

Intraoperative Red Blood Cell Transfusion: A Systematic Review and Meta-Analysis in Patients with Placenta Accreta Spectrum

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Background

- Cesarean delivery in patients with placenta accreta spectrum (PAS) is associated with a major risk of severe hemorrhage and massive transfusion.
- Studies of red blood cell (RBC) transfusions inform preoperative blood ordering guidelines.
- Objective: To evaluate RBC use during cesarean delivery in patients with PAS.

Study Design

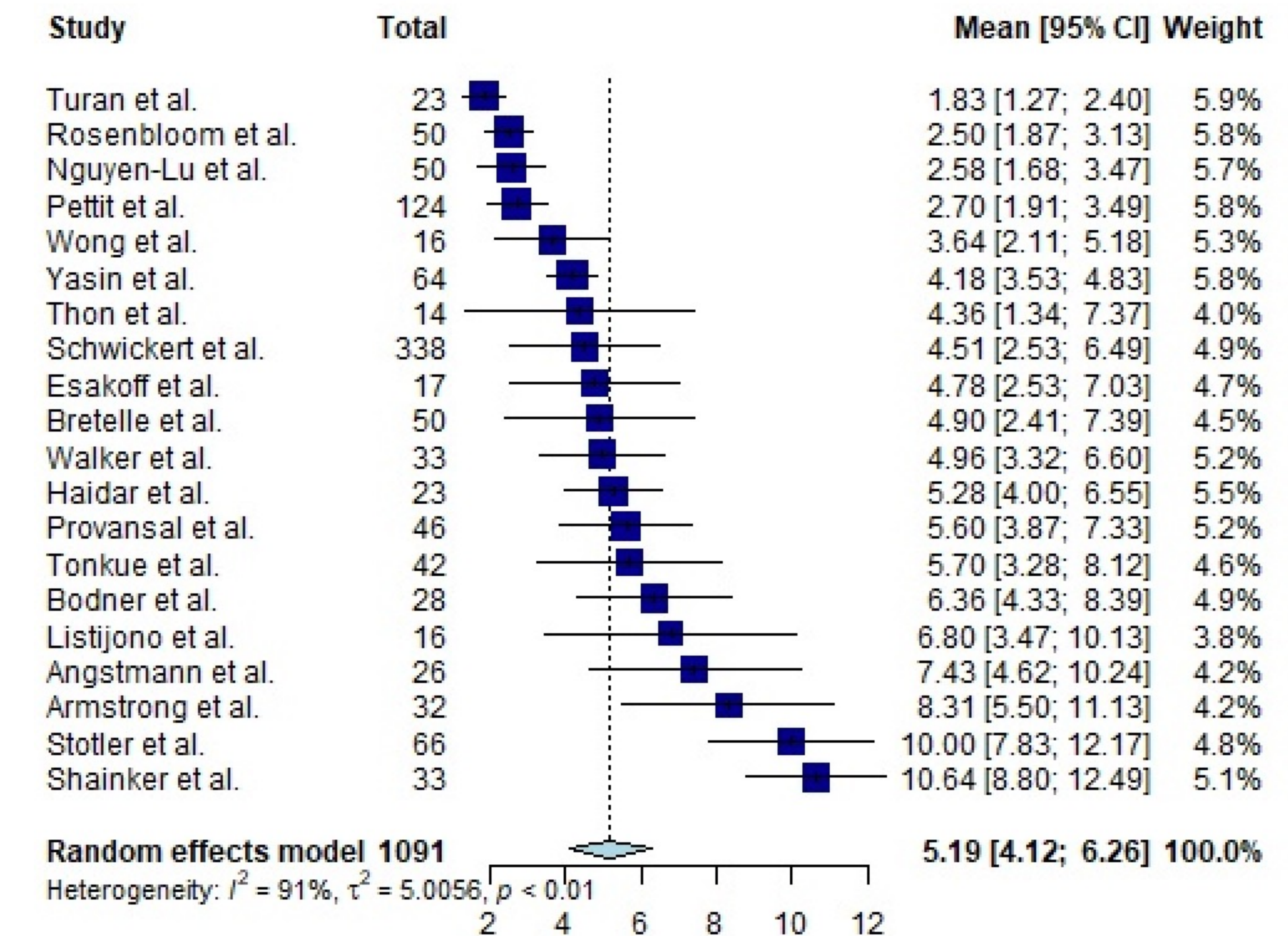
- Data sources: MEDLINE, Embase, CINAHL, Cochrane Central and Scopus between 2000 and 2021.
- Inclusion criteria: Studies published in developed countries reporting RBC data for ≥ 10 patients who underwent cesarean section for PAS.
- Primary Outcome: Mean number of RBC units transfused.
- Statistical Analysis: We calculated the weighted mean and 95% CI using a random effects model. Study heterogeneity was assessed using an I^2 value.

The high variability in RBC transfusion in patients with PAS, and lack of high-quality RBC transfusion data highlights the need for standardized transfusion reporting methods to help inform preoperative blood ordering and perioperative transfusion practices.

Results

- 4275 studies were screened; **20 articles (n=1091) met inclusion criteria.**
- RBC units were reported as means in 5 studies (25%), medians in 11 (55%) studies, and individual patient data in 4 (20%) studies.
- The **weighted mean number of units transfused = 5.19** (95% CI: 4.12, 6.26; n =1,091) per patient (Figure).
- Study heterogeneity was high:** $I^2=91\%$.

Figure. Forest plot of included studies



Conclusion

- In this meta-analysis, a mean of 5.2 units of RBC is transfused during cesarean delivery in PAS patients.
- High study heterogeneity was observed, with RBC data inconsistently reported across studies.
- Standardized reporting of RBC study data is needed to inform preoperative blood ordering and evaluate transfusion practices in PAS patients.