



# Use of Tourniquet Under Sedation Anesthesia or the Walant Techniques in Bilateral Carpal Tunnel Surgery: A Comparative Analysis

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## Abstract

**Aim:** The objective of the study was to compare the outcomes and patient satisfaction of two different anesthesia techniques; wide-awake-local anesthesia-no tourniquet (WALANT) and sedation anesthesia with a tourniquet, in open carpal tunnel release surgery for bilateral cases.

**Material and Methods:** The study included 57 patients (41 female, 16 male) who underwent carpal tunnel release surgery between January 2016 and September 2021. The files were retrospectively evaluated and included in the present study. Patient evaluations were conducted using QuickDASH and Michigan Hand Outcomes Questionnaire scores before surgery, on the 15th day after suture removal, and at six months postoperatively. Surgical duration and complications were also recorded. Statistical analyses were performed to compare the outcomes between the two groups.

**Results:** Both QDash and MHQ scores were analyzed for anesthesia effects on hands. The study's reliability was ensured by an 85% statistical power, 95% confidence level, and  $p < 0.05$  significance. The results showed no significant differences in QuickDASH and Michigan Hand Outcomes Questionnaire scores between WALANT and sedation anesthesia. Surgical duration was similar for sedation and WALANT groups. Patient preference was inconclusive, with comfort and symptom relief prioritized. Notably, neither group experienced complications like nerve injuries or infections.

**Conclusion:** The study found that both WALANT and sedation anesthesia with a tourniquet were equally effective and provided similar levels of patient comfort and satisfaction in open carpal tunnel release surgery. The choice between these techniques can be based on individual preferences and considerations.

**Keywords:** Carpal tunnel syndrome, sedation, tourniquet

## INTRODUCTION

Carpal tunnel syndrome (CTS) is the most common compression neuropathy affecting the upper extremity and is frequently managed through surgical intervention, yielding the highest benefit from surgery (1,2). Although various incisions and interventions have been described, such as classic incision, small incision, mini-incision, incision passing the proximal to the flexor wrist crease, and endoscopic approaches, the sole objective remains the release of the hypertrophied or thickened transverse carpal ligament, which causes compression of the nerve (3). The primary importance lies in the patient's comfort

during the surgical procedure and their well-being during the postoperative period (4).

Just as important as the patient's comfort is the surgeon's comfort. Optimizing surgical ergonomics, including the attainment of a hemostatic and sterile surgical field, and ensuring optimal visualization, are of paramount importance. These factors serve as critical determinants for facilitating expedited surgical completion and enhancing overall surgical outcomes (5,6).

The wide-awake, local anesthesia, no tourniquet (WALANT) technique, initially described by Bezuhy et al. in 2007, along with surgical techniques performed under

## CITATION

Albayrak M, Ugur F. Use of Tourniquet Under Sedation Anesthesia or the Walant Techniques in Bilateral Carpal Tunnel Surgery: A Comparative Analysis. Med Records. 2023;5(Suppl 1):69-76. DOI:1037990/medr.1334832

Received: 31.07.2023 Accepted: 23.08.2023 Published: 05.10.2023

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general or sedation anesthesia either with or without the application of a tourniquet are the anesthesia and surgical techniques employed in contemporary carpal tunnel surgery (1).

In almost all publications in the literature, different cohort groups have been utilized to compare carpal tunnel surgery techniques performed under WALANT and sedation with tourniquet application (7). Comparative assessments have been made by introducing different surgical techniques while comparing patients with bilateral involvement (2).

In the present study, considering that CTS often involves bilateral involvement, we compared cases in which patients were initially diagnosed with bilateral CTS or developed symptomatic CTS in the contralateral side during follow-up after unilateral surgery (6,8). We examined the outcomes of performing surgery on one side using the WALANT technique while using sedation and a tourniquet on the other side, employing the same surgical method performed by the same surgeon.

Our aim was to compare two different anesthesia methods objectively by performing surgery on two different extremities of the same patient using different anesthesia techniques. This comparison aimed to determine which anesthesia method provided greater comfort for the patient. Additionally, we aimed to compare the surgical duration, complications encountered during and after surgery, and surgical comfort in terms of the aspects relevant to the surgeon between the two methods.

