

Pericapsular Nerve Group (PENG) Block versus Periarticular Infiltration (PAI) for Total Hip Arthroplasty: A Systematic Review and Meta-Analysis of Randomized Controlled Trials

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BACKGROUND

Total hip arthroplasty (THA) is a frequent cause of significant postoperative pain. There is no consensus on the superior regional anesthesia (RA) technique for THA. The PENG block, first described in 2018, is a novel technique increasingly used for hip surgeries. This study aims to compare the PENG block and PAI for postoperative pain following THA.

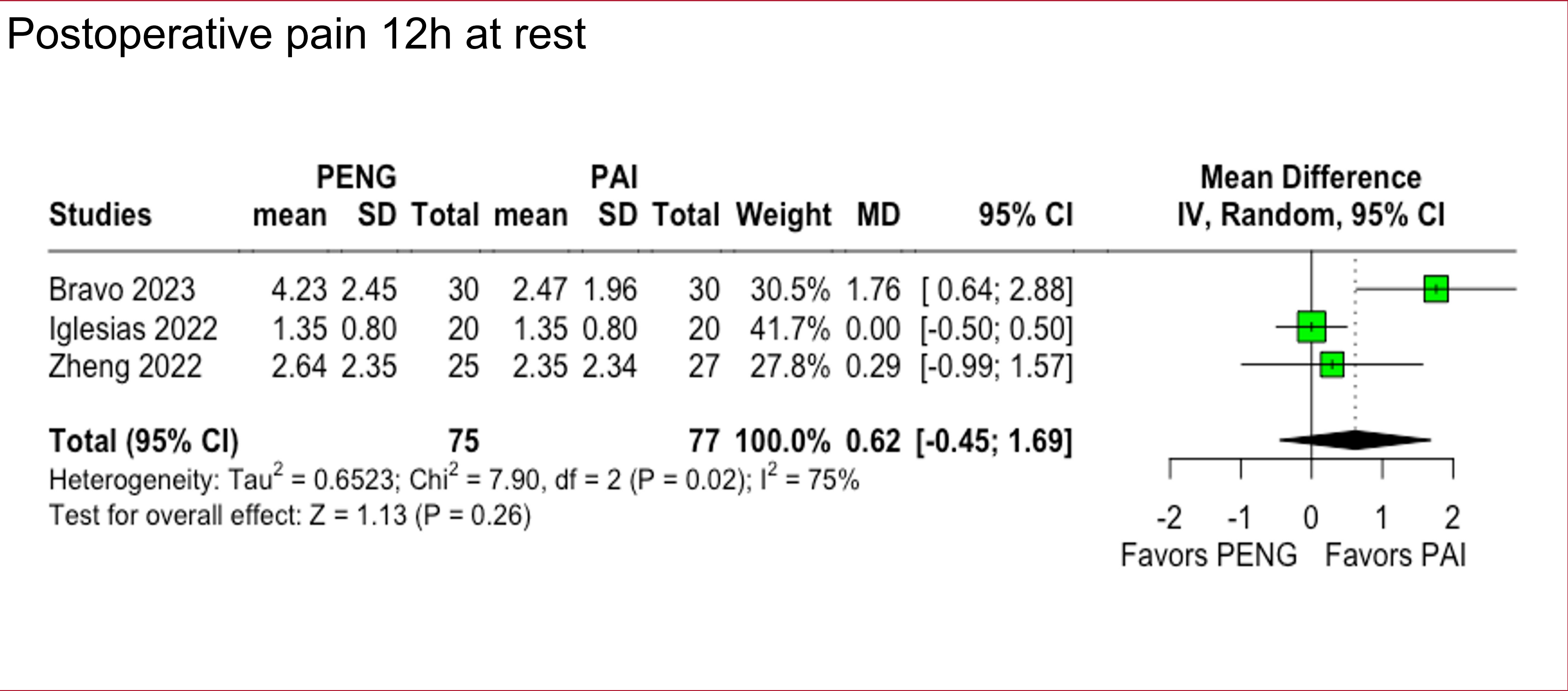
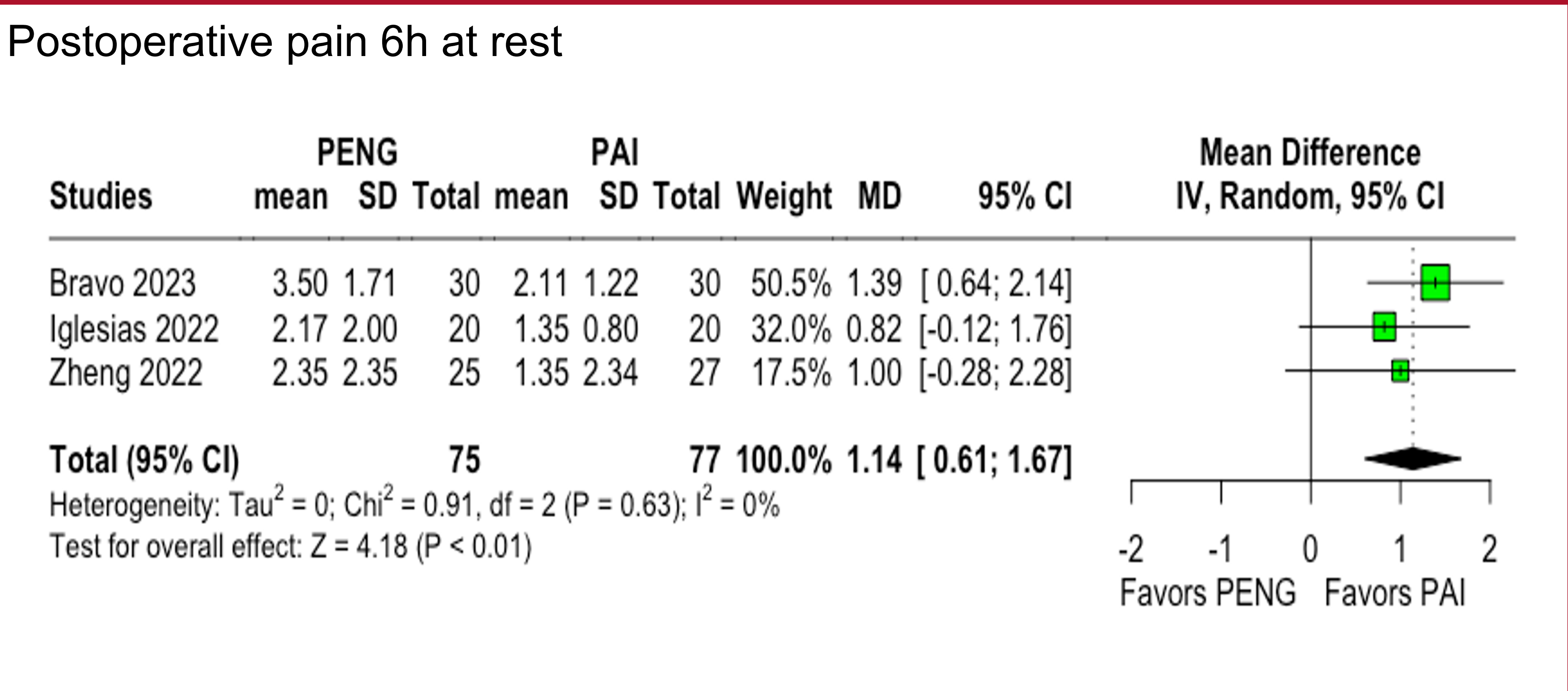
METHODS

