ORIGINAL ARTICLE

EXPLORING THE IMPACT OF ARTHROSCOPIC SURGERY ON SLEEP QUALITY AND CLINICAL RECOVERY IN CHRONIC LATERAL EPICONDYLITIS PATIENTS

Kronik Lateral Epikondilit Hastalarında Artroskopik Cerrahinin Uyku Kalitesi ve Klinik İyileşme Üzerindeki Etkisinin Araştırılması

Mehmet Okan ATAHAN[1], Fatih GOLGELIOGLU[2], Mustafa YALIN[3], Aydogan ASKIN[4], Goker YURDAKUL[2], Alper OZER[5]

ABSTRACT

Objective: The purpose of the current study was to investigate the postoperative pattern of sleep quality and to evaluate the correlation between sleep quality and clinical scores in patients following arthroscopic surgery for chronic persistent lateral epicondylitis (ASCPLE).

Material and Methods: The current study included consecutive patients seeking lateral epicondylitis (LE) treatment at four orthopaedic outpatient clinics between 2020 and 2022 who failed to improve with conservative treatments and consented to ASCPLE. The current study evaluated patient demographics, the Pittsburgh Sleep Quality Index (PSQI), and patient-rated outcomes measures (PROMs) like the Disability of the Arm, Shoulder, and Hand (DASH) score and the Patient-rated Tennis Elbow Evaluation (PRTEE) score before and after ASCPLE surgery, with follow-up assessments at three weeks, three months, and six months.

Results: The study involved 28 patients aged 32-47 years. Statistically significant decreases were observed in the PSQI and DASH values at postoperative 3rd week, 3rd month, and 6th month compared to preoperative values ($p<0.05$). The PRTEE scoring showed a decrease in postoperative period and an increase in postoperative 6th month, albeit statistically lower than preoperative period. The present investigation revealed a significant correlation between preoperative PSQI scores and DASH and PRTEE scores, with a correlation of 71.9% and 67.3%, respectively.

Conclusion: ASCPLE significantly improves sleep quality and reduces clinical scores up to six months postoperatively, but caution is needed due to the potential risk of symptom recurrence and deteriorating sleep quality over time.

Keywords: *Elbow Tendinopathy; Sleep Quality; Arthroscopic Surgery*

ÖZET

Amaç: Bu çalışmanın amacı kronik persistan lateral epikondilit (ASCPLE) nedeniyle artroskopik cerrahi uygulanan hastalarda ameliyat sonrası uyku kalitesi paternini araştırmak ve uyku kalitesi ile klinik skorlar arasındaki korelasyonu değerlendirmektir.

Gereç ve Yöntemler: Bu çalışmaya 2020-2022 yılları arasında dört ortopedi polikliniğinde lateral epikondilit (LE) tedavisi gören, konservatif tedavilerle iyileşme sağlanamayan ve ASCPLE'ye onay veren ardışık hastalar dahil edildi. Bu çalışmada, ASCPLE ameliyatı öncesinde ve sonrasında hasta demografisi, Pittsburgh Uyku Kalitesi İndeksi (PSQI) ve Kol, Omuz ve El Engelliliği (DASH) skoru ve Hasta Tarafından Değerlendirilen Tenisçi Dirseği Değerlendirmesi (PRTEE) skoru gibi hasta tarafından değerlendirilen sonuç ölçümleri (PROM'lar) üç hafta, üç ay ve altı aylık takip değerlendirmeleriyle değerlendirilmiştir.

Bulgular: Çalışmaya yaşları 32-47 arasında değişen 28 hasta dahil edildi. Postoperatif 3. hafta, 3. ay ve 6. ayda PSQI ve DASH değerlerinde preoperatif değerlere göre istatistiksel olarak anlamlı düşüşler gözlendi ($p<0,05$). PRTEE skorlamasında ameliyat öncesi döneme göre istatistiksel olarak daha düşük olmakla birlikte ameliyat sonrası dönemde azalma, ameliyat sonrası 6. ayda ise artış görüldü. Bu araştırma, ameliyat öncesi PSQI skorları ile DASH ve PRTEE skorları arasında sırasıyla %71,9 ve %67,3'lük bir korelasyon ile anlamlı bir ilişki olduğunu ortaya koymuştur.

