ORIGINAL ARTICLE

A randomized prospective clinical study comparing wide-awake local anesthesia no tourniquet (WALANT) and spinal anesthesia in the surgical treatment of ankle fractures

Taha Kizilkurt,[1] Mustafa Ozkaya,[1] Berk Nimetoglu,[1] Muhammed Oguzhan Albayrak,[1] Mehmet Demirel,[1] Nur Canbolat,[1] Halil İbrahim Balcı[1]

Department of Orthopedics and Traumatology, İstanbul University Faculty of Medicine, İstanbul-*Türkiye*

ABSTRACT

BACKGROUND: Ankle fractures are common injuries that often require surgical intervention to restore proper alignment and stability. Traditional anesthesia methods, such as general and spinal anesthesia, may not be suitable for patients with significant comorbidities. The wide-awake local anesthesia no tourniquet (WALANT) technique has emerged as a viable alternative, particularly for patients with cardiovascular or pulmonary conditions. This study aimed to compare the clinical outcomes of WALANT and spinal anesthesia in the surgical treatment of ankle fractures.

METHODS: This prospective, randomized study included patients with bimalleolar fractures who underwent surgery between June 2022 and November 2023. Patients were randomly assigned to one of two groups: the WALANT group (n=16) or the spinal anesthesia group (n=19). Preoperative demographic data, intraoperative parameters (including surgical time), and postoperative outcomes, such as pain scores assessed using the Visual Analogue Scale (VAS), patient-controlled analgesia (PCA) morphine consumption, and American Orthopaedic Foot and Ankle Society (AOFAS) scores at 12 months postoperatively, were evaluated.

RESULTS: Both groups had similar demographic characteristics ($p>0.05$). There was no significant difference in operating room time between the groups (WALANT: 180.47 minutes vs. Spinal: 190.94 minutes, $p=0.30$). Postoperative pain, assessed using VAS scores at 12 and 24 hours, did not significantly differ between groups. Morphine consumption via PCA was also similar (WALANT: 19.57 mg vs. Spinal: 22.8 mg, $p=0.291$). At the 12-month follow-up, AOFAS scores were similar between groups (WALANT: 80 vs. Spinal: 83.1, $p=0.388$). However, preoperative anxiety levels were higher in the WALANT group ($p=0.001$).

CONCLUSION: The WALANT technique provides comparable postoperative pain control and functional outcomes to spinal anesthesia in ankle fracture surgery. Although preoperative anxiety was higher in the WALANT group, no significant differences were observed in postoperative pain or long-term recovery. WALANT represents a feasible and cost-effective alternative to traditional methods, especially in settings with limited access to anesthesiologists, such as during natural disasters or pandemics. It may be particularly advantageous for patients with cardiovascular or pulmonary comorbidities, helping to avoid the risks associated with systemic anesthesia.

Keywords: Ankle fracture; wide-awake local anesthesia no tourniquet (WALANT); spinal anesthesia; postoperative pain; American Orthopaedic Foot and Ankle Society (AOFAS) score; anesthesia techniques; functional outcomes.

Cite this article as: Kizilkurt T, Ozkaya M, Nimetoglu B, Albayrak MO, Demirel M, Canbolat N, et al. A randomized prospective clinical study comparing wide-awake local anesthesia no tourniquet (WALANT) and spinal anesthesia in the surgical treatment of ankle fractures. Ulus Travma Acil Cerrahi Derg 2025;31:570-576.

Address for correspondence: Halil İbrahim Balcı

İstanbul University Faculty of Medicine, İstanbul, Türkiye

E-mail: balcihalili@hotmail.com

Ulus Travma Acil Cerrahi Derg 2025;31(6):570-576 DOI: 10.14744/tjtes.2025.82593

Submitted: 25.12.2024 Revised: 23.02.2025 Accepted: 07.03.2025 Published: 05.06.2025

OPEN ACCESS This is an open access article under the CC BY-NC license (http://creativecommons.org/licenses/by-nc/4.0/).