## MATERIAL AND METHOD

Patients who underwent CTS surgery at Tekirdağ Yaşam Hospital between January 2016 and September 2021 were retrospectively evaluated and included in the present study. The study was carried out with the permission of Kastamonu University Hospital, Noninvasive Clinical Ethics Committee (Date:05.07.2023 Decision No:2023-KAEK-80). All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki.

The criteria for participation in the study were that the patients had clinically positive bilateral or unilateral Tinel and Phalen tests at the time of initial diagnosis, had pain that they felt more especially at night, and had been diagnosed with at least moderate CTS in electromyographic (EMG) tests with evidence of increased median nerve latency or denervation. Mild CTS detected by EMG was an exclusion criterion and those patients were excluded from the study. The development of CTS requiring surgical intervention within an average of 2.5 years (1 year to 4 years) was another criterion for inclusion in the study, with the same criteria provided in the follow-ups of the patients who were diagnosed unilaterally and underwent surgical intervention. Patients with bilateral CTS were operated on at different times, with a minimum interval of 3 months (3 months to 1 year).

The patients were classified based on gender, age, surgical

side, and the sequence of anesthesia methods used for each side. QuickDASH (QDash) scoring and Michigan Hand Outcomes Questionnaire (MHQ) scoring which are used for the objective evaluation of the results of interventions in hand surgery clinical practice are utilized for the evaluation of the patients in the preoperative period, on the 15th day after suture removal, and at 6 months postoperatively.

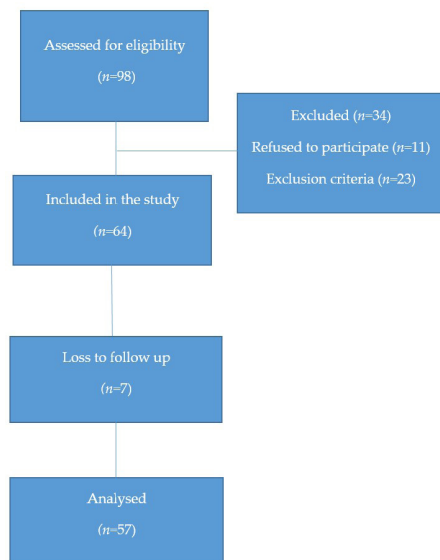
The QuickDASH represents a concise iteration of the initial DASH outcome assessment. In contrast with the comprehensive 30-item DASH assessment, the QuickDASH encompasses just 11 items. This instrument serves as a survey to gauge an individual's capacity to accomplish tasks, absorb physical stresses, and the intensity of symptoms experienced. Utilizing a 5-point Likert scale, the QuickDASH empowers the patient to designate a numerical value that aligns with their degree of severity and functional capability. MHQ is formulated as a standardized tool designed to assess diverse dimensions of health status encountered by individuals with hand-related conditions. Its efficacy resides in its ability to identify and quantify patients' symptoms, functionality, visual appeal, and contentment pertaining to hand-related ailments and issues affecting the upper limb (9,10).

Furthermore, the patients were asked about their perceived comfort levels in relation to the surgical side.

The study employed rigorous exclusion criteria to ensure the integrity and homogeneity of the patient population. Individuals with underlying conditions, such as rheumatoid arthritis, diabetes, gout, and hypothyroidism, were excluded from participation. Additionally, patients with a history of renal dialysis, pregnancy, or the presence of space-occupying lesions (e.g., ganglions) were not included in the study. Moreover, individuals with previous carpal tunnel release surgery or a history of distal radius fracture were excluded. Allergy to local anesthetics, medical conditions that contraindicated the use of sedation, and any other contraindications to sedation were also factors considered for exclusion. Finally, individuals with contraindications for subcutaneous epinephrine use, including a history of digital gangrene, Buerger's disease, previous replantation, Raynaud's disease, or sclerodactyly, were also excluded from the study population. These exclusion criteria were implemented to ensure a well-defined and homogeneous patient cohort for accurate analysis and interpretation of the study findings.