Sonuç: ASCPLE, ameliyat sonrası altı aya kadar uyku kalitesini önemli ölçüde iyileştirmekte ve klinik skorları azaltmaktadır, ancak semptomların nüksetmesi ve zaman içinde uyku kalitesinin bozulması riski nedeniyle dikkatli olunması gerekmektedir.

Anahtar Kelimeler: *Dirsek Tendinopatisi; Uyku Kalitesi; Artroskopik Cerrahi*

[1]Afyonkarahisar Devlet Hastanesi, Ortopedi ve Travmatoloji Kliniği.
[2]Yozgat Bozok Üniversitesi, Tıp Fakültesi, Ortopedi ve Travmatoloji Anabilim Dalı.
[3]Elazığ Fethi Sekin Şehir Hastanesi, Ortopedi ve Travmatoloji Anabilim Dalı.
[4]Antalya Eğitim ve Araştırma Hastanesi, Ortopedi ve Travmatoloji Anabilim Dalı.
[5]Kayseri Şehir Hastanesi, Ortopedi ve Travmatoloji Bölümü.

Mehmet Okan ATAHAN, Dr. (0000-0003-2828-700X)
Fatih GÖLGELİOĞLU, Doç. Dr. (0000-0002-1715-3471)
Mustafa YALIN, Dr. (0000-0001-8281-9885)
Aydoğan AŞKIN, Dr. (0000-0003-2144-3647)
Göker YURDAKUL, Dr. Öğr. Ü. (0000-0001-6570-164X)
Alper ÖZER, (0009-0003-8622-9438)

İletişim:
Dr. Mehmet Okan ATAHAN
Afyonkarahisar Devlet Hastanesi,
Ortopedi ve Travmatoloji Kliniği,
Nedim Helvacıoğlu Caddesi 03000
Afyonkarahisar, Türkiye.

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INTRODUCTION

Lateral epicondylitis (LE), also referred to as tennis elbow, is a prevalent orthopaedic ailment that impacts approximately 1% to 3% of the overall population. It primarily affects individuals over the age of 40, with an equal distribution between genders (1,2). The available literature suggests that a significant proportion of LE cases, ranging from 70% to 90%, exhibit a clinical path characterised by either spontaneous remission or a positive response to conservative treatment strategies. These strategies often include rest, the administration of non-steroidal anti-inflammatory medicines, the use of orthotic devices, physical therapy interventions, and the application of injections (3). LE is a condition that arises due to the presence of overload, repetitive microtrauma, and degenerative alterations on the extensor carpi radialis brevis (ECRB) tendon. In cases where conservative care is not deemed effective, both arthroscopic and open surgeries are frequently considered as possible treatment options (4). The necessity of surgical treatment remains debatable and lacks a widely accepted consensus. However, surgical treatment, particularly using arthroscopic methods, is often beneficial for those experiencing prolonged and debilitating pain, even over six months of nonoperative therapy (5). Arthroscopic approaches offer advantages such as improved visualisation of intraarticular structures, shorter rehabilitation time, and reduced postoperative morbidity (6).

Sleep disruption is a commonly reported issue among people who have chronic pain (7-9). The relationship between persistent pain and sleep problems is reciprocal (10). Specifically, chronic pain may result in disruptions to sleep patterns, whereas those experiencing persistent insomnia are susceptible to developing chronic pain (8). Limited research exists on the association between chronic persistent LE and sleep quality (11). Nevertheless, a dearth of research exists in the scholarly literature regarding the investigation of alterations in sleep quality after arthroscopic surgery for chronic persistent lateral epicondylitis (ASCPLE). Hence, the current study aimed to investigate the potential enhancement of sleep quality and clinical outcomes in patients following ASCPLE. The hypothesis is that ASCPLE significantly improves sleep quality and reduces clinical scores up to six months postoperatively.