INTRODUCTION

Ankle fractures are among the most common types of fractures. Surgical treatment is often required to ensure long-term stability, restore proper alignment, and prevent osteoarthritic changes.[1] Various anesthesia methods are used in these procedures, including general anesthesia, spinal/epidural anesthesia, peripheral nerve blocks, and local anesthesia, each with its own advantages and disadvantages. General and spinal anesthesia may not be suitable for patients with significant cardiovascular or pulmonary comorbidities, prompting the need for alternative approaches. Peripheral nerve blocks, such as the popliteal block, can be effective in these cases; however, they carry a risk of postoperative neuropathic complications.[2] Moreover, the importance of local anesthesia techniques is increasingly recognized in resource-limited situations, such as during natural disasters or pandemics.[3]

The use of a tourniquet during ankle fracture surgeries is helpful for reducing blood loss and improving surgical visibility. However, especially in complex fractures and prolonged procedures, tourniquet use may lead to adverse effects, including increased postoperative pain, higher postoperative opioid requirements, and reduced range of motion.[4,5]

The wide-awake local anesthesia no tourniquet (WALANT) technique, introduced by Lalonde et al.[6] in hand surgery, eliminates the need for systemic anesthesia and tourniquet use.[6] In this technique, local anaesthesia combined with epinephrine is injected directly into the surgical field, allowing the procedure to be performed on a non-sedated patient without the use of a tourniquet. The concept of tumescent anesthesia is applied by injecting a relatively large volume of a lidocaine-epinephrine solution into the subcutaneous tissue of the surgical area. Epinephrine induces vasoconstriction, significantly reducing bleeding at the surgical site. Initially, WALANT was used for soft tissue procedures such as tendon repairs and carpal tunnel release,[7-9] but its use has since expanded to bone surgeries, including open reduction and internal fixation (ORIF) of distal radius and forearm fractures.[10,11] WALANT offers several advantages, including reduced operative costs, increased patient satisfaction, and the avoidance of tourniquet-related complications such as elevated postoperative pain and higher opioid requirements.[4,5,12]

Despite its growing use in upper extremity procedures, the application of WALANT in foot and ankle surgeries, such as joint fusion, tendon repairs, and implant removal, remains limited.[13-15] This study aims to prospectively evaluate the clinical outcomes of the WALANT technique in the surgical treatment of ankle fractures, focusing on perioperative parameters, early postoperative pain, and long-term functional results. We hypothesize that the WALANT technique, which offers advantages in feasibility, cost-effectiveness, patient comfort, and reduced complication rates, yields clinical outcomes comparable to those of regional anesthesia with tourniquet use in ankle fracture surgeries.

MATERIALS AND METHODS

The study included patients who underwent surgical treatment for ankle fractures between June 2022 and November 2023, divided into WALANT and spinal anesthesia groups. Patients were prospectively randomized using the envelope method, and informed consent was obtained from all participants. Detailed information about the WALANT technique was provided to those in the intervention group. The study was conducted in accordance with the Declaration of Helsinki. Ethical approval (No. 1682716) was obtained from the Clinical Research Ethics Committee of Istanbul University, prior to patient enrollment, ensuring compliance with all relevant ethical standards and guidelines.

Patients aged 18 years or older with bimalleolar ankle fractures (with or without syndesmosis injury) were included in the study. The exclusion criteria were as follows: (1) age under 18 years, (2) comorbidities such as vasculitis, peripheral vascular disease, or peripheral neuropathy, (3) Gustilo-Anderson grade 2 or 3 open fractures, (4) multi-trauma cases, and (5) unwillingness to participate in the study.

Preoperative data collected included patient demographics (age and sex), comorbidities, mechanism of injury, fracture classification (open/closed fractures, excluding Gustilo-Anderson grade ≥2 open fractures), hemoglobin (Hgb) levels, and the type of anesthesia administered. Preoperative anxiety was assessed using the Amsterdam Preoperative Anxiety and Information Score (APAIS).[16]

The Numerical Pain Rating Scale (a numerical version of the Visual Analogue Scale [VAS]), was used, allowing participants to select a whole number between 0 and 10 that best represented the intensity of their pain. Perioperative parameters included VAS scores for intraoperative pain assessment and the total duration of surgery (operating room time). The VAS was used to assess pain levels at 15-minute intervals throughout the surgery, starting from its initiation. The highest of the recorded scores during surgery was taken as the overall pain level, with lower scores indicating lower levels of pain. Early postoperative outcomes were evaluated based on 24-hour morphine consumption, measured via patient-controlled analgesia (PCA), and VAS scores recorded at 12 and 24 hours postoperatively. Additionally, bleeding at the surgical site was compared between the two groups by analyzing the change in preoperative and postoperative Hgb levels. This approach was used because there was no bleeding at the surgical site in the spinal group due to the use of a tourniquet.

Long-term functional outcomes were assessed using the American Orthopaedic Foot and Ankle Society (AOFAS) score,[17] which evaluates ankle function.

