Frimley Health NHS Foundation Trust

Hypotension During Regional Block in Obstetric Patients

Key Points

- Hypotension after epidural or spinal anaesthesia is common in obstetric patients
- Hypotension should be recognised and managed promptly to prevent adverse effects on both parturient and fetus
- First line management includes fluids and vasopressors (including ephedrine and phenylephrine)

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Abbreviations

CS	Caesarean Sections
NICE	National Institute for Clinical Excellence

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1.0 Introduction

Hypotension during regional blockade in obstetrics is very common and may cause women to feel faint, suffer nausea and vomiting and, in rare cases, can cause loss of consciousness. Maternal hypotension may also lead to fetal distress. This guideline aims to highlight strategies to prevent and manage hypotension in parturient.

2.0 Prevention and treatment of hypotension during epidural analgesia

NICE have issued guidance on intrapartum care for women including pain relief in labour and regional analgesia. The NICE guidance relevant to hypotension during regional analgesia in labour is as follows:

- Always secure intravenous access before starting regional analgesia.
- Preloading and maintenance fluid infusion need not be administered routinely.
- During establishment of regional analgesia or after further boluses (10ml of epidural mix or more), measure blood pressure every 5 minutes for 15 minutes.
- Assess the level of sensory block hourly.[1]

In addition, ensure a vasopressor is to hand (ephedrine or phenylephrine).

If hypotension does occur:

- Turn the patient into the left lateral position to relieve aortocaval compression.
- Stop uterotonics.
- Give oxygen via a facemask.
- Consider a fluid bolus of 500 mls of crystalloid solution and reassess.
- Give phenylephrine iv in 100 microgram increments or as an infusion as required. If maternal heart rate is low, consider ephedrine in 6mg increments.
- Consider obstetric causes of hypotension and discuss with the obstetric team.

Prevention and treatment of hypotension during spinal or epidural anaesthesia for caesarean section

Hypotension after spinal block or an epidural top-up for caesarean section is extremely common and could lead to reduced perfusion to the fetus and fetal distress[2]. We should therefore aim to prevent hypotension and to treat it promptly. A study has shown that a systolic blood pressure near to the baseline level yields the best cord gases and produces less nausea and vomiting in the mother.[3]

Guidance has been issued by AAGBI and NICE for the management of hypotension during CS[4],[5]. These reflect our current practice:

Preloading and maintenance fluid infusion should be administered; however, it should **not** delay the initiation of spinal anaesthesia in order to give a fixed volume. Plasmalyte® is used in our Trust for pre-loading.

- The aim should be to maintain systolic arterial pressure at >90% of an accurate baseline obtained before spinal anaesthesia and avoid a decrease to < 80%.
- A phenylephrine infusion (100microgram/ml) is recommended using a syringe pump and can be started at 10-30ml/hr, immediately after the spinal injection. This can be titrated to BP. Top up boluses may be needed. Ephedrine can be used as an additional agent, especially with low heart rate.
- The operating table for CS should have a lateral tilt of 15 degrees or appropriate manual uterine displacement once the woman is in a supine position, because this reduces maternal hypotension.[5]

If using phenylephrine, dilute a 10mg ampoule of phenylephrine in 100mls of sodium chloride 0.9% to give a concentration of 100 microgram/ml. 100 microgram (1 ml) boluses can be given. Phenylephrine can cause maternal bradycardia that may require treatment with glycopyrrolate, ephedrine or atropine. Occasionally a patient's blood pressure may not respond well to phenylephrine and ephedrine in 6mg increments may be helpful in this situation. Combining phenylephrine and ephedrine does not increase fetal acidosis.[6,7]

Women with pre-eclampsia develop less hypotension after spinal anaesthesia than healthy women. Abrupt decreases in blood pressure are undesirable because of the potential for decreased uteroplacental blood flow. A prophylactic vasopressor infusion may not be required but, if used, should be started at a lower rate than for healthy women.[4] Ephedrine and phenylephrine can be given in severe pre-eclampsia to treat hypotension after spinal block.[8] Careful dose titration should be used when giving vasopressors in this group of patients.

3.0 Persistent Maternal Hypotension and its management [9]

Spinal Anaesthesia

Persistent or severe hypotension, especially with bradycardia or signs of high block, should prompt reassessment of block height, senior anaesthetic involvement, and exclusion of high or total spinal. Supportive measures include positioning, oxygen, and continued vasopressor therapy, with readiness for airway and cardiovascular support. The obstetric team should be alerted by the midwife in cases of resultant fetal distress.

Epidural Anaesthesia/Analgesia

If hypotension persists after epidural analgesia despite standard measures, a high neuraxial block or inadvertent intrathecal/subdural spread should be suspected. The epidural infusion should be stopped, block height reassessed, and senior anaesthetic assistance called immediately. Differential diagnoses, including catheter migration or aorto-caval compression, should be excluded. Supportive care includes positioning, oxygen, and vasopressors, with preparedness for airway and cardiovascular support. Senior review, catheter removal and re-siting should be considered if misplacement is suspected: see Dural Puncture and Post-Dural Puncture Headache.

References

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This guideline has been registered with the Trust. However, clinical guidelines are guidelines only. The interpretation and application of clinical guidelines will remain the responsibility of the individual clinician. If in doubt, contact a senior colleague or expert. Caution is advised when using guidelines after the review date.

This guideline is for use in Frimley Health NHS Foundation Trust hospitals only. Any use outside this location will not be supported by the Trust and will be at the risk of the individual using it.

Version Control Sheet

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3.0	April 2023	Sarah Armstrong	Final	Scheduled review
4.0	November 2026	Dr Usama Ahmed; Consultant Anaesthetist FPH Dr Sharon Hesford, Dr Sarah Armstrong, Dr Nimisha Patel; Consultant Anaesthetists	Final	Updated: Pharmacy changes: Ratified at: Anaesthesia Clinical Governance Committee 20 May 2026 DTC: 11/11/2026

Related Documents

Document Type	Document Name
Guideline	Dural Puncture and Post-Dural Puncture Headache