MATERIALS AND METHODS

Through clinical consultations and retrospective data analysis, an observational research was conducted. The current study reviewed the clinical records of patients who underwent ASCPLE at four orthopaedic outpatient departments between 2020 and 2022. The current study received approval from the ethics committee of the Fırat University Faculty of the Medicine (Approval Date: 27/09/2023, Approval Number: 2023/13-44). All patients provided the written informed consent form under with the ethical guidelines set forth by the hospital's committee. Patients who sought treatment for LE at two orthopaedic outpatient clinic between 2020 and 2022, attempted conservative treatments such as rest, splinting, and local injection therapy (steroid) without improvement, and consented to ASCPLE were included in the study. The exclusion criteria for the current study were as follows: individuals who had undergone prior surgical intervention in the elbow region for any reason; those who had not received conservative treatments (such as rest, splinting, and local injections) for LE for a minimum of 6 months; individuals with inflammatory disease in the elbow region; those with diabetes, sleep apnea syndrome, or restless leg syndrome; individuals with autoimmune disease; patients using medications for neuropathic pain; and patients using medications for narcolepsy. Patient demographics, the Pittsburgh Sleep Quality Index (PSQI), the patient-rated outcomes measures (PROMs) such as the Disability of the Arm, Shoulder, and Hand (DASH) score, and a Patient-rated Tennis Elbow Evaluation (PRTEE) score were collected prior to surgery. The participants were instructed to come back for a follow-up assessment on the PSQI, DASH, and PRTEE three weeks, three months, and six months after undergoing ASCPLE.

The PSQI is a validated instrument used for the evaluation of sleep quality (12). The assessment consists of a series of 19 questions that the patient answers, which are categorised into seven distinct sections: sleep quality, sleep onset latency, sleep duration, habitual sleep efficiency, presence of sleep disorders, use of sleep medicine, and daily functional impairment. Each part is assigned a numerical ranking ranging from 0 to 3, where a score of 0 indicates the absence of any disruption and a score of 3 indicates the lowest quality of sleep. The cumulative total of these seven sections determines the comprehensive PSQI score, whereby a higher score indicates worse sleep quality. A cumulative number over 5 indicates a state of sleep deprivation. There are five supplementary inquiries that pertain to the assessment of the patient's partner or roommate, which have no impact on the overall outcome.

The Patient-Rated Tennis Elbow Evaluation Scale (PRTEE) was used to assess levels of forearm discomfort and impairment in individuals diagnosed with LE. The scale is comprised of two distinct components, namely pain (consisting of five items) and functional activities (consisting of ten items). Each item is assigned a numerical value ranging from 0, indicating the absence of pain or difficulty in task performance, to 10, representing the most severe pain or complete inability to do the activity. The cumulative score is derived from the combination of the scores from both components (13,14).

The DASH is classified as a PROM because it solicits an individual's subjective evaluation of their recuperation following an upper-extremity injury (15). The injured individual is required to assess their condition by completing a 30-item questionnaire that measures their pain level and ability to perform various tasks. The International Classification of Functioning, Disability, and Health Framework (ICF) includes seven questions that assess pain intensity, falling under the category of body function and structure (16). Additionally, there are 23 items that evaluate an individual's ability to engage in different activities, categorised under Activity/Participation in the ICF.

All surgical procedures were conducted with general anaesthesia while the patient was positioned in the lateral decubitus posture. The surgical procedures were conducted by orthopaedic specialists who possessed a minimum of 5 years of expertise in the field and had sufficient experience in elbow arthroscopy. The elbow joint was filled with 15 ml of saline solution, resulting in the displacement of the brachial artery and median nerve in an anterior direction. Typically, two conventional arthroscopic portals were used. The proximal anteromedial portal is situated at a distance of roughly 2cm proximal and 2cm anterior to the medial epicondyle. Similarly, the proximal lateral portal is located around 2cm proximal and 2cm anterior to the lateral epicondyle in the region sometimes referred to as the 'soft spot'. The diagnostic arthroscopy is conducted via the medial viewing portal prior to establishing the lateral operating portal, using the 30 scope. This facilitates the visualisation of the anterior section of the elbow and enables a comprehensive assessment of the lateral tissues, particularly the ECRB tendon. A mechanical shaver with a diameter of 4.5 mm is introduced into the cannula, and the process is started. The distal excision of the radio-capitellar capsular complex was performed up to the standard annular ligament. Subsequently, an assessment of the radio-capitellar joint was conducted in both flexion and extension to verify the absence of any further impingement. The ECRB tendon's origin is located outside the joint and necessitates visualisation throughout the surgery. The ECRB tendon inside the joint capsule was excised using a shaver. Subsequently, the region situated immediately inferior to the superior capitellum is excised, a location that is in close proximity to the ECRB tendon. The resection procedure is terminated upon the visual identification of the extensor carpi radialis longus (ECRL) fibres. The decortication of the lateral epicondyle was not performed. A soft, thick dressing was put on the portals after they were stitched up. The patients were instructed to wear a splint for a duration of 2-3 days. They were advised to initiate elbow range of motion (ROM) exercises after the removal of the splint, and the ends of the sutures were then removed after a period of two weeks.

