INTRODUCTION

Impending intraoperative blood loss, as seen in patients with acute intracranial hemorrhage, may warrant an early transfusion approach, especially in pediatric patients. In this case report, packed red blood cells were transfused to a pediatric patient with subdural hematoma secondary to head trauma prior to significant intraoperative blood loss to ameliorate the potential secondary insults from hypoxemia and hypotension caused by massive hemorrhage.

CASE REPORT

A three-year-old 19 kg African American female presented with blunt trauma from a television falling on her head. She was found unresponsive at the scene, was intubated, and presented to emergency room 1.5 hours after injury. On arrival, vital signs were stable, Glasgow Coma Scale score of 3T, fixed rightward gaze, 3 mm non-reactive left pupil, absent rectal tone, and patient was noted to have a 6 cm laceration to the right frontal area of her head. No other injuries were noted. Patient was diagnosed with right subdural hematoma with 6 mm midline shift based on CT head. Patient was rushed to operating room for emergent right-sided decompressive craniectomy.

On arrival to operating room, anesthesia was initiated and left radial arterial line was placed. Initial arterial blood gas showed a hemoglobin of 9.5 g/dl and hematocrit of 29. One unit of packed red blood cells was given just before exposure of the dura, following communication with neurosurgeon.

Brisk bleeding from multiple areas was identified following the opening of the dura. Nearly one liter of blood was lost within a few minutes with concurrent fall in blood pressure from 97/51 to 50/32.

Hypotension was treated with 5% albumin and phenylephrine with good response, then a second unit of packed red blood cells was ordered and transfused. The patient did not become hypoxic. Arterial blood gas taken after hemostasis showed hemoglobin of 9.9 g/dl and hematocrit 30.2.

A bolt ICP monitor was placed with initial intracranial pressure of >80 mmHg, which then stabilized at about 45 mmHg with patient in head up position. Patient was then transported to pediatric intensive care unit intubated, in critical condition. Patient was extubated post-op day 17, was taken back to OR on post-op day 25 for cranioplasty, was discharged on post-op day 38, and following a lengthy rehabilitation course, has made a remarkable recovery.

DISCUSSION

With consultation of neurosurgeon, we elected to transfuse red blood cells prior to loss of 2/3 estimated blood volume within a few minutes. The large intracranial hematoma seen on CT together with patient’s low allowable blood loss were factors in the decision to transfuse early. Although the patient still became somewhat hypotensive after massive hemorrhage, she never became hypoxic. Moreover, hypotension was likely attenuated by prior transfusion. While this proposed benefit is speculative, it warrants further investigation into transfusion triggers that extend to the pre-hemorrhage stage.

REFERENCES