

# Spinal Anaesthesia

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**Approved by:** Labour Ward Forum – 30.7.15  
Reviewed 7.6.17 – no change

**Review date:** 7.6.2020

**Version:** 7

## Attachments

[Attachment 1]

### Indications - for the use of spinal anaesthesia:

1. LSCS - as the preferred method of anaesthesia.  
- if difficult intubation/failed intubation anticipated. (see para. 16)
1. Manual removal of retained placenta.
2. Forceps delivery.
3. Shirodkar suture.
4. Suturing of vaginal/cervical tear.
5. Rapid onset analgesia for problems with a breech delivery or twins.

### Contraindications

- Patient refusal
- Coagulopathy. Spinal anaesthesia should only be carried out more than 12hrs after low molecular weight heparin .
- Local infection
- Local anaesthetic allergy
- Uncorrected hypovolaemia. Rapid onset of sympathetic block with spinal anaesthesia may cause profound hypotension in the relatively hypovolaemic patient - assess adequacy of patient's circulatory status before proceeding.

### Technique (NB Spinal anaesthesia should only be carried out in the operating theatre.)

1. Explanation and consent (use an interpreter if necessary). This should include a discussion of possible failure, including the possibility of general anaesthesia, PDPH, hypotension and that some sensation will normally remain.
2. Ensure that patient has had ranitidine 50 mg iv / 150mg p.o, metoclopramide 10 mg iv/o. Sodium citrate is not necessary for elective CS under regional blockade but should be given to all GAs and all emergency cases irrespective of anaesthetic technique. Intubation equipment should be available and checked. A suitable vasopressor (e.g. Phenylephrine / Ephedrine) must be immediately available.
3. Ensure an intravenous infusion is in progress.
4. Initiate monitoring of blood pressure, heart rate, and oxygen saturation.
5. Position the patient in the sitting position (whenever possible) - this ensures adequate caudal spread.
6. Glove, gown up and wear mask (gloves only are acceptable if it is an urgent procedure i.e. emergency LSCS). Get your assistant to spray the back with 0.5 % chlorhexidine in spirit. Open a pre-packed spinal pack.
7. Infiltrate the skin with 1% lidocaine at the chosen level of interspace. Do not use a level higher than L 2/3.

The pack contains a 25G x 90mm Pencan Pencil-Point needle. Insert the spinal needle in the midline - use the introducer provided with the needle. Longer needles are available if needed.

8. Advance the needle until you believe it to be through the dura. Remove the stylet and await CSF flow. You may need to wait for up to 10 seconds before CSF is seen with the 25G needle. You should not advance the needle with the stylet removed as this significantly weakens the needle. Re-insert it if you need to advance further. When CSF appears at the needle hub, start to inject the appropriate anaesthetic solution slowly (0.25 ml/sec). When the injection is complete remove the needle and apply a dressing over puncture site.
9. Local anaesthetic for subarachnoid injection: sterile-wrapped 0.5% Heavy Marcain (bupivacaine 0.5% in 8% glucose) - dosage of 2 to 3 ml depending on the level of block required and the patient's height. Most commonly 2.7 mls  
Must be drawn up through a 5-micron filter straw to eliminate glass particles.  
The addition of 300 µg diamorphine is routine. The diamorphine will improve the intra-operative block and may provide post-operative analgesia for up to 24hrs. It should be drawn up as follows:-
  - Draw up 5mls 0.9% saline into a 5ml syringe. Inject 1ml of this into a 5mg ampoule of diamorphine and then draw back up into the 5ml syringe (concentration 1mg/ml). Draw up 0.3ml of this solution into a 1ml syringe through a 0.2 micron (epidural) filter and inject this into the bupivacaine using a sterile needle. The filter is necessary because the diamorphine ampoules are not sterile on the outside.
- NB: If diamorphine is used please fill out a postoperative monitoring chart and write an instruction on the prescription sheet that no IM opiates are to be given for the next six hours, without prior consultation with the anaesthetist.
10. Patient position post-injection: for LSCS - leave sitting for no longer than 60 seconds following completion of injection, then gently lie patient flat with a pillow under the shoulders and neck. Tilt the table to the left a few degrees to aid in blood pressure control. A sensory block at T5 using loss of light touch sensation or T6 using loss of pinprick sensation is acceptable.  
  
