

ANALGESIC TECHNIQUES FOR PAIN MANAGEMENT IN NON-NEONATAL CIRCUMCISION: A NETWORK META-ANALYSIS

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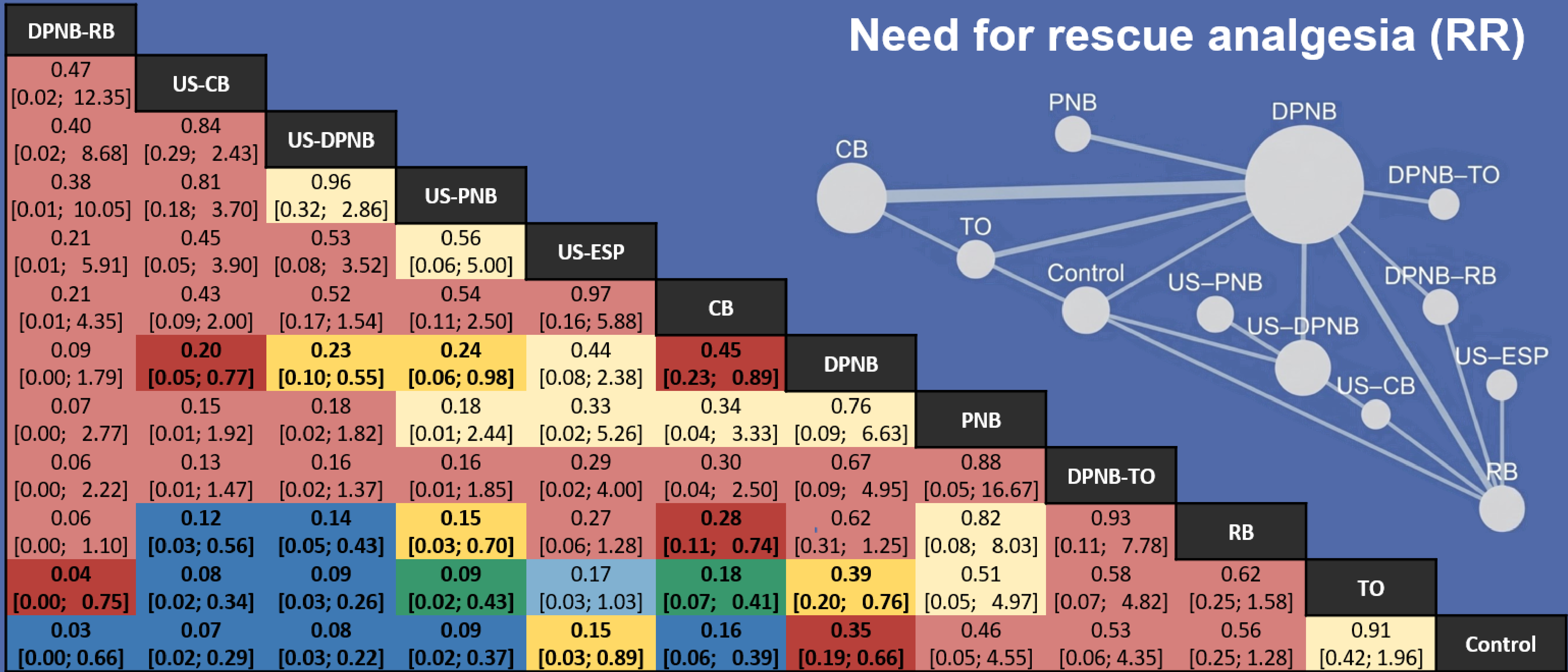
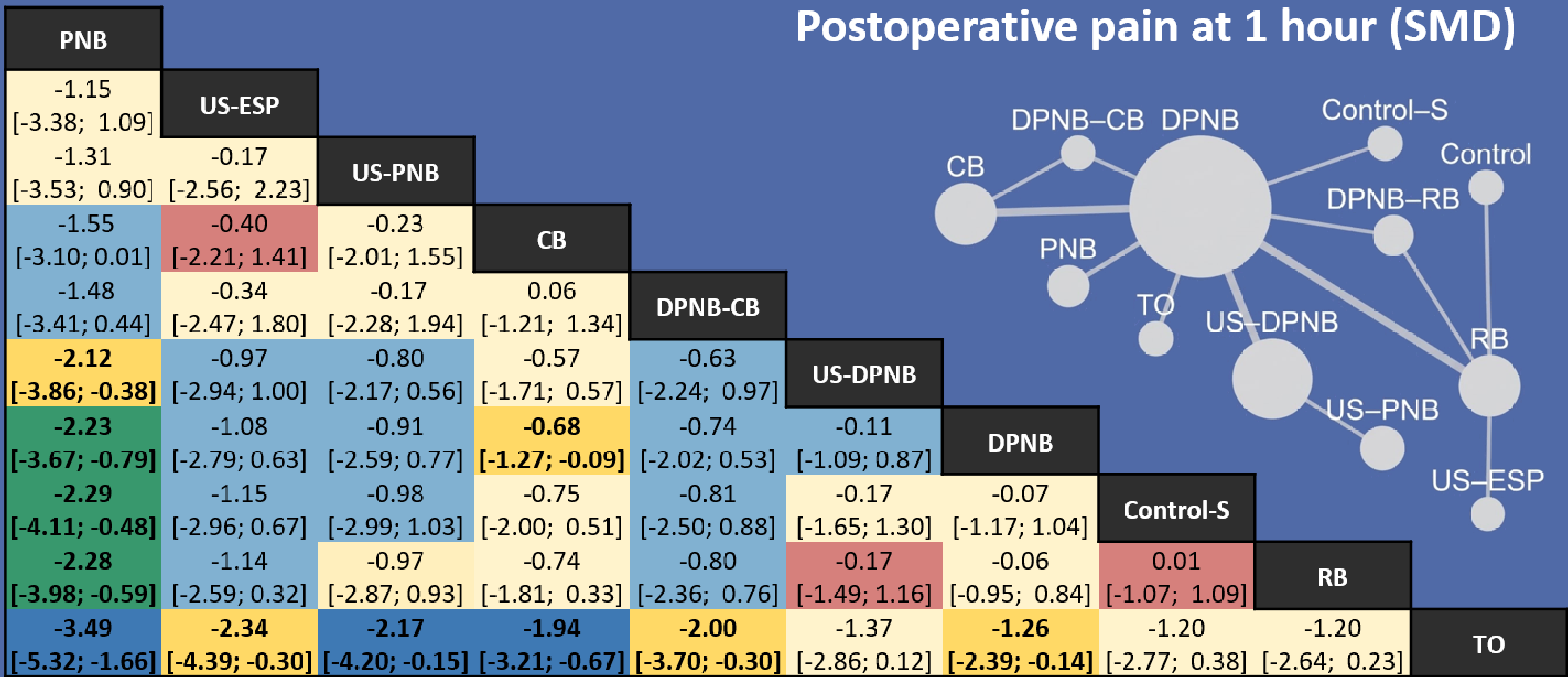
INTRO