Statistical Analysis

Continuous variables were compared using the independent

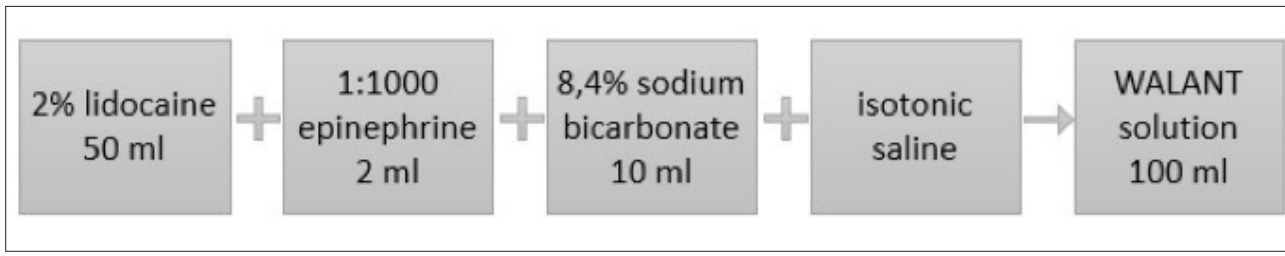

Figure 1. Preparation of wide-awake local anesthesia no tourniquet (WALANT) solution.

samples t-test, while non-parametric data were analyzed using the Student's t-test. A p-value <0.05 was considered statistically significant. All analyses were performed using SPSS 22.0 (IBM Inc., USA). Sample size was determined based on power analysis performed using G*Power software, informed by the study conducted by Wright et al. (2019). Wright et al.[18] observed a difference in postoperative pain levels of 4.93 (VAS scores: 5.38 vs. 0.45) between patients receiving general anesthesia and those treated with the WALANT technique during forefoot surgery, with a standard deviation of 2.35. For the present study, a more conservative effect size of 1.125 was assumed to account for potential differences in population and clinical setting. With a significance level (α) of 0.05, a statistical power (1-β) of 80%, and a two-tailed Student's t-test, the minimum required sample size was calculated to be 28 participants, with 14 in each group. This calculation ensures sufficient power to detect meaningful differences between the groups.

Preparation and Application of the WALANT Solution

For the preparation of the WALANT solution, 50 mL of 2% lidocaine, 2 mL of 1:1000 adrenaline, and 10 mL of 8.4% sodium bicarbonate were mixed with isotonic serum to achieve a total volume of 100 mL (Fig. 1).[19] A total of 20 cc was administered around the incision site, targeting the periosteum and the deep tissue areas where elevators would be placed on the lateral malleolus. An additional 15 cc was injected into the medial malleolus region, and 15 cc was administered from the anterior ankle to the syndesmosis (Fig. 2). The WALANT application was performed under sterile conditions, followed by a 20-minute waiting period. The remaining 50 cc of the

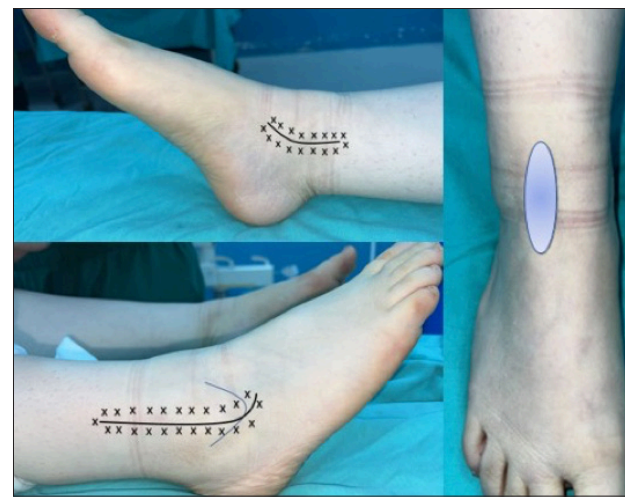

Figure 2. Application of wide-awake local anesthesia no tourniquet (WALANT) to the incisions on the medial malleolus, lateral malleolus, and syndesmosis.

Table 1. Demographic and clinical data of the groups

	WALANT	Spinal	P value
Age (years)	46.6 (±12.9)	41.4 (±12.7)	0.25
Gender (Female - Male)	8-8	8-11	0.64
Preoperative APAIS Score	19 (±3.4)	13.3 (±5.2)	<0.001*
Preoperative Hgb	12.9 (±0.6)	13.1 (±1.0)	0.41
Operating Room Time (minutes)	191 (±23.2)	180.5 (±32.3)	0.30
Postoperative 12th-hour VAS Score	3.5 (±1.9)	4.3 (±2)	0.49
Postoperative 24th-hout VAS Score	2.8 (±1.6)	3.8 (1.8)	0.12
Postoperative 24th-hour Morphine (mg)	19.6 (±9)	22.8 (±8.4)	0.29
Change in Hgb Value	0.9 (±0.1)	1.0 (±0.6)	0.84
AOFAS Score at 12 Months	80 (±8.5)	83.1 (±9.7)	0.39

WALANT: Wide-Awake Local Anesthesia No Tourniquet; APAIS: Amsterdam Preoperative Anxiety and Information Scale; VAS: Visual Analogue Scale; AOFAS: American Orthopaedic Foot and Ankle Society. *p<0.001.