The statistical analyses in the current study were conducted using IBM SPSS Statistics 22 (IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp) software. The normality of the parameters was assessed using the Shapiro-Wilks test. Descriptive statistical methods, such as mean, standard deviation, and frequency, were employed alongside the Friedman test to compare parameters that did not exhibit a normal distribution across different periods. The Wilcoxon sign test was utilised to identify the specific period that contributed to the observed differences. Spearman's rho correlation analysis was employed to examine the associations between non-normally distributed parameters. The

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significance level was set at p<0.05.

RESULTS

The study included 28 patients, with ages ranging from 32 to 47 years. Of these patients, 15 (53.6%) were males and 13 (46.4%) were females. The mean age of the patients was 39.82±4.79 years. Patients' return to work was 36.2+8.6 days. The conservative follow-up period for the patients ranged from 8 to 12 months, with an average of 10.04±1.07 months and a median of 10 months (Table 1).

Statistically significant differences were observed in PSQI levels between preoperative, postoperative 3rd week, postoperative 3rd month, and postoperative 6th month (p<0.05). Statistically significant decreases were observed in the PSQI values at the postoperative 3rd week, 3rd month, and 6th month compared to preoperative values (p<0.05), based on pairwise comparisons. There was a statistically significant decrease in PSQI values at the 3rd month after surgery and a statistically significant increase in PSQI values at the 6th month after surgery, compared to the 3rd week after surgery (p1:0.040; p2:0.041; p<0.05). There was a statistically significant increase in PSQI values at the 6th month postoperative compared to the 3rd month postoperative (p:0.001; p<0.05) (Table 2) (Figure 1).

The analysis of DASH scores during the preoperative and postoperative periods revealed a decrease in scores after surgery, similar to the scoring of PSQI. However, unlike PSQI, there was no significant increase in DASH values observed in the sixth month after surgery (Table 3; Figure 1).

The analysis of PRTEE scoring revealed similar changes to the PSQI values. There was a significant decrease in the postoperative period and a significant increase in the postoperative 6th month, although the latter remained statistically lower than the preoperative period (Table 4; Figure 1).

Upon analysing the correlation between the three scores during the preoperative period, the present investigation revealed a significant association between preoperative PSQI scores and DASH and PRTEE scores, with a correlation of 71.9% and 67.3%, respectively (Table 5; Figure 1).

Table 1. Data on demographic characteristics of the patients

	Min-Max	Mean±SD
Age (year)	32-47	39.82±4.79
Return to work (day)	26-50	36.2+8.6
Conservative Follow-up time (month) $_{Median}$	8-12	10.04±1.07 (10)
Gender n,%		
Male	15	53.6
Female	13	46.4

Min: Minimum; Max: Maximum; SD: Standart Deviation.

Table 2. Analysing the changes in PSQI levels of patients over time

PSQI	Min-Max	Mean±SD (Median)
Preop	6-10	8.11±1.03 (8)
Postop 3.Weeks	4-7	5.32±0.72 (5)
Postop 3.Months	4-6	4.96±0.64 (5)
Postop 6.Months	4-7	5.68±0.77 (6)
p^1		0.001*
Preop-Postop 3.Weeks p^2		0.001*
Preop-Postop 3.Months p^2		0.002*
Preop-Postop 6.Months p^2		0.001*
Postop 3.Weeks-3.Months p^2		0.040*
Postop 3.Weeks-6.Months p^2		0.041*
Postop 3.Months-6.Months p^2		0.001*

p1: Friedman Test, p2: Wilcoxon Sign Test, *p<0.05, Min: Minimum; Max: Maximum; SD: Standart Deviation; Preop: Preoperative; Postop: Postoperative; PSQI: Pittsburg Sleep Quality Index.

