

Regional vs. Local Anesthesia for Arteriovenous Fistula Creation: A Systematic Review and Meta-Analysis

Quineper JN, Wegner GRM, de Medeiros GN, Vieira Leite AF, Carvalho GB, Sarmento VF, Curi JS, Machado Rodrigues JP, Lombardi RA.

BACKGROUND

Arteriovenous fistulas (AVF) are the preferred vascular access for end-stage renal disease (ESRD) patients undergoing hemodialysis, yet **early failure remains frequent**.

Regional anesthesia (RA) may improve AVF outcomes through **sympathetic blockade and vasodilation** when compared to local anesthesia (LA). Evidence remained inconsistent and methodologically limited.

METHODS

► **Design:** Systematic review & meta-analysis (PRISMA 2020)

► **Registration:** PROSPERO (CRD420251091216)

► **Databases:** PubMed, Embase, Cochrane — inception to May 2025

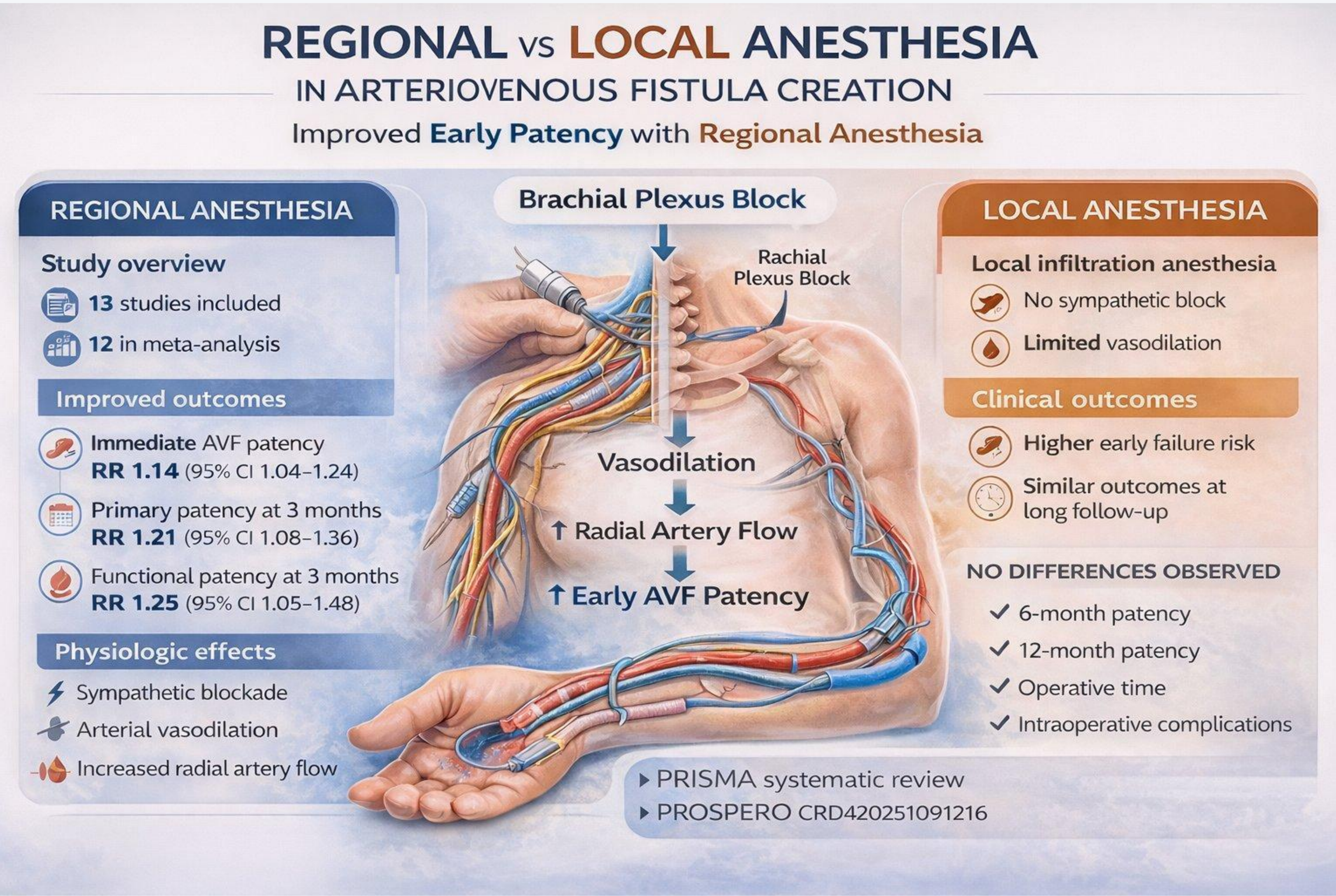
► **Eligibility:** RCTs + observational; adult ESRD; AVF under RA or LA; no language restriction

► **Primary outcomes:** Immediate and time-dependent AVF patency (primary + functional)

► **Secondary outcomes:** Radial artery blood flow, brachial diameter, operative time, adverse events

► **Risk of bias:** RoB 2 (RCTs) · ROBINS-I (observational)

► **Analysis:** Random-effects; RR & MD with 95% CI



RESULTS

NO DIFFERENCES

- Pain at PACU, 6h, 12h, 48h, 72h
- Dynamic pain
- Brachial artery diameter
- Operative time
- Intraoperative adverse events

FAVORING RA

Immediate patency
RR 1.14 95% CI 1.04–1.24
→ **+14% patency**

Primary @ 3 months
RR 1.21 95% CI 1.08–1.36
→ **+21% patency**

Functional @ 3 months
RR 1.25 95% CI 1.05–1.48
→ **+25% patency**

DISCUSSION

RA provides clinically meaningful improvements in early AVF patency, likely mediated by **sympathetic blockade-related vasodilation** and increased arterial flow.

These benefits were **not sustained at 6 or 12 months** — no significant differences at longer follow-up.



Scan for more information

julianoquineper@gmail.com