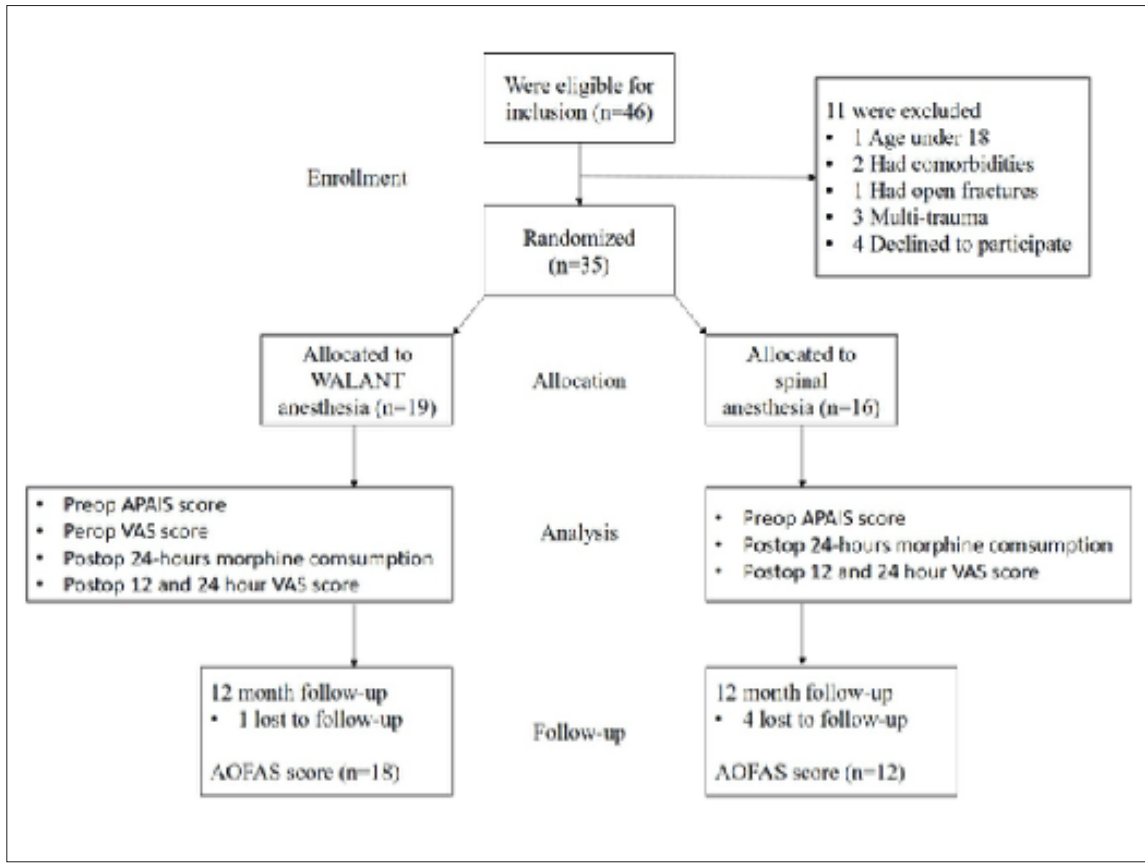

Figure 3. Study flowchart.

solution was reserved for additional dosing if necessary.

Postoperative Analgesia

All patients were monitored postoperatively using intravenous PCA and received intravenous (IV) tenoxicam twice daily along with IV paracetamol three times daily.

RESULTS

A total of 35 patients (16 females, 19 males) aged between 18 and 77 years, were included in the study. Of the fractures, 16 were located in the right ankle and 19 in the left ankle; all were classified as bimalleolar fractures and were closed injuries. The mechanisms of injury included sprains (n=5), out-of-vehicle traffic accidents (n=3), motorcycle accidents (n=1), workplace accidents (n=1), and falls from standing height (n=25). None of the patients had additional injuries (Fig. 3).

The WALANT group consisted of 16 patients (eight males, eight females) with a mean age of 46.6±12.9 years. The Spinal group included 19 patients (11 males, eight females) with a mean age of 41.4±12.7 years. There were no statistically significant differences between the groups in terms of sex distribution (p=0.64) or mean age (p=0.25) (Fig. 3).

