Coagulation abnormalities and regional techniques

**Overview:** In the presence of coagulation abnormalities there is a risk that in performing a regional block trauma to the epidural veins may cause an expanding spinal haematoma leading to permanent neurological damage.

**Causes of known or potential clotting disorders**
- Thrombocytopenia
- Haemophilia, Von Willebrand’s disease and related conditions
- Drug induced; heparin or warfarin therapy *patient info. leaflet* heparin adv during pregnancy
- Obstetric related; pre-eclampsia, IUD, abruption

**Aspirin therapy**
Low dose aspirin may affect platelet function for 7-10 days from the time of its administration. The evidence now seems to suggest that regional anaesthesia is safe in patients on low dose aspirin.

**Low dose unfractionated heparin**
This is now prescribed infrequently and mainly used at term for women at high risk of thromboembolic disease.
Beware patients with reduced renal function.

The following procedure should be observed.
- Check the clotting studies and FBC (platelets) and proceed if normal
- Be aware that low dose heparin should not be given within 6 hours of insertion or removal of an epidural catheter
- Ideally a spinal should not be performed within 6 hours of low dose heparin administration

Low molecular weight heparin (Tinzaparin, Dalteparin, Enoxaparin)
This therapy requires more caution. There have been a number of spinal haematomas in patients receiving LMWH and regional anaesthesia in the United States.

It is important to distinguish whether it is being used at prophylactic or therapeutic doses.
Again action can be prolonged in patients with reduced renal function.

The following procedures should be observed

Prophylactic doses (eg 4,500 units of Tinzaparin once or twice a day)

- The insertion of a regional block should be performed twelve hours after a dose has been given.
- The epidural catheter should be removed twelve hours after the dose of LMWH has been given and at least two hours before the next.

Therapeutic doses (calculated on a weight basis but in the order of 7 - 13,000 units once or twice a day)

- Insertion of a regional block ideally should not be performed until at least 22 hours after a dose has been given.
- The epidural catheter should be removed twenty two hours after a dose of LMWH and the next dose given at least two hours later.
- A counsel of perfection would be that an anti-Xa assay be performed before the procedure but at the time of writing this is not possible as an emergency test in Reading.

**Thrombocytopenia**

Procedure for epidural/spinal placement in a pre-eclamptic

- Check the platelet count
- If value is >100 x 10⁹/litre proceed with regional technique
- If value is > 80 x 10⁹/litre check clotting and proceed if normal
- If value is < 80 x10⁹/litre do not perform a regional technique without discussing the case with the duty consultant anaesthetist.

Remember platelet levels can fall rapidly in pre-eclampsia. Be sure you are using up to date results

**General precautions for those with clotting problems**

- Spinal haematoma is a rare complication. Use common sense and ask for advice if you feel that there is a difficult risk/benefit equation to be weighed up.
- If requiring an urgent or immediate anaesthetic the fasting time should be taken into account
- Warn the patient there is a very small chance of a problem but reassure her that a close eye will be kept on her.
- A single shot spinal may be a less traumatic technique.
• If you get two bloody taps abandon the procedure.

• If you do perform regional anaesthesia on a patient in any of the above groups you must follow them up carefully. When the block has worn off the cardinal signs of spinal compression to look out for are;
  • Back pain
  • New onset numbness or weakness
  • Urinary or faecal incontinence
  • If any of these are detected prompt orthopaedic referral is mandatory. It takes only six hours to end up with irreversible spinal cord damage

Alternative to Regional Analgesia
Please see the Remifentanil PCA guidelines for alternative analgesic options.
Please make sure that these women are given Ranitidine regularly.

This guideline will be monitored, results reviewed and action plans made.

References
2. FDA Public Health Advisory 1997.
4. Wildsmith, BJA 1999; 82: 164-7 (Editorial)
5. Pattinson J: Lecture at Regional Obstetric Anaesthesia Meeting May 2003

Author: Dr S Millett Dec 1999
Revised: Dr R Jones consultant anaesthetist Dec 2003, Dec 2006
Revise December 2009