

# Maternal position during caesarean section for preventing maternal and neonatal complications: A Cochrane Review

by

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## **Declaration**

By submitting this dissertation, I declare that the entirety of the work contained therein is my own, original work that has only been published within the Cochrane Library.

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December 2011

## **Maternal position during caesarean section for preventing maternal and neonatal complications**

### **Abstract**

#### Background:

During caesarean section mothers can be in different positions. Theatre tables could be tilted laterally, upwards, downwards or flexed and wedges or cushions could be used. There is no consensus on the best positioning at present.

#### Objectives:

We assessed all available data on positioning of the mother to determine if there is an ideal position during caesarean section that would improve outcomes.

#### Search methods:

We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (September 2009), PubMed (1966 to 14 September 2009) and manually searched the references of retrieved articles.

#### Selection criteria:

Randomised trials of women undergoing caesarean section comparing different positions.

#### Data collection and analysis:

Two authors assessed eligibility, trial quality and extracted data.

#### Results:

We identified 17 studies with a total of 683 woman included. We included nine studies and excluded eight studies. Included trials were of variably quality with small sample sizes. Most comparisons had data from single trials. This is a shortcoming and applicability of results is limited.

The incidence of air embolism was not affected by head up versus horizontal position (risk ratio (RR) 0.91; 95% confidence interval (CI) 0.65 to 1.26). We found no change in hypotensive episodes when comparing left lateral tilt (RR 0.11; 95% CI 0.01 to 1.94), right lateral tilt (RR 1.25; 95% CI 0.39 to 3.99) and head down tilt (mean difference (MD) -3.00; 95% CI -8.38 to 2.38) with horizontal positions or full lateral tilt with 15-degree tilt (RR 1.20; 95% CI 0.80 to 1.79). Hypotensive episodes were decreased with manual displacers (RR 0.11; 95% CI 0.03 to 0.45), a right lumbar wedge compared to a right pelvic wedge (RR 1.64; 95% CI 1.07 to 2.53) and increased in right lateral tilt (RR 3.30; 95% CI 1.20 to 9.08) versus left lateral tilt.

Position did not affect systolic blood pressure when comparing left lateral tilt (MD 2.70; 95% CI -1.47 to 6.87) or head down tilt (RR 1.07; 95% CI 0.81 to 1.42) to horizontal positions, or full lateral tilt with 15-degree tilt (MD -5.00; 95% CI -11.45 to 1.45). Manual

displacers showed decreased fall in mean systolic blood pressure compared to left lateral tilt (MD -8.80; 95% CI -13.08 to -4.52).

Position did not affect diastolic blood pressures when comparing left lateral tilt versus horizontal positions. (MD-1.90; 95% CI -5.28 to 1.48). The mean diastolic pressure was lower in head down tilt (MD -7.00; 95% CI -12.05 to -1.95) when compared to horizontal positions.

There were no statistically significant changes in maternal pulse rate, five-minute Apgars, maternal blood pH or cord blood pH when comparing different positions.

#### Authors' conclusions

There is limited evidence to support or clearly disprove the value of the use of tilting or flexing the table, the use of wedges and cushions or the use of mechanical displacers. Larger studies are needed.

## **Moederlike posisie tydens 'n keisersnit vir die voorkoming van moeder en neonatale komplikasies**

### **Abstrak**

#### **Agtergrond:**

Tydens keisersnitte kan moeders in verskillende posisies wees. Teater tafels kan lateraal, opwaarts, afwaarts of gebuig word, of 'n wig en kussings kan gebruik word. Op die oomblik is daar geen konsensus oor die beste posisie nie.

#### **Doelwitte:**

Ons het alle beskikbare data oor die plasing van die moeder ondersoek, met die doel om 'n ideale posisie vir 'n verbeterde uitkoms tydens 'n keisersnit vas te stel.

#### **Metodes:**

Ons het die "Cochrane Pregnancy and Childbirth Group's Trials Register" (September 2009), PubMed (1966 tot 14 September 2009) deursoek en die herwinde artikels se verwysings per hand nagegaan.

#### **Keuringskriteria:**

Gerandomiseerde proewe van vroue wat keisersnitte ondergaan het, is in verskillende posisies vergelyk.

#### **Data insameling en analise:**

Twee outeurs het die kwaliteit, die geskiktheid en data van die studie beoordeel.