For forceps use the same amount of heavy bupivacaine as above since a trial of forceps may well proceed to LSCS. Manual removal of placenta requires a block up to at least T8-10 for comfort.
11. If the block fails to develop adequately before surgery has commenced the options are to repeat the spinal injection, possibly with a reduced dose of bupivacaine, to perform an epidural and/or CSE, again with a reduced spinal dose, or to progress to general anaesthesia. Take senior advice. Ensure thorough documentation.

*If the block is assessed as adequate pre-incision but during surgery the patient feels pain or discomfort the following may help:-*

- a) IV opioids. Alfentanil in 250 mcg increments acts in 30-60 s and lasts 5-10 mins. If you need to give any more than 1mg, give serious consideration to GA conversion or call for help
- b) Inhalational agents. Nitrous oxide 50% to 70% in oxygen may be helpful. Avoid giving an unintended GA by maintaining verbal responses at all times.

If the above fail to improve the situation to the patient's satisfaction consideration should be given to progressing to a GA. You should discuss this with the operating surgeon as they will have to discontinue operating whilst this is carried out. Take senior advice if necessary.

12. I.V. Fluids crystalloid as required, normally Hartmann's solution. Blood pressure should be controlled by initiating an infusion of phenylephrine 100 microg/ml, starting at 30 mls/hr. Reduce the rate and/or stop the infusion when blood pressure is satisfactory without it. It is possible to use a 500 ml bag of crystalloid containing 1mg phenylephrine titrated to BP once spinal sited, but BP control appears more satisfactory with the infusion technique outlined above. Further increments of phenylephrine 0.1mg may be required. In event of bradycardia with normotension, give glycopyrrolate or atropine. If bradycardia with hypotension, give ephedrine and consider high regional block.
13. Oxygen. Not routinely used for LSCS unless maternal hypoxaemia; administer oxygen 4l/min via face mask, or 2 l/min via nasal catheter to the patient.
14. Pain management after LSCS.  
NSAID – naproxen PO or diclofenac PR, and paracetamol should be given routinely & regularly unless contraindicated. Prescribe additional opioid for breakthrough pain.  
If patients have received IT diamorphine, IM morphine boluses should be avoided for 6 hrs after the block. Rescue analgesia should be provided by titrated IV morphine given by the doctor, recovery nurse or via PCAS. (See postoperative analgesia policy)
15. Post-spinal management: Mobilise the patient as soon as the block has worn off. Encourage adequate oral fluid intake (iv if necessary). Analgesia: as per analgesia protocol. If a headache occurs the patient must be reviewed. Manage according to severity of headache and degree of incapacity of the patient, e.g. mild/moderate - NSAID + paracetamol, oral fluid + caffeine, severe - bed rest & consider blood patch (see inadvertent dural puncture policy). Seek senior help.
16. Previous failed intubation/anticipated failure to intubate: seek advice regarding the use of either a combined epi-spinal technique, or an intrathecal catheter - for a more gradual onset of block, predictability of spread and ability to prolong the duration of block.
17. If patients are discharged early after spinal anaesthesia ensure that they receive a copy of the instructions regarding what to do in the event of a headache developing.

### Audit/monitoring

All mothers will be followed up the day after delivery. Specific enquiries will be made concerning recognised complications and maternal satisfaction will be assessed. All data will be entered onto the audit anaesthetic computer on delivery suite. Regular reports will be produced under the direction of the clinical lead for obstetric anaesthesia with information about complication rates and satisfaction with the anaesthetic. These will be presented and discussed at anaesthetic clinical governance meetings. Annual reports will be made available to the Labour Ward Forum.

### References

1. Collis, R E.(2002), "Regional Anaesthesia for Caesarean Section" in Collis R, Platt F, Urquart J (Eds) *Textbook of Obstetric Anaesthesia* Greenwich Medical Media, London.