Guideline on epidural top-ups in patients receiving epidural infusions in HDU/ITU after abdominal* or lower limb surgery

Aim of the epidural analgesia

To provide sufficient analgesia so that the patient has little or no wound pain at rest, is able to take deep breaths and cough effectively without severe pain.

Top-ups are given by the anaesthetist, nurse specialist in pain medicine or appropriately trained critical care nurse.

If analgesia is inadequate

Give the top-up dose of the epidural infusion solution prescribed on the epidural chart – usually 10 ml	The patient should be re-assessed 20 mins after top-ups to see if the top-up has been adequate. Waiting for an hour or two after an inadequate top-up before repeating it is unlikely to result in satisfactory analgesia.	
Re-assess **after 20 minutes**	If analgesia is still inadequate repeat the top-up using the same dose.	The first two top-ups may be given by the anaesthetist, NS in pain management or appropriately trained HDU/ITU nurse.
Re-assess **after 20 minutes**	If analgesia is still inadequate repeat the top-up using 20 ml of the infusion solution. Consider increasing epidural hourly rate	The third top-up should only be given or advised by the anaesthetist or CNS/ANS in pain management.
Re-assess **after 20 minutes**	If analgesia is still inadequate, the epidural catheter tip is not in a good position. Consider resiting the epidural or adding/ changing to an alternative form of analgesia e.g. IV PCA opioid.	Consider whether there is a coagulopathy or whether the patient has recently received heparin when deciding whether to remove/re-site the epidural catheter.

If adequate analgesia is obtained but further top-ups are required within a few hours, consider increasing the epidural infusion rate.

Notes

1. A smaller top-up dose (e.g. 5ml) may be prescribed if the standard 10 ml top-up has previously produced a very extensive block or if the epidural solution contains more than 2 micrograms/ml of fentanyl. A larger top-up dose (e.g. 20 ml) may be prescribed if the standard dose has been insufficient on previous occasions provided the epidural solution does not contain more than 2 micrograms/ml of fentanyl.
2. The sensory block to pinprick or cold sensation may be tested if desired before or after a top-up. However, irrespective of whether such a block is present/absent/patchy/unilateral/bilateral/covering or not covering the wound, top-ups should usually be given according to the amount of pain the patient has and the above guideline and not according to the findings on block testing.
3. If a patient has wound pain together with a sensory block affecting the upper limbs or a marked motor block of the lower limbs, a top-up should not be given without senior anaesthetic advice to give one.
4. Top-ups are usually given from the epidural pump. An epidural infusion which does not provide adequate analgesia despite the three top-ups recommended above having been given is unlikely to provide and maintain adequate analgesia following a top-up of more concentrated local anaesthetic. If there is concern that the top-ups from the pump will give the patient too much epidural opioid, plain (levo-) bupivacaine 0.25 % may be given instead in half the volume e.g. 10 ml of 0.25 % instead of 20 ml of the infusion mixture.
5. If the patient is complaining of pain outside the area likely to be covered by the epidural e.g. throat, neck, foot pain then systemic analgesia such as paracetamol and tramadol may be appropriate.

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