#### **Resultate:**

Ons het 17 studies geïdentifiseer wat 'n totaal van 683 vroue ingesluit het. Ons het nege studies ingesluit en agt uitgesluit. Die ingeslote studies was van wisselvallige gehalte en die monster groepe was klein. Die meeste vergelykings het data van enkele studies gegee. Dit is 'n tekortkoming en die bruikbaarheid van die resultate is beperk.

Die plasing van kop-op teenoor horisontale posisie het die voorkomssyfer van lug embolisme nie geaffekteer nie. (risiko verhouding RR 0.91; 95% 95% vertrouwe interval CI 0.65 tot 1.26). Daar is geen hipotensiewe veranderinge gevind toe 'n vergelyking gemaak is tussen linker laterale kantel (RR 0.11; 95% CI 0.01 tot 1.94) regter laterale kantel (RR 1.25; 95% CI 0.39 tot 3.99) en kop-af kantel ("mean difference" MD -3.00; 95%CI -8.38 tot 2.38) teenoor horisontale posisies of volle laterale kantel met 'n 15 grade kantel nie (RR 1.20; 95% CI 0.8. tot 1.79). Hipotensiewe episodes het verminder met hand verplasers (RR 0.11; 95% CI 0.03 tot 0.45), 'n regter lumbale wig in vergelyking met 'n regter bekken wig (RR 1.64; 95% CI 1.07 tot 2.53) en 'n vermeerdering van die regter laterale kantel (RR 3.30; 95% CI 1.20 tot 9.08) teenoor die linker laterale kantel.

In die vergelyking tussen die posisie van linker laterale kantel (MD 2.70; 95% CI -1.47 tot 6.87) of kop-af kantel (RR 1.07; 95% CI 0.81 tot 1.42) teenoor horisontale posisies,

of volle laterale kantel met 15 grade kantel (MD -5.00; 95% CI -11.45 tot 1.45) het die posisie nie die sistoliese bloeddruk geaffekteer nie. Hand verplasers het 'n verminderde daling in gemiddelde sistoliese bloeddruk veroorsaak in vergelyking met linker laterale kantel plasing (MD -8.80; 95% CI -13.08 tot -4.52).

In die vergelyking tussen linker laterale kantel en horisontale posisie was daar geen effek op die diastoliese bloeddruk nie (MD -1.90; 95% CI -5.28 tot 1.48). Die gemiddelde diastoliese druk was laer in die kop-af kantel (MD -7.00; 95% CI -12.05 tot -1.95) in vergelyking met horisontale posisies.

In die vergelyking tussen die verskillende posisies was daar geen betekenisvolle statistiese veranderinge in die moeder se polstempo, vyf minute Apgartellings, moederlike bloed pH of naelstringbloed pH nie.

Outeur se gevolgtrekkings:

Daar is beperkte getuienis om die waarde van kantel, buiging van tafel, die gebruik van wieë en kussings of die gebruik van maganiese verplasers te ondersteun of totaal te verwerp. Groter studies is nodig.

Additional research activities and publications during training as a registrar:

1. Cluver CA, Hofmeyr GJ. Posterior axilla sling traction: a technique for intractable shoulder dystocia. *Obstet Gynecol* 2009;113(2 Pt 2):486-8.
2. Hofmeyr GJ, Cluver CA. Posterior axilla sling traction for intractable shoulder dystocia. *BJOG*. 2009;116(13):1818-20.
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4. Cluver CA, Hall DR. Delivery of the extremely low-birthweight vertex presenting baby: Caesarean section or the vaginal route? *SAJOG* 2010;16:14-16.
5. Cluver CA, Odendaal HJ. Oxytocin augmentation : poison or potion in the multipara? *O & G Forum* 2010;20(1):5-10.
6. Cluver C, Hofmeyr GJ, Gyte GML, Sinclair M. Interventions to help external cephalic version for breech presentation at term. *Cochrane Database of Systematic Reviews*: Full review in editorial phase.
7. Novikova N, Cluver C. Local anaesthetic nerve block for pain management in labour. *Cochrane Database of Systematic Reviews*: protocol to be published in June 2011.
8. Novikova N, Cluver C. Induction of labour versus expectant management for pre-eclampsia at or near term. *Cochrane Database of Systematic Reviews*: Protocol in editorial phase.