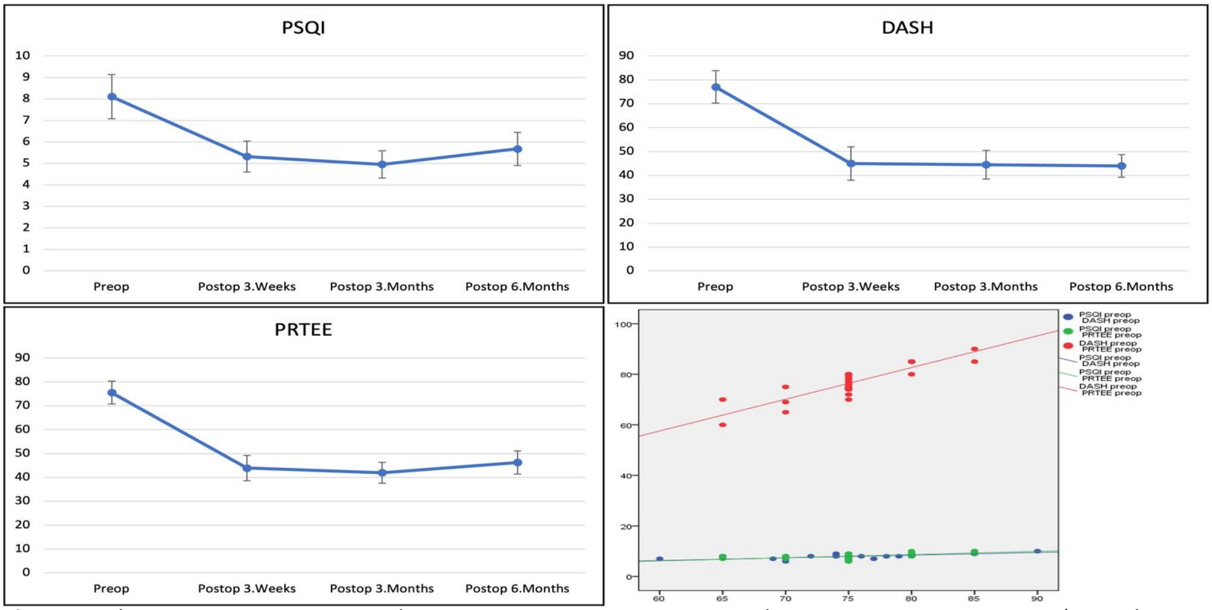

Figure 1. Changes in PSQI, DASH, and PRTEE scores at preoperative and postoperative time points (3 weeks, 3 months, and 6 months), along with correlations among their preoperative values.

Table 3. Investigation of the changes in DASH scores of patients over time

DASH	Min-Max	Mean±SD (Median)
Preop	60-90	77.07±6.83 (76.5)
Postop 3.Weeks	30-55	45±7.02 (45)
Postop 3.Months	34-55	44.5±5.97 (45)
Postop 6.Months	35-50	44±4.71 (45)
p1		0.001*
Preop-Postop 3.Weeks p2		0.001*
Preop-Postop 3.Months p2		0.003*
Preop-Postop 6.Months p2		0.001*
Postop 3.Weeks-3.Months p2		0.572
Postop 3.Weeks-6.Months p2		0.204
Postop 3.Months-6.Months p2		0.349

p1: Friedman Test, p2: Wilcoxon Sign Test, *p<0.05, Min: Minimum; Max: Maximum; SD: Standart Deviation; Preop: Preoperative; Postop: Postoperative; DASH: Disabilities of the Arm, Shoulder and Hand.

DISCUSSION

The current study addresses a significant gap in the literature by examining the potential enhancement of sleep quality in patients following ASCPLE. The primary result of the current study was that patients who underwent ASCPLE experienced significant improvements in sleep quality at both the third week and the third month, as indicated by the analysis of PSQI values. Moreover, significant improvements were observed in the clinical outcomes of patients during the third week and third month when PROMs (DASH and PRTEE) were assessed. Upon evaluating all three scores in the current study, it was noted that the highest scores were achieved at the third month.

The authors suggested that the increase in nighttime pain levels is due to the increased levels of inflammatory cytokines associated with inflammation around tendon degenerative conditions (17,18). Inflammation is an important factor in LE, which is characterised by degeneration of the ECRB tendon (19). It is possible

Table 4. Analysis of time-to-change in patients' PRTEE scores

PRTEE	Min-Max	Mean±SD (Median)
Preop	65-85	75.54±4.78 (75)
Postop 3.Weeks	35-55	43.93±5.33 (45)
Postop 3.Months	35-50	41.96±4.38 (40)
Postop 6.Months	35-55	46.25±4.84 (45)
p[1]		0.001*
Preop-Postop 3.Weeks p[2]		0.001*
Preop-Postop 3.Months p[2]		0.003*
Preop-Postop 6.Months p[2]		0.001*
Postop 3.Weeks-3.Months p[2]		0.022*
Postop 3.Weeks-6.Months p[2]		0.027*
Postop 3.Months-6.Months p[2]		0.002*

p1: Friedman Test, p2: Wilcoxon Sign Test, *p<0.05, Min: Minimum; Max: Maximum; SD: Standart Deviation; Preop: Preoperative; Postop: Postoperative; PRTEE: Patient-Rated Tennis Elbow Evaluation.

