Effect of intraoperative uterine artery embolization on transfusion requirements during cesarean section for suspected placenta previa and placenta accrete spectrum

background & hypothesis

- Placenta accreta spectrum (PAS) is a major cause of obstetric hemorrhage and is associated with massive blood transfusion and increased maternal morbidity.
- Severe bleeding can occur during cesarean section in patients with suspected PAS or placenta previa.
- Uterine artery embolization (UAE) is a widely used treatment for controlling postpartum hemorrhage.
- Recently, prophylactic intraoperative UAE has been proposed as a strategy to reduce hemorrhage.

study design and methods

◆ **Design**

- Retrospective cohort study
- Study period: 2019–2025

◆ **Population(n = 71)**

- Suspected placenta previa ± PAS undergoing cesarean section

◆ **Groups**

- **IUAE group:** Intraoperative uterine artery embolization (n = 34)
- **PUAE group:** Postpartum uterine artery embolization (n = 37)

◆ **Outcome**

- **Primary:** Total perioperative RBC transfusion
- **Secondary:** 24-h RBC, FFP, **massive transfusion ≥8 units**, EBL, hysterectomy, ICU admission, Length of hospital stay

◆ **Statistics**

- Generalized linear model
- Logistic regression
- Adjustment for clinical covariates

results

◆**Primary Outcome – Total perioperative RBC transfusion (**P = 0.003)

	Median [IQR]
Intraoperative UAE	**4 [2–11] units**
Postpartum UAE	**10 [6.5–21] units**

◆**Multivariable Analysis**

- Intraoperative UAE

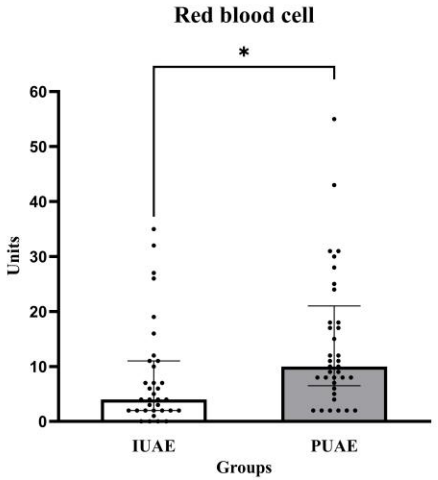
  –**IRR = 0.609 (**95% CI: 0.383–0.971_ (**P = 0.037)**

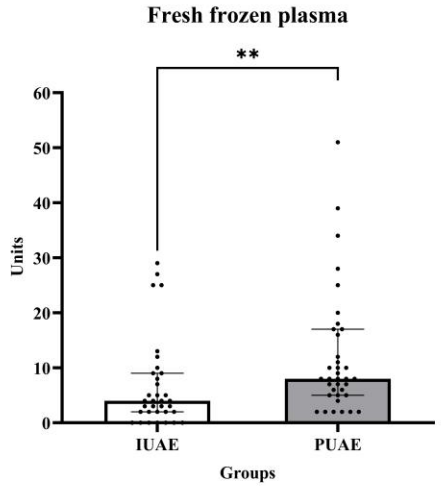
  → **Reduced transfusion requirement**

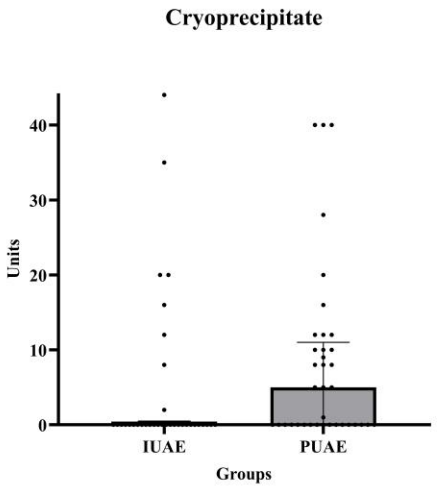
◆**Massive Transfusion**

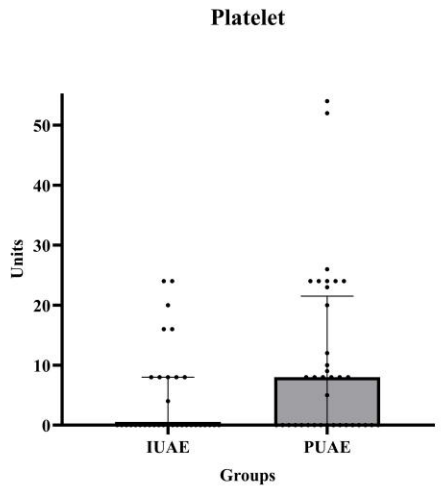
- **OR = 0.242 (**95% CI: 0.064–0.823) (**P = 0.028)**

  → **Lower risk**









conclusion and discussion

◆**Key Findings**

- **Prophylactic intraoperative UAE**
  - **reduced transfusion requirements**
  - **Lower risk of massive transfusion**
  - Benefit observed **despite higher baseline bleeding risk**

◆**Clinical Implications**

- High-risk **placenta previa / suspected PAS**

→ **Intraoperative UAE**

- Earlier hemorrhage control
- Reduced transfusion requirement
- Potential reduction in **maternal morbidity**

Particularly feasible in **hybrid operating room settings**

◆**Limitations**

- **Single-center study**
- **Retrospective design**
- Possible **selection bias**

◆**Conclusion**

- **Prophylactic intraoperative uterine artery embolization may reduce transfusion requirements in cesarean delivery for suspected PAS or placenta previa.**