

The obstetric spinal: why sit when you can lie?

Neuroaxial blockade is commonly used to provide anaesthesia to mothers undergoing caesarean sections. Maternal position when performing this can influence the success rate, speed of block onset, degree of haemodynamic change and patient comfort. Debate still exists as to whether sitting or lateral is the most effective position.

The National Institute for Clinical Excellence (2004) advised that women needing a caesarean section should be offered regional anaesthesia, but there is no consensus on the best position. Patient positioning is often based on anaesthetic preference and experience rather than evidence.

Optimum positioning should allow easy identification of midline structures, encourage maximal intervertebral space opening, produce minimal haemodynamic compromise and rapid block onset. The posture should also ideally be comfortable for the patient and safe for the baby. No position offers all this, but the sitting and lateral positions have different attributes which anaesthetists need to be aware of.

Sitting position

Spinal anaesthesia for caesarean section is often performed with the mother in the sitting position – perpendicular to the long axis of the operating table, usually with her legs on a stool, while arching her back posteriorly. This facilitates identification of midline structures, and gives a reduced distance between the skin and epidural space when compared to the lateral position (Hamza et al, 1995).

Most trainees practice spinals in the sitting position, so find this position easier. Inglis et al (1995) found that spinals were sited significantly faster in the sitting position than in the right lateral position.

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The incidence of paraesthesia may be lower in the sitting position (Fernandez et al, 2010), possibly as it is more difficult to follow the midline in the lateral position.

When hyperbaric bupivacaine is used for spinal anaesthesia in the sitting position, accumulation of local anaesthetic in the sacral area as a result of gravity can slow cephalad spread and hence onset of block. This may be particularly pertinent when performing combined spinal epidural anaesthesia since the mother must remain seated for some time after the spinal injection while the epidural catheter is sited. However, studies of anaesthetic block onset times in different maternal positions for combined spinal epidural anaesthesia have produced inconsistent results.

Lateral position

For the lateral position, the mother is placed with her back parallel to the side of the operating table with her hips and neck flexed. This may give greater patient comfort than the sitting position, particularly in advanced labour. Continuous fetal heart rate monitoring may also be easier.

When regional anaesthesia is given to the pregnant mother, it is important to prevent maternal hypotension as uteroplacental blood flow is directly related to perfusion pressure. The lateral position has some advantages over sitting here as orthostatic hypotension is less likely and aorticaval compression may be reduced.

Aorticaval compression is common in pregnant mothers at term whereby the gravid uterus compresses the inferior vena cava (and aorta), reducing venous return and causing a potentially detrimental fall in blood pressure and cardiac output. Placing the mother in the lateral position can limit aorticaval compression and haemodynamic compromise. Armstrong et al (2011) showed that maternal stroke volume, blood pressure and heart rate was significantly greater in the lateral position than sitting.

Obstetric management of certain conditions during labour (transient umbilical cord compression, excessive uterine activity, prolonged fetal asphyxia) requires the mother to be in the lateral position. In such cases the lateral position seems most appropriate if regional anaesthesia is required.

Conclusions

There are valid arguments for performing regional anaesthesia with the pregnant mother in both the sitting and lateral positions. The sitting position may allow easier identification of the midline, achieve a faster successful spinal injection and have a reduced incidence of needle-induced paraesthesia. It may then be appropriate to use this position in patients with suspected 'difficult backs' (elevated body mass index, scoliosis, history of difficulties with regional anaesthesia).

The lateral position, however, may be more comfortable for the mother and allow easier continuous fetal heart rate monitoring. There is also a reduced incidence of orthostatic hypotension and aorticaval compression. The speed of onset of block may also be faster although not all evidence is consistent. Furthermore, certain obstetric crises are partly managed by adopting a left lateral position. Under these circumstances, it would be prudent to perform regional anaesthesia with the mother maintaining this position.

Anaesthetists need to be adequately trained in performing regional anaesthesia in both the sitting and the lateral position, so they can appropriately tailor their anaesthetic to the individual obstetric case. **BJHM**

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