

Regional anaesthesia for caesarean section and what to do if it fails

Sophie A Kimber Craig

Abstract

Regional anaesthetic techniques are now the most frequently used type of anaesthetic used for caesarean deliveries. They have a better safety profile than general anaesthesia in the pregnant woman. The choice of whether to use a spinal, epidural or combined spinal-epidural technique will depend on patient and surgical factors. Particular care should be taken to those receiving therapeutic anticoagulation or with clotting abnormalities. Women should be provided with appropriate information to make an informed choice, including details of the intended risks and benefits of the technique. All women having caesarean deliveries must have vital sign monitoring, antacid prophylaxis and intraoperative venous thromboembolic prophylaxis. A left lateral tilt must be maintained until delivery of the baby. Breakthrough pain during caesarean delivery is a distressing complication and must be treated immediately. General anaesthesia should be offered and if declined, the woman's pain must be adequately managed with alternative analgesic methods. These include nitrous oxide, opioids and local anaesthetic infiltration.

Keywords Anaesthesia for caesarean; breakthrough pain; combined-spinal-epidural anaesthesia; epidural top-up; failed regional; spinal anaesthesia

Royal College of Anaesthetists CPD Matrix: 1D02, 1F01, 2B03, 2B04, 2G01 2G02, 2G04

Choice of regional anaesthetic technique for caesarean delivery

Following national reports into maternal mortality related directly to complications during general anaesthesia (GA), regional anaesthesia (RA) is the most commonly used technique for caesarean section (CS), due to its better safety profile. The benefits of this are:

- avoiding intubation – which reduces the risk of aspiration, failed/oesophageal intubation and avoids the pressor effect
- reduced blood loss¹
- reduced risk of venous thromboembolism
- better pain relief postoperatively
- reduced potential for transfer of drugs to the baby
- the woman is awake during birth of her baby
- the birth partner can be present.

Sophie A Kimber Craig MBChB FRCA is a Consultant Anaesthetist and Clinical Lead for Obstetric Anaesthesia at Bolton NHS Foundation Trust, Bolton, UK. Conflicts of interest: none declared.

Learning objectives

After reading this article, you should be able to:

- determine which regional anaesthetic technique is the best in different clinical situations
- identify women at risk of problems associated with the use of a regional technique and list the potential complications of the technique
- explain the appropriate management of a woman who has pain during caesarean delivery under regional anaesthesia

Spinal anaesthesia is the most commonly used form of RA, but epidural (either de novo or conversion of a labour epidural) or a combined spinal-epidural (CSE) techniques are also employed. The choice of which technique to use will depend on patient and surgical factors and the urgency of the surgery. [Table 1](#) shows a comparison of the intended benefits and potential disadvantages of these techniques.

Contraindications to regional anaesthesia

[Box 1](#) outlines the absolute and relative contraindications to RA.

Always confirm whether a woman is receiving therapeutic anticoagulation. Allow sufficient time between the last dose and the block (or removal of an epidural catheter). Comprehensive guidance on this has been published.² Uncertainty regarding a woman's clotting function should be discussed with a Consultant Haematologist.

Risks of regional anaesthesia

The risks of RA and their incidences³ are shown in [Box 2](#).

Preoperative preparation

Identify any risk factors for prolonged/difficult surgery, contraindications to RA and assess the woman's airway. Provide information about the anaesthetic and obtain verbal consent for anaesthesia.

Prior to CS, women should have:

- a full blood count
- a group and save (if she has any risk factors complicating the pregnancy)
- antacid prophylaxis (e.g. ranitidine 150 mg orally in elective cases or 50 mg intravenously, depending on the urgency of surgery).

Intraoperative conduct

When performing RA for CS:

- A trained assistant must be present.
- Gain/confirm intravenous access (ideally at least 16G) and commence fluids (unless the woman is pre-eclamptic, when she may be fluid restricted) – pre-loading with fluid is not necessary in the cardiovascularly stable woman.⁴
- Apply monitoring (ECG, BP and oxygen saturations) – ensure the BP measurement is cycling prior to induction of anaesthesia.

