Bradford Teaching Hospitals NHS
NHS Foundation Trust

Title: Inadvertent Dural Puncture in Obstetric Patients

Authors: Dr John Keeler (Anaesthetic Department

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Accidental dural puncture occurs in 0.5% to 1.0% of mothers who have an epidural sited for analgesia in labour at the BRI.

Detection of an inadvertent Dural Puncture (IDP)

- An IDP may be detected during the siting of an epidural by free flow of CSF from the Tuohy needle hub. If there is any uncertainty about as to whether fluid is CSF or saline, testing the issuing fluid with a glucose indicator stick may be helpful as the presence of glucose will confirm that the fluid is CSF.
- If CSF is detected at the hub of the Tuohy needle, do not withdraw the needle, but attempt to pass an epidural catheter intradurally, leaving 3-4cm within the subarachnoid space. (NB make sure catheter and filter are first primed with saline). If the catheter does not pass easily remove it along with the Tuohy needle. An attempt to site an epidural at another interspace should be made, **by a more senior anaesthetist if appropriate**. It is recommended that an effective regional block is sited, but consider the wishes of the mother in the decision.
- An IDP may also be detected after epidural insertion when free flow of CSF down the catheter is noted. This situation should be managed as outlined below under "***Subarachnoid catheter management***".

Management of analgesia during labour following an IDP

- **Subarachnoid catheter management:** Top-up for labour pain management (**by anaesthetist only**) with 1-2ml increments of standard epidural mixture - 0.1% bupivacaine/fentanyl 2 microg/ml. **Label the catheter as intrathecal**. **All doses must be given by an anaesthetist**. If delivery in theatre is needed use hyperbaric 0.5% bupivacaine in small increments – 0.5 to 1.0 ml –until a satisfactory block level is obtained.
- **If an epidural catheter has been sited in an adjacent space:** Slow (5ml over 1min) bolus top-ups of 0.1% bupivacaine with fentanyl 2µg/ml**.** Maintain analgesia with an epidural infusion of the same solution at 10mls/hr. Any further top-ups during labour must be given **by the anaesthetist** and should be **given slowly**.

Management following delivery

- **Remove the subarachnoid or epidural catheter:- -** Mobilise as soon as sensation has returned. Push oral fluid intake.
- Review, enquiring about the presence and severity of any headache. If a headache occurs ask about features suggesting that it is a post dural puncture headache (PDPH), especially any positional nature.

Management of post dural puncture headache

- Reassure the patient that the majority of PDPH resolve spontaneously (70% within 1 week and 85% within 6 weeks). Confirm the postural nature of the headache. If the diagnosis is unclear please discuss this with a senior member of the anaesthetic department.
- Advise the mother to mobilise as much as her headache will allow and prescribe regular oral analgesics – details available on the **Link Post Operative Analgesia in Maternity Unit** (Briefly: - NSAID if tolerated, paracetamol and additional opioid if the headache is severe.) If constipated, prescribe a laxative. Encourage oral fluid intake especially caffeine containing drinks. If the headache is severe consider an early epidural autologous blood patch (EABP).
- **Epidural Autologous Blood Patch**. If the headache fails to improve explain the advisability of a blood patch, (including the possibility of failure to relieve symptoms and the possibility of a further inadvertent dural puncture). EABP should be performed in the operating theatre on delivery suite. Proceed with blood patch, injecting up to 20 ml of patient's blood (collected by a second operator **using full aseptic precautions**) into the same epidural space as, or the one below, the dural puncture. Discontinue the injection if significant back pain occurs. Mobilise after 2 hours. Maintain high fluid intake (unless fluid-restricted e.g for P.E.T.)
- All mothers who have had an IDP, with or without an EABP, should have senior review daily until symptom-free. If headache recurs after patching - advise bed rest for symptom control, regular analgesics and **seek consultant advice as to whether to perform a repeat blood patch.** Any new neurological signs, unexplained pyrexia, or persistent headache should be investigated, and patient discharge delayed pending consultation with a senior member of staff. All patients should be advised that should their headache recur after

discharge, they should contact the BRI Delivery Suite, rather than their GP. A letter should be sent to the G.P, suggesting that they contact Delivery Suite if the patient's headache symptoms return.

- Please give a copy of the OAA information card ***- Headache after an epidural or spinal injection? What you need to know*** to the mother. (Available from "labourpains.com" website)
- All patients should be booked for a follow-up visit at the high risk obstetric anaesthetic clinic at approximately 6 weeks post delivery.

Follow up and audit

- A follow-up form is available to record details of the management of mothers who suffer an IDP and/or PDPH on delivery suite, along with a file to store them after completion. This will enable audit of IDP and PDPH management within the maternity unit. Please also record details of clinical management in the notes and on EPR. There is also a copy of a suggested letter to send to the mother's GP on discharge (referenced above). These documents can be found on the computer in the theatre office on delivery suite.

References:

Fernando, R. and Price, C. M.(2002), "Regional Analgesia for Labour" Pp 85-87 in Collis R, Platt F, Urquart J (Eds) *Textbook of Obstetric Anaesthesia* Greenwich Medical Media, London