Out of the 98 patients who underwent surgery for CTS between the specified dates, 23 patients were not included because of not meeting the inclusion criteria or because they underwent unilateral surgery and were therefore not eligible for participation in the study, among them 11 patients were refused to participate in the study. Seven of the patients were lost during follow-up period. Finally 57 patients ranging in age from 28 to 85 years were included in the study. The flowchart of the patients is seen in Figure 1. Utilizing a cohort comprising 57 patients, a meticulous a priori power analysis has been conducted, unveiling

an anticipated robust statistical power of around 80% to discern a noteworthy two-fold alteration in anesthesia preference relative to baseline, deploying an eminent significance level of 0.05. To prudently address potential attrition effects within the study populace, an imperative objective was set forth to surpass the requisite minimum of 30 enrolled patients, in accordance with judicious precautionary measures. Eventually, a gratifying total of 57 patients exhibited their unwavering willingness to partake in the investigation, exhibiting commendable commitment to the research endeavor. Based on the findings obtained from this study, considering the sample size, the statistical power of the study was determined to be 85% at a 95% confidence level and a significance level of 0.05.



**Figure 1.** Flowchart of the patients

The patients were fully informed about the potential benefits and drawbacks associated with each anesthesia method. By being provided with detailed information about the anesthesia techniques, the patients were able to make well-informed decisions regarding their participation in the study. This comprehensive informed consent process contributed to the ethical conduct of the research and ensured that the patients had a clear understanding of the potential risks and benefits involved in their anesthesia choices.

In the WALANT technique, a 10 mL subcutaneous injection was administered using a 27G needle. The injection consisted of 1% lidocaine, 8.4% bicarbonate, and buffered 1/100,000 epinephrine.1 Notably, no sedation or tourniquet was employed during the procedure. Conversely, in the sedation technique, monitored anesthesia care performed by an anesthesiologist with the application of a tourniquet was utilized. Midazolam and propofol were used together according to patient's weight. The choice of method to be applied to the extremities that would be operated on first was determined by randomization. The other method was then used for the second surgery in another time interval not before three months.

A longitudinal incision measuring 3–4 cm in length was carefully made along the axis of the 4th digit, precisely located between the thenar and hypothenar eminences. Sharp dissection techniques were employed to meticulously navigate the layers of the skin and subcutaneous tissue. This approach facilitated the thorough release of the transverse carpal ligament using a No. 15 scalpel blade, ensuring comprehensive intervention for the condition. Regardless of the anesthesia method used, this surgical method was applied to all the patients.

The surgical duration was defined as the time elapsed from the initiation of the initial skin incision to the placement of the final suture in both techniques. Prolongation of the surgery already implied insufficient surgical comfort for the surgeon.

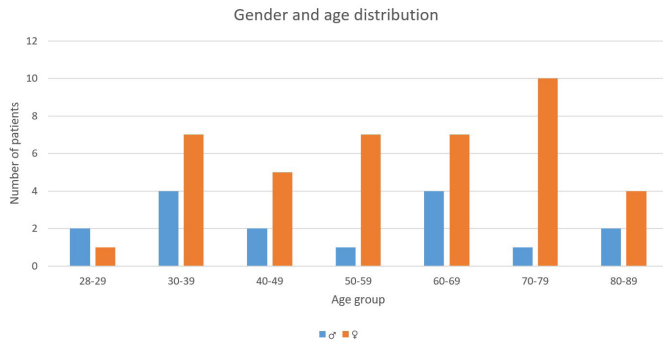
### Statistical Analysis

The distribution of the data was examined using the Shapiro–Wilk test. Group and within-group comparisons of the dependent variables were conducted using a repeated-measures analysis of variance test. Descriptive statistics for numerical data were presented as mean±standard deviation, while descriptive statistics for categorical data were presented as frequency (percentage). All statistical analyses were performed and reported at a significance level of  $\alpha=0.05$  and a 95% confidence level using IBM SPSS Statistics 26.0 software.

### RESULTS

Out of the 98 patients who had surgery for CTS during the specific time frame, 23 patients were not included because they didn't meet the criteria to be part of the study or they had surgery on just one side and weren't able to join the study. Among them, 11 patients chose not to take part in the study. Seven patients were not available for follow-up during the study. In the end, the study included 57 patients who were between 28 and 85 years old. Using a cohort of 57 patients, a thorough analysis was conducted prior to commencing the study. Our analysis revealed a strong likelihood (approximately 80%) of detecting a significant change in anesthesia preference compared to the baseline. This analysis was performed with a confidence level of 0.05, a critical factor in studies of this nature. To ensure the study's robustness even in the face of potential dropouts, we aimed to enroll more than 30 patients initially. It is gratifying to note that eventually, we successfully recruited 57 committed patients who participated in the research. Based on the insights garnered from this study and considering the size of the participant group, we established that the study's findings were credible with an 85% probability, a 95% confidence level, and a significance level of 0.05. These parameters collectively affirm the reliability and validity of the study's results.

