

Rate of Intraoperative Acidosis, Hypocalcemia, and Hyperkalemia in Patients Undergoing Surgery for Placenta Accreta Spectrum



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BACKGROUND

- Incidence of hemorrhage requiring transfusion in cases of PAS is ~ 45%¹, with many requiring ≥ 4 units
- Hypocalcemia is associated with degree of postpartum hemorrhage² and mortality³
- Few studies published on intra-operative monitoring of electrolyte abnormalities

OBJECTIVE

- To report the rate and severity of acidosis, hypocalcemia, and hyperkalemia observed during intraoperative point of care testing (POCT) in patients undergoing surgery for placenta accreta spectrum (PAS)

METHODS

- Retrospective cohort of all patients who underwent cesarean hysterectomy for PAS from 10/2018-06/2023
- Point-of-care testing (POCT) with an epoc blood analysis system (Siemens Medical Solutions USA, Inc.) was performed by the PAS dedicated anesthesia team
- Observed abnormalities were corrected intraoperatively by the anesthesia team as soon as identified
- The primary outcomes included: rate of acidosis (pH <7.35), hyperkalemia (K⁺ > 5.5), and hypocalcemia (ionized Ca < 1.12 mmol/L)

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Conclusion

POCT during surgery for PAS identifies a high rate of acidosis and electrolyte abnormalities

Hyperkalemia and severe hypocalcemia are almost exclusively observed after 4 or more units of PRBC are transfused

Intraoperative monitoring of electrolyte abnormalities is critical to allow adequate resuscitation and prompt correction of electrolyte abnormalities

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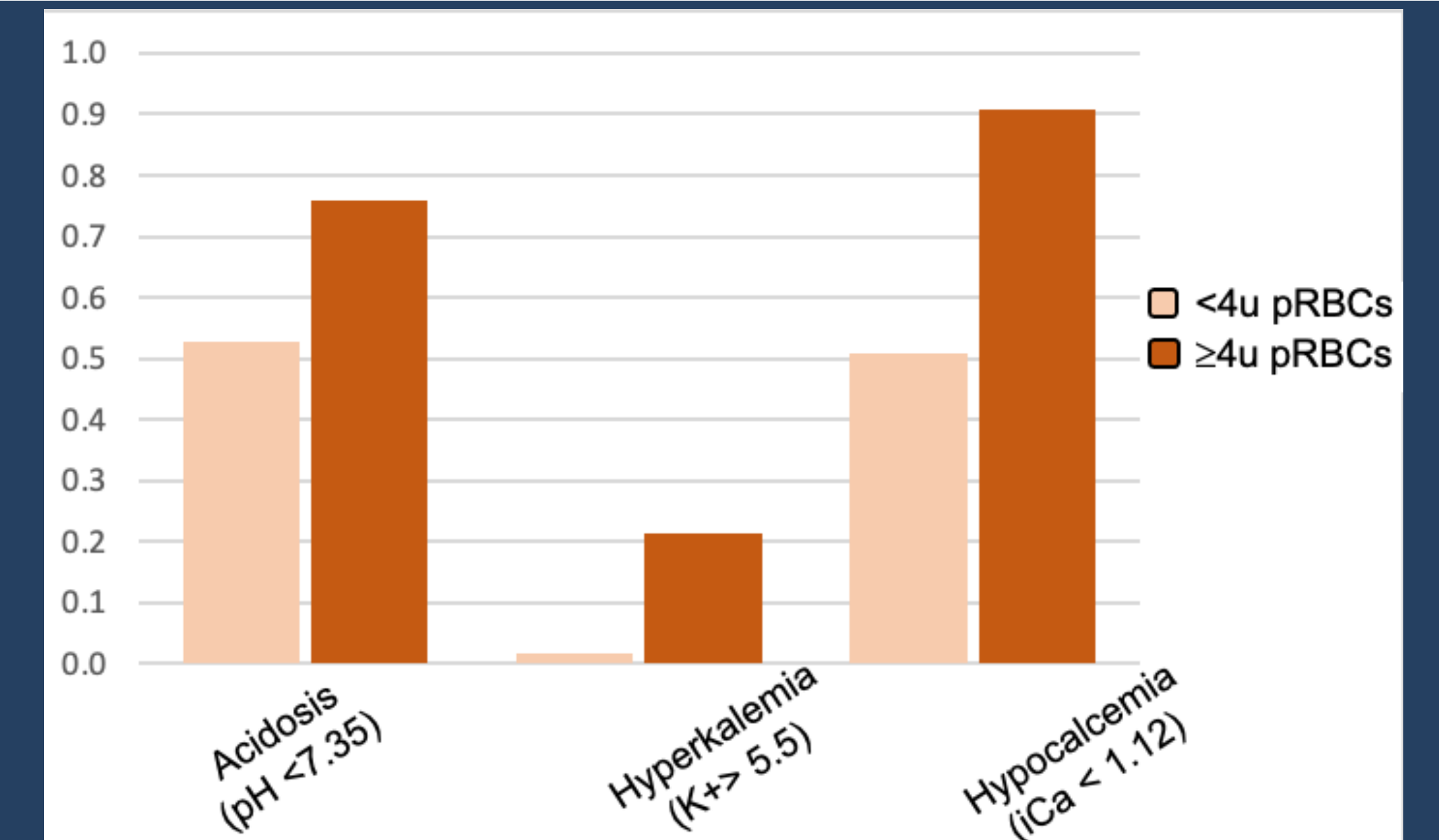


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RESULTS

- POCT was performed in 88/101 (87.1%) patients who underwent hysterectomy for PAS
- The median estimated blood loss was 1500mL
- Acidosis (pH<7.35): 52/88 (59.1%) cases
- Hyperkalemia (K⁺> 5.5): 8/88 (9.1%) cases
- Hypocalcemia (iCa<1.12 mmol/L): 56/88 (63.6%) cases. Severe hypocalcemia (iCa<0.8 mmol/L): 10/88 (11.4%) cases
- No cases of intraoperative cardiac arrhythmias observed

Figure 1. Rate of intraoperative acidosis and electrolyte abnormalities by number of blood units transfused



1. Jauniaux E, et al. *Am J Obstet Gynecol.* 2019;221(3):208-218
 2. Epstein D, Solomon N, Korytny A, et al. *British Journal of Anaesthesia.* 2021;126(5):1022-1028
 3. Ho KM, Leonard AD. *Anaesth Intensive Care.* 2011;39(1):46-54