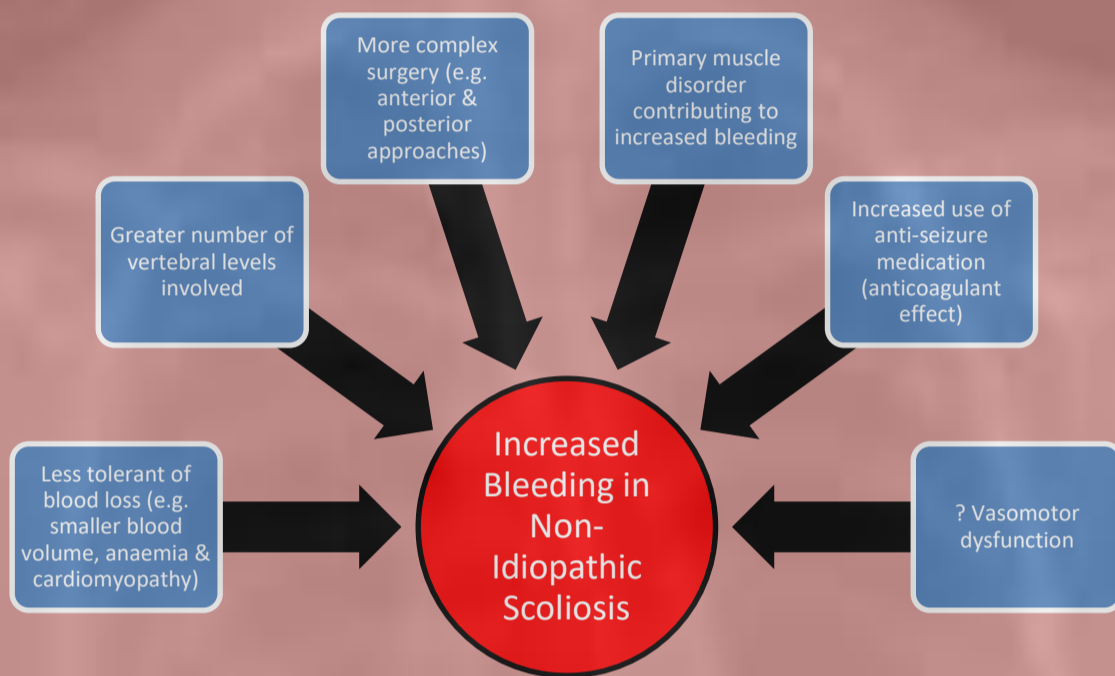


Changing Transfusion Practice in Non-Idiopathic Scoliosis Surgery

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Background

- Correction of non-idiopathic scoliosis surgery has been demonstrated to carry a greater risk perioperative of blood loss than idiopathic scoliosis surgery (i).
- Standard practice in our centre is to crossmatch 2 units of blood preoperatively.
- With the increased use of cell salvage, antifibrinolytic therapy and iron supplementation, is this still necessary?

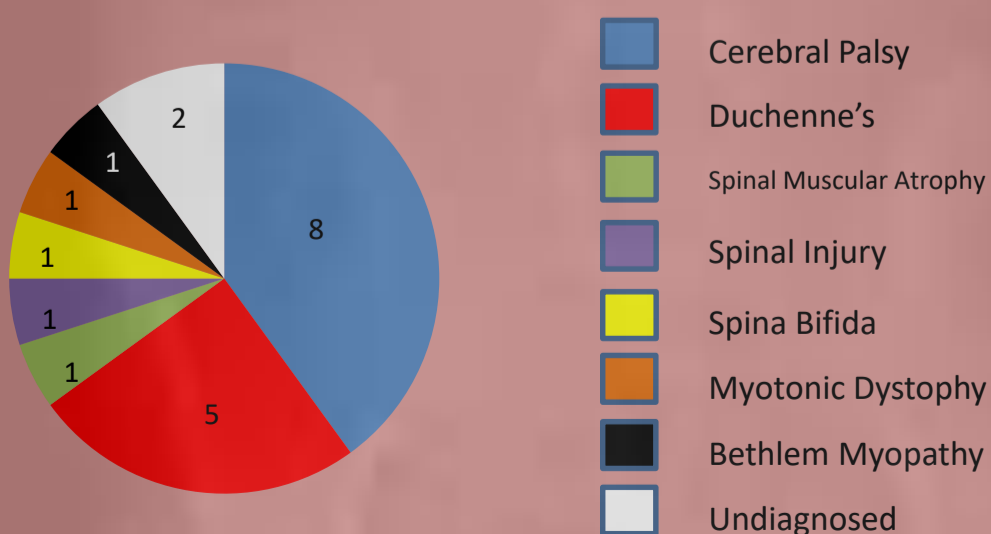


Method

- Electronic coding search for all non-idiopathic scoliosis surgery between June 2018 – 2019.
- Review of patient's electronic record:
 - Underlying diagnosis
 - Blood cross matched perioperatively
 - Perioperative transfusion (autologous and homologous)
 - Perioperative haemoglobin levels
 - Use of Iron supplementation