A total of 57 patients were included in the study. Of these, 41 (71.9%) were female, and 16 (28.1%) were male. The mean age of the patients was  $57.16\pm 18.63$  years. The age and gender distribution of the group is seen in Figure 2.



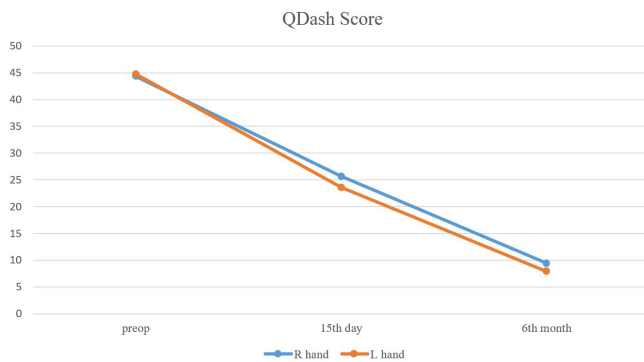
**Figure 2.** Age and Gender distribution of the group

The statistical analysis results regarding the examination of score improvements in the right and left hands of the patients under the two different anesthesia techniques (WALANT technique and sedation anesthesia) are provided in Tables 1 and 2, respectively.

Table 1 presents the changes over time in the QDash and MHQ scores for the right and left hands under sedation anesthesia. The QDash scores showed significant differences between the scores before surgery, at the 15th day, and at the 6th month for both hands ( $p < 0.001$ ). The scores before surgery were higher than those at the 15th day and 6th month for both hands. The 15th-day scores were also higher than the 6th-month scores for both hands. However, there were no significant differences in the changes in QDash scores between the right and left hands at different times ( $p = 0.936$ ).

Regarding the MHQ scores, significant differences were found between the scores before surgery, at the 15th day, and at the 6th month for both hands ( $p < 0.001$ ). The scores before surgery were higher than those at the 15th day and 6th month for both hands. The 15th-day scores were also higher than the 6th-month scores for both hands. There were significant differences in the changes in MHQ scores between the right and left hands at different times ( $p = 0.045$ ).

Figure 3 illustrates the change in mean QDash scores according to side and time.

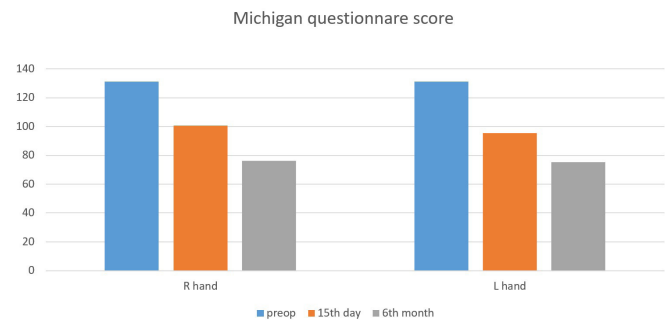


**Figure 3.** The change in mean values of QDash scores according to side

Table 2 displays the changes over time in the QDash and MHQ scores for the right and left hands under WALANT anesthesia. The QDash scores showed significant differences between the scores before surgery, at the 15th day, and at the 6th month for both hands ( $p < 0.001$ ). The

scores before surgery were higher than those at the 15th day and 6th month for both hands. The 15th-day scores were also higher than the 6th-month scores for both hands. However, there were no significant differences in the changes in QDash scores between the right and left hands at different times ( $p = 0.936$ ).

Regarding the MHQ scores, significant differences were found between the scores before surgery, at the 15th day, and at the 6th month for both hands ( $p < 0.001$ ). The scores before surgery were higher than those at the 15th day and 6th month for both hands. The 15th-day scores were also higher than the 6th-month scores for both hands. There were no significant differences in the changes in MHQ scores between the right and left hands at different times ( $p = 0.085$ ). Figure 4 shows the changes over time in the mean MHQ score according to side.