Table 5. Evaluation of the correlation between PSQI, DASH and PRTEE preop values

Preop		PSQI	DASH
DASH	r	0.719	1.000
	p	0.001*	
PRTEE	r	0.673	0.864
	p	0.001*	0.001*

Spearman Rho Correlation Analysis; r: Correlation coefficient; p: Statistical significance level; *p<0.05. Preop: Preoperative; PSQI: Pittsburg Sleep Quality Index; DASH: Disabilities of the Arm, Shoulder and Hand; PRTEE: Patient-Rated Tennis Elbow Evaluation.

that the presence of inflammatory cytokines in such cases contributes to the pathophysiology of pain, especially during the night when repair processes and inflammatory responses may become more prominent without the distractions of daily activities. Therefore, while lateral epicondylitis is expected to affect sleep quality, this effect may be eliminated due to the removal of inflammatory degenerated tissues by arthroscopic surgery. In addition, when addressing the relationship between arthroscopic surgery for chronic persistent LE and sleep quality improvement, it is important to emphasise a few key considerations. The minimally invasive nature of this procedure may favour faster recovery times, allowing patients to return to their normal sleep patterns sooner.

Sağlam et al. conducted a study on chronic LE patients to assess their sleep quality (11). The findings revealed that 71.7% of the participants (n=33) had PSQI scores ≥5, indicating poor sleep quality. In a similar manner, all 28 patients in the present study had PSQI scores ≥5, indicating poor sleep quality during the preoperative period. Consistent with the present study, three previous studies on rotator cuff rupture (RCR) have examined the PSQI and have shown a statistically significant improvement in mean PSQI scores at the 6-month postoperative mark compared to preoperative levels (20-22). One study observed a significant improvement in PSQI scores that persisted for 12 months after RCR (6.6±3.6 to 4.2±3.3, P =0.006) (23). Another study reported a significant improvement in PSQI scores that lasted for more than 24 months after RCR (11.6±4.4 to 5.5±4.0; P <0.05) (22). In the current study, we observed a different pattern compared to the aforementioned studies. Specifically, we found that sleep quality improved progressively until the third month.

According to Herquelot et al., LE is more common among people who work with heavy lifting or repetitive movements (24). One of the most notable findings of this study was the statistically significant increase in the PSQI scores at the 6th month postoperative compared to the 3rd month postoperative. Initially, patients experienced an improvement in sleep quality, as evidenced by the lowering of PSQI scores from preoperative levels through the third month after surgery. This trend reflects the typical recovery trajectory where symptoms of pain and discomfort are mitigated, thereby allowing better sleep. However, this improvement plateaued and was followed by a worsening in sleep quality by the sixth month. Considering that the average return to work time of the patients in the current study was 36.2+8.6 days, this reversal can be attributed to several factors. As patients start to resume their usual activities, including returning to work, the exertion associated with these tasks can lead to a resurgence of pain and discomfort, particularly in jobs involving repetitive motions or heavy lifting. It is crucial to consider these risks when advising patients post-operatively, particularly when setting realistic timescales for return to work and managing expectations regarding sleep quality.

Clark et al. prospectively assessed the post-surgical outcomes of patients who underwent ASCPLE or open releases of the common extensor tendon (5). They utilised scoring systems including DASH, visual analogue scale (VAS) pain, and the PRTEE score. There were no statistically significant differences between the two techniques across all grading systems. In the current study, a control group was not included for the purpose of comparing clinical scores. Additionally, no alternative surgical treatment apart from arthroscopic surgery was considered. We believe that this represents a limitation of the current study. However, it is important to note that both groups demonstrated improvement in pain and function from the preoperative to postoperative evaluation in the study of Clark et al., which is in line with the current study (5). The utilisation of arthroscopic techniques in the management of LE, in addition to percutaneous and open techniques, has demonstrated favourable surgical outcomes in terms of pain reduction, functional improvement, resumption of normal activities, and restoration of grip strength after surgery. Nevertheless, arthroscopic intervention offers distinct advantages over the other two approaches (percutaneous and open techniques) due to its superior ability to visualise the entirety of intra-articular structures (1,2). Despite the prolonged learning process associated with the arthroscopic approach, an in-depth examination of the three surgical methods found that complications following surgery, including total or partial nerve damage and elbow joint instability, were comparable between the three approaches (25). No instances of nerve injury or elbow instability were seen in any patients who had ASCPLE in the current study. In the first year after the surgical procedure, revision ASCPLE was conducted on four individuals. We are now engaged in the assessment of the clinical outcomes of patients who have had revision ASCPLE.

