessment

Two review authors will independently assess risk of bias for each study using the criteria outlined in the Cochrane Handbook for Systematic Reviews of Interventions (Higgins 2011). We will resolve any disagreement by discussion or by involving a third assessor.

Assessment of the quality of the evidence using the GRADE approach
We will use the GRADE approach in order to assess the certainty of the body of evidence for the main comparisons and for the following outcomes:
Maternal
• Operative birth (caesarean section, instrumental vaginal birth)
• Epidural use
• Caesarean section
• Instrumental vaginal birth
• Severe perineal tears (3rd degree or higher, as defined by trialists)
• Postpartum haemorrhage (as defined by trialists)
• Maternal satisfaction (as defined by trialists using standardised tools available)

Infant
• Serious neonatal morbidity (death, admission neonatal intensive care, neonatal encephalopathy or as defined by trialists)
• Death (stillbirth or death of liveborn infant)
• Apgar scores less than seven at five minutes
• Admission to neonatal intensive care
• Neonatal encephalopathy (or as defined by trialists)
• Need for respiratory support
• Neonatal jaundice requiring phototherapy

GRADEpro Guideline Development Tool will be used to import data from Review Manager 5.4 (RevMan 2014) in order to create 'Summary of findings' tables.

Strategy for data synthesis

We will explore the impact of including studies with high levels of missing data in the overall assessment of treatment effect by using sensitivity analysis.

For all outcomes, we will carry out analyses, as far as possible, on an intention-to-treat basis, i.e. we will attempt to include all participants randomised to each group in the analyses, and all participants will be analysed in the group to which they were allocated, regardless of whether or not they received the allocated intervention. The denominator for each outcome in each trial will be the number randomised minus any participants whose outcomes are known to be missing.

We will assess statistical heterogeneity in each meta-analysis using the Tau^2, I^2 and Chi^2 statistics. We will regard heterogeneity as substantial if I^2 is greater than 30% and either Tau^2 is greater than zero, or there is a low P value (less than 0.10) in the Chi^2 test for heterogeneity.

If there are 10 or more studies in the meta-analysis we will investigate reporting biases (such as publication bias) using funnel plots. We will assess funnel plot asymmetry visually. If asymmetry is apparent we will perform exploratory analyses.

We will carry out statistical analysis using the Review Manager software (RevMan 2014). We will use fixed-effect meta-analysis for combining data where it is reasonable to assume that studies are estimating the same underlying treatment effect. If there is clinical heterogeneity sufficient to expect that the underlying treatment effects differ between trials, or if substantial statistical heterogeneity is detected, we will use random-effects meta-analysis to produce an overall summary if an average treatment effect across trials is considered clinically meaningful.

If we use random-effects analyses, results will be presented as the average treatment effect with 95% confidence intervals, and estimates of Tau^2 and I^2.

Analysis of subgroups or subsets

If we identify substantial heterogeneity, we will investigate it using subgroup analyses and sensitivity analyses. We will consider whether an overall summary is meaningful, and if so, use random-effects analysis to produce it.

Planned subgroup analyses (for review's primary outcomes):
1. Parity (para 0 versus para 1 or higher)
2. Body mass index (BMI) (less than 25 versus greater than or equal to 25)
3. Birthweight (less than 90th centile versus greater than or equal to 90th centile)
4. Fetal position (left occipito posterior/transverse versus right occipito posterior/transverse)
5. Level of care facility (primary facility versus secondary or more facility)
6. Ultrasound confirmation of malposition (ultrasound versus no ultrasound to confirm malposition)

We will assess subgroup differences by interaction tests available within RevMan, and report the results of subgroup analyses quoting the χ^2 statistic and P-value, and the interaction test I^2 value.

If there is substantial heterogeneity or risk of bias associated with the quality of some included trials we will explore via sensitivity analysis for the review's primary outcomes. We will remove trials at high/unclear risk of bias for sequence generation, concealment of allocation, blinding, and overall risk of bias, and assess whether there is any difference to the results. We will investigate the effect of the randomisation unit where cluster-RCTs have been combined with individual RCTs. If outcomes have statistical heterogeneity and are affected by any assumptions made such as the value of the ICC used for cluster-randomised trials a sensitivity analysis will be done to explore the effects of fixed- or random-effects analyses.

Contact details for further information

Caroline A Crowther
c.crowther@auckland.ac.nz

Organisational affiliation of the review

Cochrane Pregnancy and Childbirth
http://www.cochrane.org

Review team members and their organisational affiliations

Ms Jennifer Barrowclough. Liggins Institute, The University of Auckland, Private Bag 92019, 85 Park Road, Auckland, New Zealand
Dr Bridget Kool. Faculty of Medical and Health Sciences Administration, University of Auckland, Auckland, New Zealand
Professor G Justus Hofmeyr. Department of Obstetrics and Gynaecology, University of Botswana; University of Fort Hare, University of the Witwatersrand, Eastern Cape Department of Health, East London, South Africa

Professor Caroline Crowther. Liggins Institute, The University of Auckland, Auckland, New Zealand

Type and method of review

Intervention, Meta-analysis, Systematic review

Anticipated or actual start date

01 May 2021

Anticipated completion date

30 September 2021

Funding sources/sponsors

Jennifer Barrowclough wishes to thank Liggins Institute, University of Auckland and Work Force New Zealand for financial support of her PhD.

Conflicts of interest

Jennifer Barrowclough received a student scholarship from the Liggins Institute, University of Auckland and Work Force New Zealand education grant. No other known potential conflicts of interest.

Caroline Crowther: none known

Bridget Kool: none known

Justus Hofmeyr is author of studies to be considered for inclusion in the review and he will not participate in decisions regarding these studies. Assessment for inclusion, risk of bias and data extraction will be carried out by other members of the review team who were not directly involved in the trial.

Yes

Language

English

Country

Botswana, New Zealand, South Africa

Stage of review

Review Ongoing

Subject index terms status

Subject indexing assigned by CRD

Subject index terms

Female; Humans; Infant; Labor Presentation; Mothers; Posture; Pregnancy

Date of registration in PROSPERO

19 April 2021

Date of first submission

09 March 2021

Details of any existing review of the same topic by the same authors

Hunter 2007's Cochrane review examined “Hands and knees posture in late pregnancy or labour for fetal malposition (lateral or posterior)” - that review will now be superseded by two new Cochrane reviews on maternal posture during labour (this review) or in late pregnancy (a separate review).

Stage of review at time of this submission

The review has not started

Stage	Started	Completed
Preliminary searches	No	No
Piloting of the study selection process	No	No
Formal screening of search results against eligibility criteria	No	No
Data extraction	No	No
Risk of bias (quality) assessment	No	No
Data analysis	No	No

The record owner confirms that the information they have supplied for this submission is accurate and complete and they understand that deliberate provision of inaccurate information or omission of data may be construed as scientific misconduct.

The record owner confirms that they will update the status of the review when it is completed and will add publication details in due course.

Versions

19 April 2021