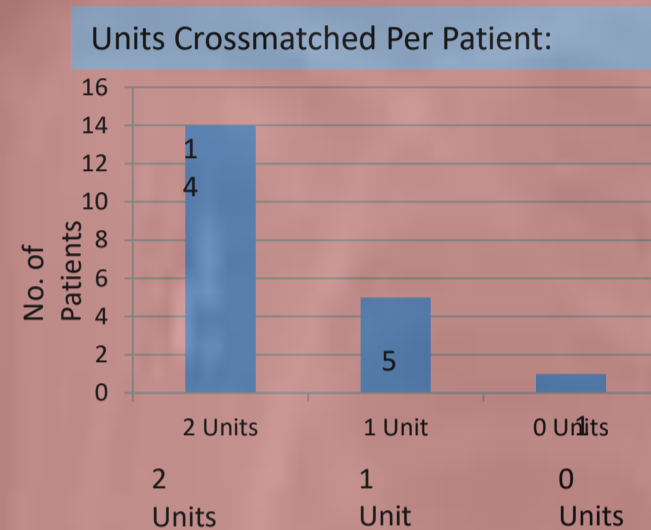
Results - Patients

- 20 patients
- Age: 3-18 years old, Weight: 13 – 94kg
- All Posterior approach
- 17 Posterior spinal fixations, 2 Growth rods, 1 Conversion from rods to fixation.

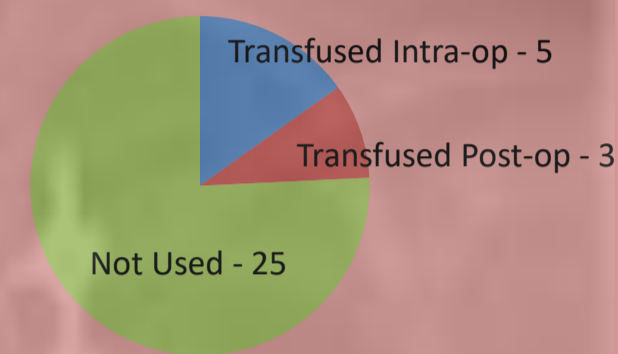


Results - Transfusion

- 33 Adult units crossmatched.
- 25 of these units were not required. (76%)
- No patient Received more than 1 unit in the perioperative period



Fate of Crossmatched Units:



Results - Adjuncts

- All patients received tranexamic acid intraoperatively
- Cell salvage was used extensively and effectively:
 - Mean percentage of estimated blood volume delivered as autologous transfusion = 10% (Range 0-30%)
- Preoperative Iron supplementation given to 6 of 20 patients, who:
 - Had higher mean pre-operative haemoglobin levels than the remainder. (141 vs 132)
 - Received larger mean volumes of homologous blood transfusion than the remainder. (3.37ml/kg vs 2.94ml/kg)
 - Were generally younger (median age 10 vs 15), smaller (mean weight 28.7kg vs 50.7kg) and more likely to have Duchenne's (50% vs 35%) than the remainder.

Limitations

- Small number of patients reviewed.
- Haematocrit of cell salvage blood assumed to be broadly similar to donor units.
- No consideration of number of vertebral levels operated upon.

Outcome

- Presented to anaesthetic department and to spinal surgeons
- Agreement reached to accept standard practice of 1 unit crossmatch in non-idiopathic scoliosis surgery.

Conclusions

- The widespread use of cell salvage and antifibrinolytic techniques may facilitate a reduction in the requirement for perioperative use of donor blood.
- Iron supplementation appears to result in a higher preoperative haemoglobin level, although this did not translate to a reduction in transfusion requirement.
- As perioperative techniques evolve, "standard practice" should be subject to regular review.

Reference

- i. Shapiro F, Sethna N. Blood loss in pediatric spine surgery. *Eur Spine J.* 2004;13 Suppl 1(Suppl 1):S6-S17. doi:10.1007/s00586-004-0760-y