- Circumcision is a painful procedure performed in around 30% of all males;
- Non-neonatal pediatric circumcision is potentially **more painful than neonatal**;
- There are many regional, topical and systemic anesthetic techniques available;
- Systemic analgesics are usually part of a broader multimodal approach, making individual effect harder to differentiate;
- Regional and topical analgesia are evaluated in many RCTs and some pairwise meta-analyses;
- No study has compared regional and topical analgesic techniques in a unified framework.

METHODS

- Frequentist network meta-analysis** in children (28 days to 18 years);
- Outcomes: postoperative pain (SMD) and need for rescue analgesia (RR);
- Interventions:** dorsal penile nerve block (DPNB), caudal block (CB), ring block (RB), pudendal nerve block (PNB), topical anesthetics (TO), DPNB + RB, DPNB + TO, DPNB + CB, ultrasound-guided (US-) DPNB, US-PNB, US-ESP, US-CB, no analgesia (control), and only systemic analgesics (Control-S).

Ultrasound-guided, caudal, pudendal and combined blocks presented **better analgesia** in **pediatric** patients undergoing **circumcision**.



Level of certainty:

Very low

Low

Moderate

High

RESULTS

- 39 RCTs (2790 patients)**;
- Results and 95% CI in league tables;
- P-Score ranking** (left to right order);
- Certainty of evidence with **CINeMA** framework (color graded);
- PNB presented lower early postoperative pain** than several blocks, TO and control-S, and **TO presented higher pain** than most blocks, but there were global inconsistency in these outcomes;
- CB, ultrasound-guided variants, and DPNB+RB** presented **reduced need for rescue analgesia** compared to topical and control;
- Subgroup analyses restricting to behavioral pain scales, no systemic analgesics and general anesthesia were aligned with results.

DISCUSSION

- Ultrasound-guided, neuraxial and proximal nerve blocks present higher quality of analgesia than distant (DPNB and RB) blocks, TO and no intervention;
- Findings** are backed by physiological reasoning and **support the use of regional blocks in non-neonatal pediatric circumcision**;
- Sparse network geometry, reliance on mostly indirect evidence and heterogeneous protocols warrant cautious interpretation.

