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The Relationship Between Entrapment Level of The Nerve And Upper Extremity Function And Sleep Quality In Ulnar Neuropathy Patients

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ABSTRACT

There are few studies on sleep and upper extremity dysfunction in ulnar nerve entrapment neuropathy, despite previous demonstrations of deterioration in sleep quality and a decrease in functional activity level in carpal tunnel syndrome. This study aims, for the first time in the scientific literature, to compare sleep and dysfunction between clinical conditions that occur at the two levels where the ulnar nerve is most commonly entrapped (elbow/cubital tunnel and wrist/Guyon's canal).

This study aims, for the first time in the scientific literature, to compare sleep and dysfunction between clinical conditions that occur at the two levels where the ulnar nerve is most commonly entrapped (elbow/cubital tunnel and wrist/Guyon's canal). 20 (twenty) patients diagnosed with 'Ulnar entrapment neuropathy' by clinical evaluation and EMG (Electromyelography) were included in the study. The values of motor and sensory conductions were recorded according to the entrapment levels in EMG. The Disabilities of the Arm, Shoulder, and Hand (DASH) index was used to evaluate upper extremity function, and the Pittsburg Sleep Quality Index (PSQI) was used to determine sleep disorders. The average DASH score of patients with wrist entrapment (Guyon's canal) was found to be worse than the DASH score average of patients with cubital tunnel entrapment. However, this difference was not statistically significant ($p = 0.210$). The mean PSQI score of patients with entrapment in the wrist (Guyon's canal) was found to be higher than the mean PSQI score of patients with cubital tunnel entrapment. However, this difference was not statistically significant ($p = 0.787$). Symptom severity in ulnar entrapment neuropathy syndrome negatively affects functional status and sleep quality. In the treatment of ulnar entrapment neuropathy, treatments aimed at restoring not only entrapment symptoms but also upper extremity function and sleep quality should be considered.

Keywords: Ulnar nerve, entrapment neuropathy, upper extremity, function, sleep quality

Introduction

The peripheral nerve network in the human body is very susceptible to localized compression. Nerve compression syndromes, especially in the upper extremity, have been increasing in recent years. Ulnar nerve neuropathy is the second most common compression syndrome in the upper extremity, after that seen in the median nerve (1,2). The ulnar nerve arises from the medial cord of the brachial plexus, formed by the eighth cervical and first thoracic (C8-T1) nerve roots. It then courses downwards in the anterior muscle compartment of the arm. The ulnar nerve passes through the structures that form the cubital tunnel at the elbow. It enters the forearm after passing behind the medial epicondyle, then travels along the ulna towards the wrist, passes through Guyon's canal, and enters the palm (3).

Patients with compressive neuropathy of the ulnar nerve typically describe numbness and tingling on the ulnar sides of the fingers (specifically, the ring finger and little finger). Generally, symptoms begin intermittently and often worsen at night (2). As the disease progresses, paresthesias may occur more frequently (also during the day) and, if left untreated, may lead to muscle weakness and muscle atrophy over time (3).

Clinical evaluation and imaging methods are used in the diagnosis of ulnar nerve compression. However, the most valuable diagnostic test is nerve conduction studies (4). With these conduction tests performed with electromyography (EMG), the localization of

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nerve entrapment can also be detected. The two most common entrapment points of the ulnar nerve are in the elbow (cubital tunnel) and wrist (Guyon canal) (5)

Upper extremity nerve entrapments lead to deterioration in sleep quality and a decrease in functional activity level (6). It has been demonstrated for sleep disturbance, especially carpal tunnel syndrome (CTS) with median nerve entrapment (7-10). In CTS, sleep disorders such as frequent awakenings due to complaints such as numbness, burning, and pain that become more evident at night and, therefore, excessive periods of fragmented sleep and increased daytime sleepiness may be observed (11). Only one study has investigated the effect of ulnar nerve decompression surgery on sleep disturbances accompanying ulnar neuropathy (12). The impairment in upper extremity function before treatment (decrease in hand grip strength, finger pressing strength, and extremity functions) has also been shown in CTS (13,14).

