Blood Conservation Techniques in a Pediatric Jehovah's Witness Patient Undergoing Scoliosis Repair

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ABSTRACT

- Spinal deformity corrective surgery is associated with major blood loss, often requiring blood transfusions.[1]
- Jehovah's Witnesses refuse blood product transfusion for religious reasons. However, the church has modified its stance on transfusions over the years, and now states that certain methods of autologous storage could be viewed as extension of the patient's own body.[2]
- Additionally, while whole blood is still banned, transfusion of blood fractions is a matter of individual conscience.
- We describe blood conservation techniques used intraoperatively in a Jehovah's Witness pediatric patient undergoing posterior spinal fusion for scoliosis.

CASE REPORT

- A 15-year-old, 47 kilogram female with a history of chromosomal abnormality and scoliosis presented for posterior spinal fusion.
- She and her parents are Jehovah's Witnesses. The parents approved of intraoperative cell salvage and fractionated products including albumin and cryoprecipitate. They expressed that they did not want packed red blood cells or whole blood given.
- The surgeon discussed that he was willing to halt the procedure if the patient's blood loss was too great to allow a reasonable recovery without a red blood cell transfusion.
- At the same time, a court ordered document was obtained to be able to give the patient a blood transfusion if her life was at risk.
- Blood conservation techniques were employed during the case.
- The patient's initial hemoglobin was 12.3 g/dL and hematocrit was 37%.
- Tranexamic acid (TXA), an antifibrinolytic, was given as a 30 mg/kg bolus and then maintained as a 3 mg/kg/h infusion.

FIGURES

Figure 1a: Xray of patient prior to scoliosis repair

Figure 1b: Xray of patient after scoliosis repair

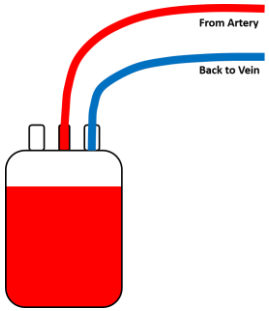

Figure 2: CPD collection bag with one line connected to peripheral arterial line and a second line connected to a vein.

CASE REPORT

- Prior to incision, acute normovolemic hemodilution was accomplished by withdrawing 300 ml of blood from the patient's radial arterial line.
- This blood was collected into a citrate, phosphate and dextrose (CPD) bag and placed in a cooler, which was then autotransfused at the end of the procedure.
- A venous line attached to this bag of blood was also attached to the patient to maintain connection with the patient at all times.
- A nicardipine infusion was used for intraoperative blood pressure control with a target mean arterial blood pressure less than 70 to limit blood loss.
- The lowest intraoperative hemoglobin was 6.8 g/dL which rose to 8.5 g/dL following autotransfusion and cell saver. The patient had a stable post-operative course and was discharged home 3 days after the operation.

DISCUSSION

- Posterior spinal fusion surgery on a patient who is a Jehovah's Witness can present unique challenges.
- Although by law a whole blood or packed red blood cell transfusion can be given to save a pediatric patient's life, respect and consideration should be given regarding the patient and parents' religious preferences.
- We describe a successful intraoperative multimodal approach to blood conservation in a Jehovah's Witness patient while upholding the patient's and parents' wishes to avoid blood transfusion.

REFERENCES

1. Wahlquist S, Wongworawat M, Nelson S. When Does Intraoperative Blood Loss Occur During Pediatric Scoliosis Correction? Spine Deform. 2017 Nov;5(6):387-391.
2. Watch Tower Bible and Tract Society. Questions from readers. *Watchtower* 2000;15:29–31.