A 21-month-old boy presented with symptoms of hemiparesis in the setting of a hematocrit of 12%. PMH: Cleft lip and palate, asthma. The family refused consent for blood transfusion for religious reasons.

PICU and Pediatric Neurology requested urgent MRI/MRA, with Pediatric Anesthesia.

Vitals: BP 124/78, HR 110 and RR 22

Non-contrast Head CT: no intracranial masses or blood collection.

Labs:
- No electrolyte or metabolic abnormalities
- Hemoglobin 4 g/dL, repeated and confirmed

Anticipated scan time for MRI/MRA = 2 hrs

Child was appropriately NPO and had PIV

What would you do?

**Case Presentation**

**Anesthetic Concerns**
- If vaso-occlusive etiology is in the differential, time is of the essence
- Risk/Benefit for Anesthesia and Diagnostic Imaging
- Cerebral protection, and that for other end-organs
- Hemodynamic changes accompanying a general anesthetic, combined with severe anemia, could worsen symptoms or cause another cerebral vascular event
- Remain cognizant that any anesthetic agent could precipitate a slide into frank hemodynamic collapse, necessitating transfusion as a resuscitative effort

**Anesthetic Approach**
- Seek court order for transfusion? Transfuse without consent? Proceed without transfusion?
- General? TIVA vs. Inhalational?
- Monitored Anesthesia Care
  - Which agents? Airway management plan?
  - Balance sedation with high sensitivity to respiratory depression
  - Avoid agents that increase CRMO
- Adjunct monitors such as edge frequency or BIS not useful
  - Not validated in small children, MRI incompatible

**Ethics and Consent in Pediatric Anesthesia**

Do no harm. Safety first. Protect the patient. One of the greatest challenges in Pediatric Anesthesia can be when a child is critically ill, but the family disagrees with the recommendations for treatment.
- Seek a court-ordered transfusion? But child's life was not in imminent danger
- In what capacity is an anesthesiologist liable for potential neurologic complications, or for unauthorized blood transfusion during resuscitation?
- Individual state and local laws, along with institutional policy, can guide practice but are not crystal clear when dealing with an evolving clinical scenario

**Outcome**
- Hemiparesis improved after 4 hrs, prior to MRI
- MAC administered with titration of midazolam, anticipating an exaggerated sedative response due to severe anemia (total dose 2mg)
- Scan completed without untoward event
- Presumed diagnosis: TIA due to cerebral hypoxemia, secondary to severe anemia

**Future Study**
The decision of whether or not to transfuse an anemic patient is complex, grounded in the presence or absence of hemodynamic instability or end organ injury.
More studies are needed to clarify the association between severe anemia and adverse outcomes in anesthesia, particularly in the vulnerable pediatric population.

**References**
1. A Practice of Anesthesia for Infants and Children: Cote et al. Saunders, 2013