In the literature, to the best of our knowledge, the effect of ulnar neuropathy on sleep quality and upper extremity function according to entrapment levels has not been investigated to date. Therefore, this study aims to detect possible changes in sleep and upper extremity dysfunction according to the entrapment localization of the ulnar nerve.

Materials and Methods

This study was carried out with the decision of the Van Yüzüncü Yıl University Clinical Research Ethics Committee (Date: December 15, 2021, Decision No. 01), and all procedures were carried out in accordance with the ethical rules and the Declaration of Helsinki.

Adult individuals between the ages of 18 and 65 who applied to the electrophysiology laboratory of the Van Yüzüncü Yıl University, Faculty of Medicine, Neurology Clinic, between January 31, 2022, and December 2, 2022, were evaluated clinically with EMG (electromyography). Accordingly, the data of 20 (twenty) patients diagnosed with 'Ulnar entrapment neuropathy' were used in this study.

Demographic data such as age, gender, entrapment side and level, and dominant extremity data of the patients included in the prospectively planned study were recorded. The diagnosis of ulnar neuropathy in patients applying to our EMG laboratory was made based on clinical findings, physical examination, and EMG evaluation. Names of patients diagnosed with ulnar neuropathy electrophysiologically were taken, and neurological examinations were performed. Pain, numbness, and waking up at night due to these complaints were noted.

Cases with cervical radiculopathy, brachial plexopathy, shoulder injuries and disorders, thoracic outlet syndrome, polyneuropathy, previous surgery or local steroid injection due to CTS or ulnar neuropathy, upper extremity fracture, upper extremity nerve injury, tumor, and CTS or ulnar neuropathy secondary to pregnancy were excluded from the study.

Measurement Tools: The Disabilities of the Arm, Shoulder, and Hand (DASH) questionnaire and Pittsburg Sleep Quality Index (PSQI) were applied to all participants in the study.

Pittsburg Sleep Quality Index (PSQI): The Turkish validity and reliability study of the index developed by Buysse et al. (15) was conducted by Ağargün et al (16).

The evaluation is made under the following subheadings: In the first part, subjective sleep quality; in the second part, the time to sleep; in the third part, sleep duration; in the fourth part, the efficiency of sleep; in the fifth part, conditions affecting sleep; in the sixth part, the use of sleep-inducing substances; and finally, in the seventh part, the situation of falling asleep during the day. Each part of the scale is calculated with scores ranging from 0 to 3, with higher scores recorded indicating deterioration in sleep quality. It is calculated on a total of 21 points. In this sleep index measurement, not only each section is evaluated on its own, but also the overall score is evaluated. In conclusion, 0–5 points: It is compatible with healthy sleep; 6–10 points: It is compatible with bad sleep; and above 10 points: It is compatible with long-term sleep disorders.

DASH Survey: The Disabilities of the Arm, Shoulder, and Hand (DASH) questionnaire is a self-report survey that aims to assess upper extremity disability using questions that are not specific to any musculoskeletal disease and do not focus on a particular joint of the upper extremity. DASH includes 30 questions that can be completed in 7 minutes or less and scored in approximately 5 minutes (17). It was first designed by Hudak et al. in 1996 (18). The Turkish validity and reliability study was published in 2006 (19).

Electrophysiological Evaluation: The Nihon Kohden MEB-9400K EMG system was used in our study. For filter settings in our EMG

laboratory, in motor conduction studies, the stimulation frequency was set to 1 Hz and the stimulation duration was 0.2 msec, between 20 Hz and 10 kHz. For sensory conduction studies, the filter setting was set to be between 20 Hz and 2 kHz, the stimulation frequency was 1 Hz, and the stimulation duration was 0.2 ms. During the patient examination, the ambient temperature was kept at an average of 25 degrees and the skin temperature between 31 and 34 degrees.