Preoperative APAIS scores, indicating anxiety levels, were higher in the WALANT group (19±3.4) compared to the Spinal group (13.3±5.2), with a statistically significant difference (p<0.001). There were no statistically significant differences between the groups in terms of Hgb values (p=0.41).

All patients underwent plate-screw fixation for lateral malleolus fractures. Syndesmosis screws were applied in 30 patients: 14 in the WALANT group and 16 in the Spinal group. For medial malleolus fractures, 28 patients received a cannulated screw, while seven underwent fixation using the tension band technique. The mean total operating room time was longer in the WALANT group (191±23.2 minutes) compared to the Spinal group (180.5±32.3 minutes), but the difference was not statistically significant (p=0.30).

Among the 16 patients operated on using WALANT, the highest perioperative VAS pain score averaged 2.8±2.2. At 12 hours postoperatively, the VAS scores were 3.5±.9 in the WALANT group and 4.3±2 in the Spinal group. Although scores were higher in the Spinal group, the difference was not statistically significant (p=0.49). At 24 hours postoperatively, the VAS scores averaged 2.8±1.6 in the WALANT group and 3.8±1.8 in the Spinal group. Although the Spinal group again showed slightly higher scores, the difference was not statistically significant (p=0.12) (Table 1). Morphine consumption via the PCA device during the first 24 postoperative hours was

lower in the WALANT group (19.6±9 mg) compared to the Spinal group (22.8±8.4 mg), though this difference was also not statistically significant (p=0.29). Additionally, there was no statistically significant difference between the groups in terms of the change in preoperative and postoperative Hgb values (p=0.84).

At the 12-month postoperative follow-up, five patients were lost to follow-up. Therefore, 12 patients from the WALANT group and 18 patients from the Spinal group were evaluated. The mean AOFAS scores were 80±8.5 in the WALANT group and 83.1±9.7 in the Spinal group, with no statistically significant difference observed (p=0.39).

Regarding postoperative complications, two patients in the Spinal group developed early wound-related issues, while one patient in the WALANT group experienced a similar complication.

DISCUSSION

In this study, we demonstrated that the WALANT technique is a viable alternative to spinal anesthesia for the surgical treatment of ankle fractures. Our findings revealed comparable early postoperative and long-term outcomes between the two groups, with no statistically significant differences observed.

WALANT is more commonly used in hand surgery. While it is widely applied in soft tissue procedures, its use in ORIF surgeries remains relatively limited.[7-9] Huang et al.[10] performed ORIF for distal radius fractures in 23 patients and reported no complications related to 24-hour postoperative VAS scores, fracture healing, or one-year outcomes. Similarly, How et al.[11] conducted WALANT-assisted ORIF in 54 patients with forearm fractures and observed that none required conversion to general anesthesia, with no complications noted during the 6-month postoperative follow-up period. Orbach et al.,[20] in a study involving ORIF under WALANT in five patients with intra-articular distal radius fractures, also reported no perioperative or postoperative complications. In our study, we observed one case of an early wound complication in the WALANT group, which did not require debridement. No long-term complications were reported.

The use of WALANT in ankle surgery remains limited, with only a few studies available. Poggetti et al.[13] randomized 60 patients undergoing implant removal from the distal fibula into two groups: one receiving loco-regional anesthesia and the other WALANT. They observed no significant difference in intraoperative pain; however, the WALANT group reported less pain during the postoperative period. Li et al.[21] performed WALANT-assisted ORIF on 13 patients with malleolar fractures, where only two patients required additional anesthetic doses, and no complications were reported. Similarly, Bilgetekin et al.[19] conducted a retrospective study involving 31 patients who underwent ankle trauma surgery under WALANT and found no need for additional anesthetic administration perioperatively, with no postoperative complications observed. Çağlar et al.[22] prospectively compared WALANT with the popliteal block in unimalleolar fracture surgeries, reporting superior pain control in the popliteal block group, while intraoperative bleeding was lower in the WALANT group. The authors concluded that both anesthesia techniques could serve as viable alternatives to one another. In line with these findings, our study demonstrated that WALANT provides comparable postoperative pain management to spinal anesthesia, with no significant differences in VAS scores at 12 and 24 hours postoperatively. Additionally, there was no statistically significant difference between the groups in terms of the change in Hgb values in our study, despite the use of a tourniquet in the Spinal group. Our results are also consistent with those of Li et al.[21] and Bilgetekin et al.,[19] as no major complications were observed in the WALANT group. However, unlike the study by Çağlar et al.,[22] which specifically compared WALANT with nerve blocks, we focused on a direct comparison between WALANT and spinal anesthesia. Furthermore, our study contributes to the existing literature by evaluating long-term functional outcomes. At the 12-month follow-up, there was no statistically significant difference in AOFAS scores between the WALANT and spinal anesthesia groups.