The study conducted by Babaqi et al. reported the mean DASH and PRTEE scores during the preoperative period as 24.46±1.46 and 55.53±11.16, respectively (26). In the current study, the average DASH and PRTEE scores during the preoperative period were found to be 77.07±6.83 and 75.54±4.78, respectively. These values were notably higher compared to the existing literature (1). Out of the total sample size of 28 individuals, 22 participants reported being involved in physically demanding occupations, while the remaining 6 individuals specifically characterised their employment as including recurrent microtrauma. It is hypothesised that elevated preoperative values may contribute to a higher level of postoperative satisfaction. However, it should be noted that the current study did not assess satisfaction directly. Additionally, it is emphasised that careful patient selection is crucial in this particular patient population. Behazin et al. reported high DASH and PRTEE scores in the preoperative period, which aligns with the current study findings (27). In contrast to the present study, Behazin et al. reported a decline in clinical improvement and scores beyond the 6th month (27). In the current study, the PRTEE values at the 6th month were lower than the preoperative period but showed an increase compared to the 3rd month. When analysing the DASH scores, it was found that the clinical improvement plateaued at the 6th month. Patients who underwent ASPCLE experienced notable satisfaction until the 6th month. However, clinical complaints resurfaced after this time period. The majority of patients in this series experienced rapid recovery of movement, performance, and daily activities. They also reported a similar rate of early returns to their original employment and other activities. The potential consequences may arise from patients resuming physically demanding work in order to sustain themselves and the impact of prevailing socioeconomic conditions.

The current study found a substantial correlation between preoperative PSQI scores and DASH and PRTEE scores, with values of 71.9% and 67.3%, respectively (Figure 1). The existing body of literature does not include any studies investigating the impact of LE on sleep quality. Furthermore, our search did not provide any papers that explore the potential relationship between PSQI values and DASH or PRTEE scores. The DASH and PRTEE measurements, which are found as LE-spesific PROMS exhibit a strong correlation with the PSQI (28). This indicates that the PSQI is a reliable indicator of sleep quality in individuals suffering from chronic persistent LE.

The data presented in the current study is subject to limitations, as is common with retrospective chart review studies. The data were not collected in a standardised manner using a prospective approach. Furthermore, the current study was designed as a multicenter study. Variability in surgical techniques and follow-up procedures among clinicians poses a risk to consistency. The investigation included a limited number of patients, and a power analysis was not conducted prior to the commencement of the study to identify the optimal sample size. Moreover, although patients were asked about any existing sleep disorders upon admission, no sleep polysomnography screening was performed before collecting the data. The absence of a control group in the present study precluded the comparison of clinical scores. Furthermore, arthroscopic surgery was the only surgical treatment option that was taken into account. However, the scales used in the current study were selected based on their frequent usage in the literature when analysing PROMs and sleep quality indexes (28,29). Therefore, these scales were chosen for use in the present study. Another limitation of the study is that it was not possible to clearly determine whether the improvement in sleep and pain scores in the early period was due to the surgical procedure or to the fact that the patients were kept away from their work. The major strength of the current study lies in addressing an important gap in the literature by examining the potential improvement of sleep quality in patients after ASCPLE. Furthermore, the PSQI demonstrates a robust association with the DASH and PRTEE, which are widely used PROMs in individuals with LE. This highlights the PSQI's efficacy as a reliable tool for evaluating sleep quality in LE patients.

CONCLUSION

In conclusion, ASCPLE significantly improves sleep quality and reduces clinical scores up to six months postoperatively. However, initial improvements in sleep quality and some clinical scores showed a decline at six months postoperatively, suggesting the potential for recurrence of symptoms over time. The DASH and PRTEE, two specific PROMs for LE, show a significant correlation with the PSQI. This suggests that the PSQI is a dependable measure of sleep quality in individuals with chronic persistent LE.

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