During the study, upper extremity nerve conduction studies, supramaximal stimulation with a constant current stimulus, and surface electrode recording were performed using standard techniques, as is done in EMG studies performed in daily practice. Median and ulnar sensory conductions were measured antidromically by placing recording electrodes on the 2nd and 5th fingers and a stimulating electrode on the wrist, respectively, and median-ulnar peak latency was recorded from the 4th finger. In the median nerve motor conduction study, recordings were made from the abductor pollicis brevis (APB) muscle, and for the ulnar nerve motor response, recordings were made from the abductor digiti minimi (ADM) muscle, and distal latency, amplitude, and nerve conduction velocities were calculated.

While the patient's elbow was 90° flexed, the ulnar nerve was stimulated at the wrist, elbow, and 90 cm above the elbow. The ulnar nerve was also stimulated five times with short segmental stimulation at 2.5 cm intervals, starting from 2.5 cm below the elbow towards the elbow (centimeter method). In some patients who were considered to have ulnar neuropathy at the elbow, but no pathology was detected in the ulnar motor conduction at the elbow by recording from the ADM muscle, recording was made from the first dorsal interosseus (FDI) muscle for ulnar nerve motor conduction. Since it contributes to the differential diagnosis of whether ulnar neuropathy is at the elbow or wrist, dorsal ulnar cutaneous sensory nerve conduction was also evaluated in patients with abnormalities in the routine ulnar sensory conduction study of the fifth finger. Since it leaves 5-8 cm proximal to the wrist, it is expected to be normal in all patients with suspected ulnar neuropathy at the wrist. It was considered abnormal if the amplitude was less than 8 μV, or 50% lower than the amplitude of the opposite side. All nerve conduction studies were evaluated bilaterally (20).

In the study, both wrist ulnar neuropathy (WUN) and elbow ulnar neuropathy (EUN) cases were evaluated. In our electrophysiological examinations for EUN, the recommendations of the American Society of Electrodiagnostic Medicine were taken into account (21).

According to this,

1) Ulnar nerve motor conduction speed in the elbow part is less than 50 m/sec,

2) The ulnar nerve motor conduction speed in the elbow segment is 15 m/sec lower than in the forearm segment.

3) Compound Muscle Action Potential (CMAP) amplitude obtained with stimulation above the elbow decreases by more than 20% compared to stimulation below the elbow.

Two criteria provide a 'probable' diagnosis, and three criteria provide a 'definite' diagnosis.

Ulnar neuropathy at the wrist is basically divided into four subtypes.

Type 1: It is neuropathy that occurs inside Guyon's canal or just at its entrance. ADM and FDI motor distal latencies are prolonged; 5th finger sensory conduction is abnormal.

Type 2: It is neuropathy that develops in Guyon's canal or its distal part. ADM and FDI distal latency is prolonged; 5th finger sensory transmission is normal.

Type 3: It is a lesion that develops after the branch leading to the hypothenar muscles is separated. The distal latency of the ADM muscle is normal, the distal latency of the FDI muscle is prolonged, and the sensory conduction function of the 5th finger is normal.

Type 4: This is the form in which the sensory branch in the distal part of Guyon's canal is affected. Distal latency of ADM and FDI muscles is normal, but sensory conduction study of the 5th finger is abnormal.

In our study, ulnar entrapment neuropathies at the wrist level were grouped under one heading as cases with BUN, regardless of the type of entrapment.

Statistical Analysis: The sample size of this prospective study, which was conducted with the aim of "determining the change in upper extremity function and sleep quality according to the entrapment levels of the ulnar nerve in patients with ulnar neuropathy", was calculated using the G*Power statistical program (ver.3.1.9.7) (22). According to this, in one sample t-test experimental design, when power (the power of the test) was taken as 0.80, the effect size was 0.7 (the