**Figure 4.** The change in mean values of MHQ scores according to side

Table 3 provides the results of the analysis for each anesthesia technique separately for the right and left hands. Statistically significant differences in the QDash scores were observed for both hands between the preoperative period, 15th day, and 6th month. The 6th-month scores were lower than both the preoperative and 15th-day scores ( $p < 0.001$ ). Similar patterns were found for the MHQ scores for both hands, with significant differences between the preoperative period, 15th day, and 6th month. The 6th-month scores were lower than both the preoperative and 15th-day scores ( $p < 0.001$ ).

The study did not find significant differences in superficial infections, surgical duration, or patient preference for anesthesia methods. Patients reported experiencing similar comfort with both methods and emphasized the importance of symptom resolution regardless of the chosen method. Neuropraxia, nerve injury, peripheral circulatory problems, and deep infections were not observed in either group.

The average surgical durations were 9 minutes and 11 seconds in the sedation anesthesia group and 8 minutes and 55 seconds in the WALANT group. The difference was not statistically significant ( $p = 0.096$ ).

When asked about their preference for anesthesia methods for a hypothetical third limb, patients reported that they experienced sufficient comfort with both methods and could not differentiate between them. They emphasized the resolution of their complaints and how it positively affected their daily lives, particularly their sleep, regardless of the chosen method.

**Table 1. Intra-group and inter-group comparisons of QDash and MHQ scores for the right and left hand in case of sedation anesthesia**

Sedation anesthesia					
		Right	Left	Mean difference (between groups) (right-left)	Mean difference (within groups)
<b>QDash score</b>					
	Preop <sup>1</sup>	43.80±6.70	45.71±6.78	-1.906	1-2: 19.350
	15th day <sup>2</sup>	24.45±7.50	24±3.74	0.450	1-3: 34.750
	6th month <sup>3</sup>	9.05±6.21	7.94±3.47	1.109	2-3: 15.400
<b>MHQ score</b>					
	Preop <sup>1</sup>	131.30±4.64	130.88±3.91	0.418	1-2: 34.540
	15th day <sup>2</sup>	99.75±7.46	93.35±6.01	6.397	1-3: 55.087
	6th month <sup>3</sup>	75.95±4.12	76.06±3.89	-0.109	2-3: 20.547

The p-values correspond to the repeated measures ANOVA test. The data is presented as mean±standard deviation, Post-hoc p-values in between 1, 2 and 3 are <0.001 for QDash and MHQ Scores

**Table 2. Intra-group and inter-group comparisons of QDash and MHQ scores for the right and left hand in case of WALANT Technique**

WALANT					
		Right	Left	Mean difference (between groups) (right-left)	Mean difference (within groups)
<b>QDash score</b>					
	Preop <sup>1</sup>	45±5.99	44.40±6.95	0.600	1-2: 19.496
	15th day <sup>2</sup>	27.06±8.79	23.35±4.20	3.709	1-3: 35.838
	6th month <sup>3</sup>	9.82±7.76	7.90±3.49	1.924	2-3: 16.343
<b>MHQ score</b>					
	Preop <sup>1</sup>	131.46±3.82	132±3.05	-0.538	1-2: 33.108
	15th day <sup>2</sup>	101.31±6.87	95.94±7.56	5.370	1-3: 56.067
	6th month <sup>3</sup>	76.08±4.36	75.25±4.49	0.827	2-3: 22.959

The p-values correspond to the repeated measures ANOVA test. The data is presented as mean±standard deviation, Post-hoc p-values in between 1, 2 and 3 are <0.001 for QDash and MHQ scores

**Table 3. The independent evaluation of the measured QDash and MHQ scores for the right and left hand separately**

		Pre-op1	15th day2	6th month3	p value
<b>QDash score</b>					
	Right	44.35±6.32	25.65±8.11	9.41±6.88	<0.001
	Left	44.73±7.08	23.65±3.96	7.92±3.43	<0.001
<b>MHQ score</b>					
	Right	131.11±4.12	100.57±6.95	76.14±4.04	<0.001
	Left	131.24±3.39	95.32±7.10	75.30±4.20	<0.001

The p-values correspond to the repeated measures ANOVA test. The data is presented as mean±standard deviation, Post-hoc p-values in between 1, 2 and 3 are <0.001 for QDash and MHQ scores

## DISCUSSION

CTS is a common condition that can cause significant discomfort and functional limitations for patients. Understanding the optimal techniques and approaches for carpal tunnel release is crucial for achieving successful outcomes and patient satisfaction.