Comparing spinals, epidurals and CSEs for choice of regional anaesthetic technique

Choice of regional technique	Spinal	Epidural	Combined spinal–epidural
Benefits of technique	<ul style="list-style-type: none"> • Rapid onset — can be used in emergency cases • Better quality of block than epidural • Reduced incidence of breakthrough pain compared with epidural • Reduced risk of post-dural puncture headache (PDPH) • Low rates of failure 	<ul style="list-style-type: none"> • Avoids repeat RA attempt if labour epidural already in situ • Block can be extended for prolonged procedures • Block can be augmented if woman experiences breakthrough pain • Additional opioids can be administered 	<ul style="list-style-type: none"> • Useful for maintaining cardiac stability as block can be brought on slowly, avoiding sudden changes in BP • Allows extension of anaesthesia for longer timeframe • Additional opioids can be administered
Potential disadvantages	<ul style="list-style-type: none"> • Hypotension can be more pronounced due to speed of onset • Exaggerated cephalad spread may occur if used immediately after labour epidural 	<ul style="list-style-type: none"> • Dysfunctional labour epidurals are associated with failure of CS block • Increased risk of PDPH • Currently commercial available kit does not have non-Luer lock connections (as for CSE) 	<ul style="list-style-type: none"> • Time taken for insertion • Test dose impossible if inserted solely for surgery • Potential of subarachnoid spread of drug administered into epidural space
Example cases	<ul style="list-style-type: none"> • Elective caesarean delivery • Emergency CS for fetal distress 	<ul style="list-style-type: none"> • Urgent CS in woman with functional labour epidural in-situ • Morbidly obese women for elective CS (surgery may be prolonged) 	<ul style="list-style-type: none"> • Cases requiring more than one procedure (e.g. placenta accreta where intrailiac balloons may be inserted prior to CS) • For women with cardiac disease

Table 1

- Maintain a 15° left tilt until the baby is delivered.
- Insert a urinary catheter.
- Supplemental oxygen is not necessary unless saturations fall below 94%.
- Undertake venous thromboembolism (VTE) prophylaxis (either in the form of graduated compression stockings or calf compression devices).
- Give antibiotic prophylaxis prior to knife-to-skin to maximize the effect of reducing infection.⁵

Contraindications to regional anaesthesia

Absolute contraindications

- Patient refusal
- Allergy to any of the drugs for injection
- Significant coagulopathy or thrombocytopenia (platelet count $<75 \times 10^9 \text{ l}^{-1}$)
- Infection at insertion site
- Clinically significant or untreated systemic septicaemia
- Raised intracranial pressure
- Uncorrected hypovolaemic or cardiogenic shock

Relative contraindications

- Existing or acute neurological deficits/disease — *thoroughly assess the extent of any pre-existing deficit and record the findings (to ensure that any deficit is not erroneously attributed to the RA postoperatively)*
- Previous spinal surgery (with significant scarring or metalwork) or gross spinal deformity
- Disorders of coagulation (e.g. recent low molecular weight heparin administration or a falling platelet count in the presence of pre-eclampsia)

Regional techniques

Spinal anaesthesia

Spinal anaesthesia can be performed in the sitting, lateral or Oxford position. Strict asepsis is essential during insertion. Clean the woman's skin using a solution containing 0.5% chlorhexidine and allow it to dry to be effective.⁶ Using a sterile technique (i.e. hat, gown, gloves, mask and drapes), anaesthetize the skin and then perform an intrathecal injection using a 24G–27G pencil point needle (this reduces the risk of post-dural puncture headache). Give 2.2–2.7 millilitres of hyperbaric local anaesthetic (LA), usually bupivacaine, with an opioid (300–400 micrograms of diamorphine is a standard dose in the UK) intrathecally. The LA dose can be adjusted (by 0.1–0.2 ml) to take into account:

- extreme prematurity or very small for gestational age babies (increase dose)
- predicted very large babies or the presence of polyhydramnios (decrease dose)
- a labour epidural in situ for many hours or needing multiple top-up boluses (be prepared for exaggerated cephalad spread)
- very tall or short women (adjust dose or [reverse] Trendelenburg positioning to establish block height or prevent further cephalad spread).

Box 1

Download English Version:

<https://daneshyari.com/en/article/2742013>

Download Persian Version:

<https://daneshyari.com/article/2742013>

[Daneshyari.com](https://daneshyari.com)