Lavigne et al.[14] prospectively studied 61 patients undergoing forefoot surgery, with 37 in the WALANT group and 24 under general anesthesia. They reported that the WALANT group spent less time in the operating room and found no significant difference in preoperative anxiety between the two groups.[14] Similarly, MacNeill et al.[23] examined perioperative anxiety in 27 patients undergoing lower extremity surgeries under WALANT and found that it induced low levels of anxiety, with patients becoming progressively more relaxed throughout the perioperative period. Wright et al.[18] performed forefoot surgery on 40 patients under either WALANT or general anesthesia and observed no significant difference in preoperative anxiety; however, the WALANT group showed advantages in terms of both postoperative pain and anxiety. In our study, we observed no significant difference between the WALANT and Spinal groups regarding the time spent in the operating room. However, in contrast to the findings of MacNeill et al.[23] and Wright et al.,[18] we observed that preoperative anxiety levels were higher in the WALANT group compared to the spinal anesthesia group. In the literature on WALANT application, homogeneous groups have been compared based on upper extremity fracture types, whereas such comparisons for lower extremity fractures have not been consistently conducted. However, in our study, homogeneous groups were compared according to lower extremity fracture types, contrary to the literature.

The WALANT technique offers several advantages in the surgical treatment of ankle fractures. It is technically straightforward, cost-effective, and can be administered by the surgeon in situations where access to an anesthesia team is limited.

Importantly, it does not negatively affect postoperative pain management or long-term functional outcomes. However, one notable limitation is the higher level of preoperative anxiety observed among patients receiving WALANT.

Given the scarcity of randomized prospective studies comparing WALANT to other anesthesia techniques in ankle fracture surgeries, our study fills an important gap in the literature. By evaluating both short-term postoperative pain and long-term functional outcomes, we provide valuable evidence supporting the feasibility and effectiveness of WALANT as a viable alternative to spinal anesthesia. Our findings contribute to the growing body of knowledge by demonstrating comparable clinical outcomes between the two techniques, while also highlighting areas such as preoperative anxiety that warrant further investigation.

This study has several limitations. First, only a single fracture pattern—bimalleolar fractures—was included, which may limit the generalizability of our findings to other ankle fracture types, such as trimalleolar or complex intra-articular fractures. Second, patients who underwent general anesthesia or peripheral nerve blocks were excluded, restricting the comparison to WALANT and spinal anesthesia. Finally, while both short-term and long-term outcomes were evaluated, other relevant factors, such as patient satisfaction, cost-effectiveness, and surgeon-reported outcomes, were not assessed. Including these variables in future studies could provide a deeper understanding of WALANT's clinical utility in ankle fracture management.

CONCLUSION

The WALANT technique offers outcomes comparable to spinal anesthesia in terms of postoperative pain control and functional recovery following bimalleolar ankle fracture surgery. Although preoperative anxiety levels were higher in the WALANT group, no significant differences were observed in postoperative pain or long-term recovery between the two techniques. WALANT appears to be a feasible and cost-effective alternative, especially in settings with limited access to anesthesiologists, such as during natural disasters or pandemics. It may be particularly beneficial for patients with cardiovascular or pulmonary comorbidities by avoiding the risks associated with systemic anesthesia.

Ethics Committee Approval: This study was approved by the Clinical Research Ethics Committee of Istanbul University Ethics Committee (Date: 15.03.2023, Decision No: 1682716).

Peer-review: Externally peer-reviewed.

Authorship Contributions: Concept: T.K., M.Ö.; Design: T.K., M.Ö., M.O.A.; Supervision: T.K., M.Ö., N.C.; Resource: T.K., M.Ö., N.C.; Materials: T.K., M.Ö., B.N., M.D.; Data collection and/or processing: T.K., M.Ö., B.N.; Analysis and/or interpretation: T.K., M.Ö., B.N.; Literature review: T.K., M.Ö., B.N., N.C., M.D.; Writing: T.K., M.Ö., N.C., M.D., H.İ.B.; Critical review: T.K., M.Ö., N.C., M.D., H.İ.B.

Conflict of Interest: None declared.

Financial Disclosure: The author declared that this study has received no financial support.