An important consideration in carpal tunnel release is the bilateral nature of the condition. Bagatur et al. investigated the bilateral aspect of CTS and found that it is indeed a bilateral disorder (8). This highlights the importance

of considering bilateral involvement when evaluating treatment options and outcomes. Padua et al. explored the incidence of bilateral symptoms in CTS and found that approximately one-third of patients with unilateral symptoms had bilateral electrodiagnostic evidence of median nerve involvement (6). This suggests that bilateral evaluation and management must be considered in patients presenting with unilateral symptoms. The starting point and main theme of the present study was CTS's characteristic feature of bilaterality. It is important to be aware that, whether the initial diagnosis is bilateral or once

one side is affected, even in the absence of any symptoms on the contralateral side, the involvement of the other side is inevitable, and treatment approaches must be planned accordingly.

The use of a tourniquet during carpal tunnel release is a subject of debate. Olaiya et al. conducted a systematic review and meta-analysis, which indicated that carpal tunnel release without a tourniquet was associated with reduced postoperative pain and faster recovery (5). Furthermore, a randomized controlled trial by Saleh et al. compared minor hand procedures performed with or without the use of a tourniquet and found that the use of a tourniquet might not be necessary for certain hand procedures (11). These findings raise questions about the routine use of tourniquets in carpal tunnel release and suggest that individualized approaches must be considered. In the present study, we compared the two sides of our patients by performing surgery on one side with a tourniquet and on the other side without a tourniquet. We organized our results accordingly and found no significant difference between the use and non-use of a tourniquet on either side of the same patient.

The choice of anesthesia technique is another critical factor in carpal tunnel release. The WALANT technique has gained popularity in recent years due to its potential benefits in terms of patient comfort and satisfaction. Gallucci et al. compared the WALANT technique to local anesthesia with a tourniquet for CTS (12). The results indicated that carpal tunnel release performed with the WALANT technique provided better patient comfort and satisfaction. This finding is consistent with that of a previous study by Moscato et al. which also reported improved patient satisfaction with the WALANT technique in an office-based setting (13). Perhaps the most notable aspect of the present study stands out here. In almost all studies in the literature, different cohorts were compared, and few studies focused on bilaterality by attempting different anesthesia methods, but different surgical techniques were applied. In the present study, the same surgical method, performed by the same surgeon, was applied with different anesthesia methods in the surgeries on two different extremities of the same patient. No significant difference was observed between the two groups.

The choice of surgical setting is another important factor in carpal tunnel release. Office-based settings have gained attention as potential alternatives to traditional operating room settings, offering convenience and cost-effectiveness. A study by Moscato et al. compared patient satisfaction between office-based carpal tunnel release and procedures performed in other settings (13). The results showed that carpal tunnel release performed in an office-based setting led to superior patient satisfaction. This finding supports the idea that office-based carpal tunnel release can provide a comfortable and satisfactory experience for patients. All patients in the present study were operated on in operating rooms. Although there was

a preparatory period, especially in the sedation group, which included routine preoperative tests (e.g., blood tests, chest X-rays) and the requirement for the patient to wear a surgical gown and enter a sterile environment, which could increase patient stress and discomfort, none of the patients in both groups reported any discomfort related to the preparatory period.

The WALANT technique has also been compared to sedation in endoscopic carpal tunnel release. Wellington et al. compared the two techniques and found that the WALANT technique was associated with shorter operative times and fewer complications, highlighting its potential advantages in endoscopic carpal tunnel release (14). In the present study, an endoscopic technique was not used; however, the surgical duration of the side operated on with the WALANT technique was not found to be shorter. No significant difference was detected between the surgical durations on the two sides.

Sasor et al. examined the effects of tourniquet use during wide-awake CTS surgery (15). They found that tourniquet use might not be necessary in wide-awake carpal tunnel release procedures. This is an important finding as the use of a tourniquet can lead to patient discomfort and may increase the risk of complications, such as nerve injury or hematoma formation. The researchers also concluded that taking a local anesthetic with epinephrine alone is a safe and effective alternative to tourniquet use. By avoiding tourniquet use, surgeons may be able to improve patient comfort and reduce the risk of complications. While the WALANT technique itself does not involve the use of a tourniquet, none of the patients in the present study who received sedation anesthesia reported any discomfort from the tourniquet used.

