The Effects of Head Elevated Ramped Position during Combined Spinal Epidural (CSE) Anaesthesia for Elective Caesarean Delivery

Abstract Type: Original Research
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Introduction: Elevating the torso in a head elevated ramped position (HERP) during cesarean delivery (CD) benefits the mother:
• Improved comfort and breathing characteristics (oxygenation, increased FRC), reduced reflux symptoms
• Better airway position -if unexpected intubation is needed.

Multiple factors affect the level of anesthetic block for CD. The effect of HERP on level of spinal anesthesia has never been reported.

We hypothesised that positioning a parturient in HERP for an elective CD using an elevation pillow would not significantly increase the time for a T4 block (primary outcome). Secondary outcomes were: maternal comfort, airway position, maximum height block, anesthesia duration.

Methods: Following informed consent 60 women undergoing elective CD were randomised to one of three groups:
A. Head Elevated Ramped Position (HERP)
B. HERP- Horizontal (HERP-H)
C. Control (C) – Horizontal with pillow under head

Patients at risk of high block were excluded. Following standard CSE anesthesia in the sitting position subjects were placed supine with LUD and in groups HERP and HERP-H elevation pillow was inserted. For group HERP-H the back of the operating table was lowered so the subject’s back was horizontal (H) until adequate block and then bed levelled to same position as group (HERP).

Data collected: time to T4 with ice, block height at 30 and 120 mins, need for epidural supplementation, maternal comfort (5 point Likert scale) and airway position assessment (relationship of external auditory meatus (EAM) to sternal notch).

Results: ANOVA showed HERP delayed time to T4 significantly compared to control (p=.045. HERP: mean=681s range 344-1298s, Control: m=491s range 183-720s, HERP-H: m=598, range 317-1183s. All subjects found the elevated significantly position more comfortable (p = .001). EAM was at the level or higher than the sternal notch in 100% of HERP subjects compared to 20% in control position. 4 patients were excluded (2 failed attempts at CSE; 2 failed spinal-epidural used). All had block above T8 at 120mins.

Discussion: HERP immediately after CSE significantly delays onset of block (3mins), but this was not clinically relevant. HERP provides a significantly more comfortable position and the woman is in an ideal position for intubation should conversion to GA be needed.

We would recommend elevating the torso once block is established so that women have the advantages of the position without potential delay.