PubMed, EMBASE, and Cochrane were systematically searched for randomized controlled trials (RCTs) comparing PENG block and PAI for THA regarding key clinical outcomes in adult patients. Statistical analysis was performed using Rstudio 4.2.3 with a restricted maximum likelihood estimator. Heterogeneity was assessed using the Cochran Q test and I² statistics. The risk of bias was appraised according to the RoB-2 tool.



Conclusion

PAI may provide superior analgesia compared to the PENG block in the early postoperative setting. Superior analgesia is not maintained after the initial 6 hours. Despite statistical significance, studies have yet to demonstrate a clinically superior technique between PENG and PAI for THA.



RESULTS

Three RCTs consisting of 152 patients are included. 63 (41.7%) are male, of whom, 75 (49.6%) were randomized to receive a PENG block. Due to the randomized nature of the studies, baseline characteristics are similar between the groups. The PAI group has a statistically significant lower pain score 6h postoperatively at rest (mean difference (MD) 1.14; 95% CI 0.61 to 1.667; *p* < 0.01; I² = 0%). The difference in postoperative pain scores 12h at rest (MD 0.62; 95% CI -0.45 to 1.69; *p* = 0.26; I² = 75%) and 24h at rest (MD 0.58; 95% CI -0.57 to 1.74; *p* =0.32; I² = 90%) are not statistically significant.

References:

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