Tulipan et al. compared the outcomes of open carpal tunnel release performed with sedation versus the WALANT technique in two cohorts of different numbers (2). They found no significant differences in patient-reported outcomes, including pain, satisfaction, or functional improvement. These findings suggest that performing carpal tunnel release surgery without sedation and without a tourniquet is feasible and will not compromise the surgical outcomes. This is important as avoiding sedation can reduce the overall cost and risks associated with anesthesia, while allowing patients to remain awake during the procedure may provide them with a sense of control and improve their overall experience.

In the present study, we also compared the use of a tourniquet under sedation anesthesia with the WALANT technique. However, it is important to note that the groups compared in our study were not two different cohorts but a patient's two extremities. This approach was chosen to obtain more objective responses to subjective symptoms.

Via et al. compared the WALANT technique to sedation without a tourniquet but with local anesthesia in patients undergoing staged bilateral carpal tunnel release (7). Although they applied the same surgical technique to

different extremities of the same patient, it should be noted that there were variations in the surgical techniques used among the patients. The study found no significant differences in pain, patient satisfaction, or complications between the two groups. These findings suggest that local anesthesia alone, without the need for sedation or a tourniquet, can be effective in carpal tunnel release surgery. This is important as local anesthesia is generally safer and less invasive than sedation, and its use may reduce the overall cost and potential risks associated with the procedure. In our study, the same surgical technique was applied both among different patients and when operating on two different extremities of the same patient. This consistency in the surgical technique used was an important factor contributing to the evaluation of the study's results, particularly in assessing postoperative patient comfort, which is another objective measure.

In a retrospective cohort study Carroll et al. concluded that endoscopic carpal tunnel release was associated independently with a 2.96 times greater likelihood of requiring revision carpal tunnel release within one year, compared to open carpal tunnel release (16). Although numerous publications have juxtaposed endoscopic and open methods for the purpose of comparing revision rates, discernible differences in revision outcomes have not been ascertained in many of these studies. Nonetheless, in this very recent investigation, surgeries conducted through endoscopic means were found to exhibit significantly higher rates of revision when contrasted with those performed via open surgery. This notable disparity has given rise to the necessity of reevaluating the preference for endoscopic surgery. In this study, all patients who did not undergo endoscopic techniques were subjected to the same standardized open surgical approach during the operative intervention.

Borekci et al. have elucidated the identification of accessory muscles that may be encountered during carpal tunnel surgery and possess the potential to induce compression neuropathy (17). Their findings have demonstrated that inadequate release of these accessory muscles could lead to unfavorable outcomes in carpal tunnel surgery. In our present investigation, we did not encounter any cases necessitating release of these accessory muscles during the surgical procedure.

### Limitations

This study is not without limitations. Firstly the sample size is small and should be increased for improved statistical power and generalizability. Secondly randomization the choice of anesthesia methods for each extremity would help address potential selection bias. Thirdly specific patient characteristics which can influence surgical outcomes were not mentioned. The follow-up period should be extended for a more comprehensive assessment of surgical results and potential long-term differences between anesthesia methods.

### CONCLUSION

It can be concluded that the WALANT technique and the sedation technique with a tourniquet have similar levels of effectiveness and lead to similar degrees of satisfaction in patients undergoing open CTS release. The study revealed no statistically significant differences between the two groups in terms of outcome measures, including complications and postoperative pain. These results provide valuable insights for surgeons and patients as they can freely choose between the WALANT and sedation techniques based on their preferences and considerations. Overall, the two techniques can be considered equally effective and satisfactory in achieving successful outcomes and patient comfort in carpal tunnel release procedures. These conclusions were reached mainly through the use of different anesthesia methods on the two different extremities of the same patient during the surgery, which allowed for obtaining more objective results. By employing this approach, the study was able to eliminate potential confounding factors associated with individual variations. The use of different anesthesia methods on separate extremities added an extra layer of objectivity, strengthening the study's conclusions and making them applicable to a broader patient population.

**Financial disclosures:** The authors declared that this study has received no financial support.

**Conflict of Interest:** The authors declare that they have no competing interest.

**Ethical approval:** The study was conducted in accordance with the Helsinki Declaration principles and was approved by Kastamonu University Medical Faculty Clinical Researches Ethics Committee (Date: 05/07/2023, Decision No:2023-KAEK-80).

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