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Wide Awake Local Anesthesia No Tourniquet (WALANT) Is More Effective at Decreasing Pain Compared to Distal Nerve Block With a Tourniquet During Carpal Tunnel Release Surgery: A Systematic Review and Pooled Analysis

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Objectives

- To compare the intraoperative pain of the Wide Awake Local Anesthesia No Tourniquet (WALANT) approach to using a distal nerve block (3.75 mg/ml Ropivacaine) with a tourniquet (DNBWT) during carpal tunnel release (CTR) surgery.
- To determine whether WALANT or using a distal nerve block with a tourniquet yields lower pain during CTR.

Methods

- A systematic review and meta-analysis were conducted following the 2020 PRISMA guidelines.
- Five online databases (Cochrane, Embase, PubMed, Web Of Science, Scopus) were screened.
- Included studies were those that measured the pain of patients preoperatively, and intraoperatively using the visual analogue scale (VAS) or the numeric rating scale (NRS) on patients undergoing CTR with either the WALANT technique or a DNBWT.
- 2 randomized controlled trials (RCT) fit our inclusion criteria and were included in the final analysis, yielding 90 distinct patient evaluations.

Results

- Our results portray that WALANT has stronger clinically significant effects (Cohen's d = 1.03, 95% CI 0.59-1.47) in reducing intraoperative pain during CTR, compared to using a DNBWT.

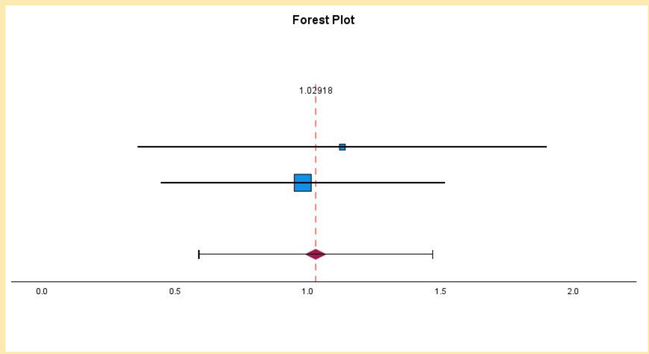

Figure 1. Forest plot portraying the effect size of comparing distal nerve block with a tourniquet (control group) to the WALANT approach (treatment group)

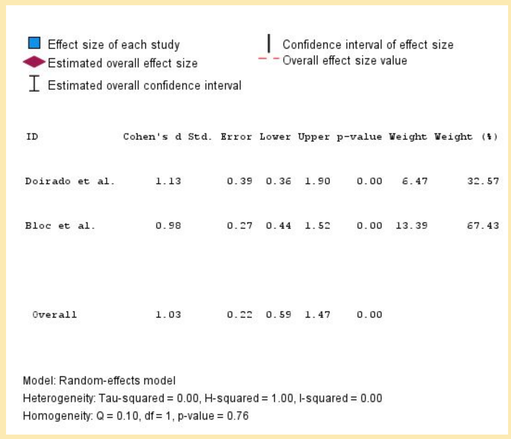

Figure 2. The data obtained from the forest plot analysis.

Discussion

- The WALANT technique utilizes a distal nerve block (typically Ropivacaine), in conjunction with Lidocaine and Epinephrine, but does not use a tourniquet. The more common approach of only using a distal nerve block, typically only utilizes Ropivacaine with a tourniquet.
- Our analysis portrays that the WALANT technique yields lower patient pain than the typical distal nerve block with a tourniquet during CTR. This difference in pain may be due to the absence of a tight, uncomfortable tourniquet, and the utilization of Lidocaine with Epinephrine.

Conclusion

- CTR is one of the most common upper extremity procedures, reaching 400,000-600,000 yearly procedures in the United States[1].
- WALANT may be a promising technique in reducing intraoperative pain during CTR.
- The strong effect size of Cohen's d = 1.03 portrays the technique's reduction on patient intraoperative VAS/NRS scores.

Study Limitations

- With a sample size of 90 patients, it is difficult to truly determine the effectiveness the WALANT technique has on pain reduction during CTR compared to a DNBWT.
- Although the concentrations of Ropivacaine, Lidocaine, and Epinephrine were similar between the studies, they were not identical.
- Future homogenous RCTs are needed in order to expand the sample size, and control for the strengths of drugs.

Search String

("WALANT" OR "Wide Awake Local Anesthesia No Tourniquet") AND ("Carpal Tunnel Release" OR "Carpal Tunnel Syndrome") AND ("Randomized")

References

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3. Doirado M, Le Sache F, Thomsen L, et al. 178 Walant technique improves the efficiency of distal nerve blocks for carpal tunnel release. In: *Regional Anesthesia and Pain Medicine : Official Publication of the American, European, Asian and Oceanic, and Latin American Societies of Regional Anesthesia*. Vol 70. Churchill Livingstone,; 2021:A93.2-A94. doi:10.1136/rapm-2021-ESRA.178