

## Post-operative management of Scoliosis Patients requiring Critical Care

### General Principles

These patients are likely to have had major corrective spinal surgery, very often with significant blood loss. It is not uncommon for them to have lost a great proportion of their blood volume during surgery and their post-operative management must take this into account.

Additionally, the greatest risk that these patients face in the early post-operative phase is **hypovolaemia from further blood loss**, which might not always be visible in the drains. It is crucial that appropriate attention is given to this issue.

The standard principles of care after major surgery apply to these patients too. The general plan is to correct any deviations from normal physiology, biochemistry and haematology, achieve adequate analgesia and proceed to early weaning off any invasive respiratory support.

### General Nursing

- Nurse supine unless otherwise instructed by the orthopaedic team
- Whole bed tilt up to 15 degrees is allowed
- Pressure area care should be done by log-rolling the trunk (approx every 4hrs)
- Stick to sips & mouth care till bowel sounds heard (unusual before 24-48hrs).  
GI dysfunction after scoliosis surgery is not uncommon.

### Blood Loss/Fluids

The majority of patients have re-infusion drains which make immediate replacement with red cells relatively straightforward. Please remember that infusion of this blood will not raise the patients Hb (same HCT as patient's). Drains are occasionally clamped to tamponade (& slow down) excessive loss. Please note that this does not stop the bleeding and fluid resuscitation must continue

- Watch drain loss closely
- Replace with colloid, red cells and FFP as required
- If blood loss **> 8ml/kg in 10mins** drains may be clamped for 45mins.
- DO NOT STOP appropriate fluid resuscitation with blood products.
- Unclamp drains for 10mins after 45mins clamping.
  - Reclamp for a further 45mins if significant loss persists
- Keep Hb close to 9-10g/dl and clotting close to normal.
- Use re-infusion drain blood if >15ml/kg collects (will not raise Hb)
  - use only in first 6hrs post-op
- DO NOT CLAMP CHEST DRAINS for bleeding

### Urine Output

- Aim for 0.5-1.0ml/kg/hr
- If oliguric (< 0.5ml/kg/hr) for 2 consecutive hours – give 10ml/kg Gelatin
  - Use Red Cells if Hb<9g/dl
  - Use FFP if clotting abnormal
- Do not use diuretics unless obviously fluid overloaded

### Respiratory

Most cases are admitted to Critical Care for post-operative respiratory support. The majority have respiratory insufficiency and a few are established on home ventilation pre-op. Remember that complete normalisation of pCO<sub>2</sub> might be impossible in some.

- Aim for early extubation in all patients.
- Consider use of patient's own home ventilator (if applicable) after extubation.

### Neurology

It is near impossible to adequately assess deeply sedated patients. Most scoliosis patients admitted for post-op critical care have profound neurological disability.

- Seek advice regarding pre-op neuro function
- Once awake assess ability to wiggle toes/move legs
- Clear deterioration in lower limb function requires immediate medical assessment
- If deterioration is established, inform surgeon without delay
- Urgent scan might be necessary

### Analgesia

- Regular Paracetamol 15-20mg/kg (po/pr/iv)
- Consider Diclofenac 1mg/kg (max 50mg) tds (po/pr), unless contraindicated e.g. still bleeding+, poor urine output
- Morphine PCA/Nurse controlled
  - bolus 0.02mg/kg +
  - background infusion 0.02-0.04mg/kg/hr.

Patients who have had a thoracotomy or a thoracoabdominal approach might return to the Unit with an **interpleural/paravertebral** catheter in situ and connected to an Epidural Pump. This is in addition to Morphine PCA.

- Rate should not exceed 0.5ml/kg/hr Bupivacaine 0.1%
  - no bolus, no opiate

### Antibiotics

- Continue antibiotic given at induction on regular basis till drains/catheter out or as advised by surgeon.

### Anti-thrombosis prophylaxis

- Do not give Tinzaparin in first 24hrs and unless cleared with surgical team

### When to inform the surgeon

- Blood loss heavy and persistent requiring repeated clamping of drains
- Any neurological deterioration in lower limbs
- Any significant deterioration in the patient's general condition

### Help and advice

Ward 17 (& 20) will have nursed far more scoliosis patients than any critical care area in this hospital. If in doubt on any aspect of care please do not hesitate to pick up the phone and call. Speak to the nurses in charge. They are likely to be able to help. Anaesthetic management of these patients is almost always in the hands of Drs Bedford, Holland or Sammut. They can be contacted by DECT phone or through the hospital switchboard and shall be more than happy to advise. **If in doubt call!**