INTRAVERNOS REGIONAL ANAESTHESIA (IVRA) PROTOCOL

1. Requirements before starting procedure
   1.1. Resuscitation equipment, including oxygen, bag/mask, suction must be available at the head of the bed and checked prior to the procedure. Midazolam should also be handy (but not drawn up). If accidental cuff deflation occurs, oxygenation and anticonvulsants are the mainstay of treatment. The first sign of local anaesthetic toxicity is peri-oral tingling/numbness, followed by altered consciousness and seizures. If hypoxia is allowed to occur, cardio toxicity rapidly develops.
   1.2. A DEM Registrar or Consultant must be present
   1.3. A nurse with training and experience in the technique must be available to monitor both cuff and patient. Otherwise, a second experienced doctor may be utilized, but only with the consent of both medical officer in charge and the nurse in charge of the shift.
   1.4. X-ray must be notified and be available to provide post reduction films prior to cuff release.

2. Drug dosage calculations
   2.1. For arm block: Prilocaine (without adrenaline) 0.5% solution (5 mg/ml), 3 mg/kg

3. Technique
   3.1. Insert 2 IV cannulae: One in the limb undergoing procedure (SMALL GAUGE and preferably distal) and one in another limb for emergency access.
   3.2. Familiarisation: Each cuff is color-coded to match the color of the stopcock controlling inflation/deflation. The proximal cuff is first inflated. When the arm is anaesthetized the distal cuff is inflated and the proximal cuff deflated. This enables a safe and comfortable procedure.
   3.3. APP: Y the cuff and CHECK it. SUPPLY pressure should be reading at around 80 PSIG, and CUFF pressure should be set at 100 mmHg ABOVE the patient's systolic blood pressure.
   3.4. ELEVATE the injured limb for several minutes to exsanguinate it. Where tolerated, an ESMARCH bandage may also be used to assist exanguination, but this bandage can be extremely painful when used around an acute fracture, and can cause engorgement if applied incorrectly.
   3.5. INFLATE the PROXIMAL cuff, and PALPATE both the CUFF (to check that it is inflated) and a distal arterial PULSE to ensure that the pulse is obliterated.
   3.6. INJECT the prilocaine'into slowly. This IV is now removed and pressure applied.
   3.7. Satisfactory analgesia is achieved in 5-10 minutes. The DISTAL cuff is then inflated. PALPATE the DISTAL cuff to ensure that it is inflated and CHECK that the inflation pressure is still correct. Now deflate the PROXIMAL cuff and commence the procedure.
   3.8. Cuff pressure should be maintained for a minimum of 20 minutes to enable uptake of the anaesthetic into lipid-soluble tissues. After this has occurred, the cuff can be safely deflated.
   3.9. Maximum tourniquet time generally should not exceed 1 Hour.

4. Discharge
   The patient must be observed for 1 hour post procedure, and should not be discharged until safe motor control and sensory function have returned to the limb.

Authorised by: Dr Simon Brown, Director of Emergency Medicine 18 March 2000