REFERENCES

1. Swierstra BA, van Enst WA. The prognosis of ankle fractures: A systematic review. EFORT Open Rev 2022;7:692–700. [CrossRef]
2. Anderson JG, Bohay DR, Maskill JD, Gadkari KP, Hearty TM, Braaksma W, et al. Complications after popliteal block for foot and ankle surgery. Foot Ankle Int 2015;36:1138–43. [CrossRef]
3. Anonymous A, Hetzler MR. Use of loco-regional anesthesia in austere environments: A review by and for special forces medics. J Spec Oper Med 2024;24:90–3. [CrossRef]
4. Davey MS, Davey MG, Hurley ET, Kearns SR. Tourniquet use during open reduction and internal fixation of ankle fractures - A systematic review and meta-analysis. J Foot Ankle Surg 2022;61:1103–8. [CrossRef]
5. Kruse H, Christensen KP, Møller AM, Gögenur I. Tourniquet use during ankle surgery leads to increased postoperative opioid use. J Clin Anesth 2015;27:380–4. [CrossRef]
6. Lalonde D, Martin A. Tumescent local anesthesia for hand surgery: Improved results, cost effectiveness, and wide-awake patient satisfaction. Arch Plast Surg 2014;41:312–6. [CrossRef]
7. Gueffier X, Younis F. Endoscopic carpal tunnel release with opponensplasty using ring finger flexor digitorum superficialis under WALANT with ultrasound assistance. J Hand Microsurg 2024;16:100116. [CrossRef]
8. Alnojaidi T, Alaqil S, Alqahtani R, Albraithen G, Almutairi R, Khubrani A, et al. Intraoperative hemostasis using WALANT versus tourniquet; A focused review on carpal tunnel syndrome and trigger finger release. World J Plast Surg 2024;13:3–10. [CrossRef]
9. Elhameed MAA, Hassan KM, Metawally AMA, Sabry M. The outcome of the WALANT technique in primary hand flexor tendons repair. JPRAS Open 2023;40:77–84. [CrossRef]
10. Huang YC, Hsu CJ, Renn JH, Lin KC, Yang SW, Tarng YW, et al. WALANT for distal radius fracture: Open reduction with plating fixation via wide-awake local anesthesia with no tourniquet. J Orthop Surg Res 2018;13:195. [CrossRef]
11. How HM, Khoo BLJ, Ayeop MAS, Ahmad AR, Bahaudin N, Ahmad AA. Application of WALANT in diaphyseal plating of forearm fractures: An observational study. J Hand Surg Glob Online 2022;4:399–407. [CrossRef]
12. Rhee PC, Fischer MM, Rhee LS, McMillan H, Johnson AE. Cost savings and patient experiences of a clinic-based, wide-awake hand surgery program at a military medical center: A critical analysis of the first 100 procedures. J Hand Surg Am 2017;42:e139–47. [CrossRef]
13. Poggetti A, Del Chiaro A, Nicastro M, Parchi P, Piolanti N, Scaglione M. A local anesthesia without tourniquet for distal fibula hardware removal after open reduction and internal fixation: The safe use of epinephrine in the foot. A randomized clinical study. J Biol Regul Homeost Agents 2018;32:57–63.
14. Lavigne F, Becuwe L, Buia G, Her M, Quesnel A, Dubau B. A prospective comparison of WALANT technique and general anesthesia in forefoot surgery. Orthop Traumatol Surg Res 2024;110:103947. [CrossRef]
15. Wu T, Chen H, Nie S, Zhang W, Wang Y, Tang P. Application of wide-awake local anesthesia no tourniquet technique in the treatment of acute Achilles tendon rupture. Zhongguo Xiu Fu Chong Jian Wai Ke Za Zhi [Article in Chinese] 2022;36:279–83.
16. Moerman N, van Dam FS, Muller MJ, Oosting H. The Amsterdam Preoperative Anxiety and Information Scale (APAIS). Anesth Analg 1996;82:445–51. [CrossRef]
17. Ibrahim T, Beiri A, Azzabi M, Best AJ, Taylor GJ, Menon DK. Reliability and validity of the subjective component of the American Ortho-

paedic Foot and Ankle Society clinical rating scales. J Foot Ankle Surg 2007;46:65–74. [CrossRef]
18. Wright J, MacNeill AL, Mayich DJ. A prospective comparison of wide-awake local anesthesia and general anesthesia for forefoot surgery. Foot Ankle Surg 2019;25:211–4. [CrossRef]
19. Bilgetekin YG, Kuzucu Y, Öztürk A, Yüksel S, Atilla HA, Ersan Ö. The use of the wide-awake local anesthesia no tourniquet technique in foot and ankle injuries. Foot Ankle Surg 2021;27:535–8. [CrossRef]
20. Orbach H, Rozen N, Rubin G. Open reduction and internal fixation of intra-articular distal radius fractures under wide-awake local anesthesia with no tourniquet. J Int Med Res 2018;46:4269–76. [CrossRef]
21. Li YS, Chen CY, Lin KC, Tarng YW, Hsu CJ, Chang WN. Open reduction and internal fixation of ankle fracture using wide-awake local anaesthesia no tourniquet technique. Injury 2019;50:990–4. [CrossRef]
22. Çağlar C, Nazlıgül AS, Akçaalan Y, Asiltürk M, Uğurlu M. Comparison of the WALANT and the PFNB techniques in the surgical treatment of unimalleolar fractures: A prospective study. Acta Orthop Belg 2022;88:359–67. [CrossRef]
23. MacNeill AL, Mayich DJ. Wide-awake foot and ankle surgery: A retrospective analysis. Foot Ankle Surg 2017;23:307–10. [CrossRef]

ORİJİNAL ÇALIŞMA - *ÖZ*

Ayak bileği kırıklarının cerrahi tedavisinde 'Wide-Awake Local Anesthesia No Tourniquet' (WALANT) ile Spinal anestezinin karşılaştırıldığı randomize prospektif klinik çalışma

AMAÇ: Ayak bileği kırıkları, uygun dizilim ve stabilite için sıklıkla cerrahi müdahale gerektiren yaygın yaralanmalardır. Genel ve spinal anestezi gibi geleneksel anestezi yöntemleri, önemli komorbiditeleri olan hastalar için uygun olmayabilir. Wide-Awake Local Anesthesia No Tourniquet (WALANT) tekniği, özellikle kardiyovasküler ve pulmoner komorbiditeleri olan hastalar için uygun bir alternatif olarak ortaya çıkmıştır. Bu çalışmanın amacı, cerrahi olarak tedavi edilen ayak bileği kırıklarında WALANT ve spinal anestezinin klinik sonuçlarını karşılaştırmaktır.

GEREÇ VE YÖNTEM: Bu prospektif, randomize çalışmaya Haziran 2022 ile Kasım 2023 tarihleri arasında ameliyat edilen bimalleolar kırıklı (sindezmoz yaralanması olan veya olmayan) hastalar dahil edildi. Hastalar rastgele iki gruba ayrıldı: WALANT Grubu (n=16) ve Spinal Grubu (n=19). Ameliyat öncesi demografik veriler, ameliyat sırasındaki parametreler (periopaeratif Visual Analogue Scale(VAS), cerrahi süre) ve postoperatif ağrı skorları (VAS), PCA morfin tüketimi ve ameliyat sonrası 12. ayda Amerikan Ortopedik Ayak ve Ayak Bileği Derneği (AOFAS) skorları dahil olmak üzere ameliyat sonrası sonuçlar değerlendirildi.

BULGULAR: Her iki grup da benzer demografik özelliklere sahipti. Ameliyathane süresinde anlamlı bir fark yoktu (WALANT Grubu 180.5±32.3 dakika vs. Spinal Grubu 190.9±23.2 dakika, p=0.30). Ameliyat sonrası ağrı, 12 ve 24. saatlerde VAS skorları kullanılarak değerlendirilmiş ve gruplar arasında anlamlı bir fark bulunmamıştır. PCA yoluyla morfin tüketimi de benzerdi (WALANT Grubu 19.6±9 mg vs. Spinal Grubu 22.8±8.4 mg, p=0.29). 12 aylık takipte, AOFAS skorları benzerdi (WALANT Grubu 80±8.5 vs. Spinal Grubu 83.1±9.7, p=0.39). Ameliyat öncesi anksiyete WALANT grubunda daha yüksekti (p<0.001).

SONUÇ: WALANT tekniği ayak bileği kırığı cerrahisinde spinal anestezi ile karşılaştırılabilir postoperatif ağrı yönetimi ve fonksiyonel sonuçlar sunmaktadır. Ameliyat öncesi anksiyete WALANT grubunda daha yüksek olmasına rağmen, ameliyat sonrası ağrı veya uzun süreli iyileşmede anlamlı bir fark gözlenmedi. WALANT, özellikle doğal afetler veya pandemiler gibi anestezi uzmanlarına erişimin sınırlı olabileceği ortamlarda uygulanabilir, uygun maliyetli bir alternatiftir. Sistemik anestezi risklerinden kaçınmak için kardiyovasküler ve pulmoner komorbiditeleri olan hastalar için özellikle yararlı olabilir.

Anahtar sözcükler: Ayak bileği kırığı; AOFAS skoru; anestezi teknikleri; fonksiyonel sonuçlar; WALANT; postoperatif ağrı; spinal anestezi.

Ulus Travma Acil Cerrahi Derg 2025;31(6):570-576 DOI: 10.14744/tjtes.2025.82593