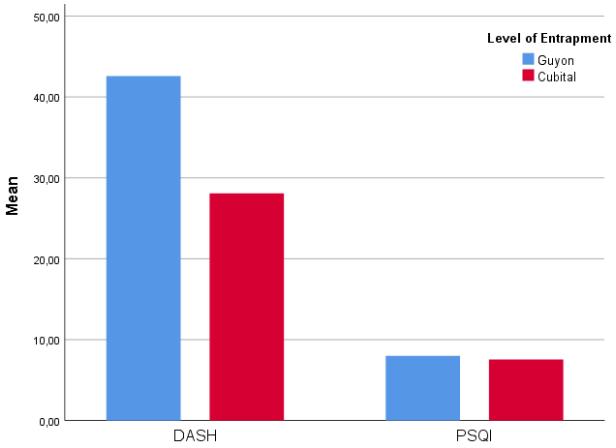

Fig. 1.
DASH: The Disabilities of the Arm, Shoulder, and Hand
PSQI: Pittsburg Sleep Quality Index

t-test effect size value range), and type-1 error (α) was taken as 0.05, it was determined as "minimum 19 samples/patient.". Data from 20 patients was used in our study, and the post-hoc power value was found to be 84%. The Shapiro-Wilk test was used to check whether the continuous measurements in the study were distributed normally, and since the measurements were not normally distributed, nonparametric tests were applied. Descriptive statistics for continuous variables in the study are expressed as mean, standard deviation (SD), median, and range. "Mann-Whitney-U" or "Kruskal-Wallis" tests were used to compare measurements according to categorical factors. Following the Kruskal-Wallis test, the "Post-Hoc Test with Bonferroni correction" was used to identify different groups. Pearson correlation coefficients were calculated to determine the relationship between the scales. In the calculations, the statistical significance level was taken as $p<0.05$, and the SPSS (IBM SPSS for Windows, ver. 26) statistical package program was used for analyses.

Results

The age, gender, entrapment level, DASH, and PSQI score distributions of the 20 (twenty) patients included in the study are shown in Table 1. All patients stated that they were 'right hand dominant'. There was no statistically significant relationship between the patients' ages and their "DASH" and "PSQI" scores ($p>0.05$) (table 2).

Variables related to DASH scores: The DASH score average of male patients (37.5) was found to be higher (worse) than the DASH score average of female patients (30.25). However, this difference was not statistically significant ($p=0.396$) (table 3).

The mean DASH score of patients with wrist (Guyon) entrapment (42.58) was found to be higher (worse) than the DASH score mean of patients with cubital tunnel entrapment (28.08) (figure 1). However, this difference was not statistically significant ($p = 0.210$) (table 3).

The average DASH score of patients with right-sided entrapment (44.51) was found to be higher (worse) than the DASH score average of patients with left-sided entrapment (23.86) and patients with bilateral entrapment (29.69). However, these differences were not statistically significant ($p = 0.289$) (table 3).

Correlation between motor conductions and DASH: As the ulnar 'compound muscle action potential' (CMAP), motor latency, and motor speed averages on the right side decreased (from normal to absent), the DASH score average also increased (worsened). However, this relationship was not statistically significant ($p = 0.164$, $p = 0.579$, and $p = 0.569$, respectively) (table 3).

As the ulnar CMAP, motor latency, and motor speed averages on the left side approached normal, unlike those on the right side, DASH score averages increased (worsened). However, this relationship does not create a statistically significant difference ($p = 0.663$, $p = 0.817$, and $p = 0.808$, respectively) (table 3).

Correlation between sensory conductions and DASH: As the average of ulnar sensory nerve action potential (SNAP), sensory latency, and sensory speed on the right side decreased (from normal to absent), the DASH score average also increased. However, this relationship was not statistically significant ($p=0.095$ $p=0.090$ $p=0.098$ respectively) (table 3).

The mean DASH score in the group whose left-side ulnar SNAP, sensory latency, and sensory speed were measured as 'absent' was found to be higher (worse) than the group measured as 'decreased, prolonged, or low' and measured as 'normal'. However, these relationships were not statistically significant ($p = 0.639$, $p = 0.262$, and $p = 0.266$, respectively) (table 3).

Variables related to PSQI scores: The mean PSQI score of male patients (7.76) and the mean PSQI score of female patients (7.75) were similar ($p = 0.990$) (table 4).

The mean PSQI score of patients with wrist (Guyon) entrapment (8.00) was slightly higher (worse) than the mean PSQI score of patients

Table 1: Basic Characteristics of Patients

	Mean	Standart Deviation	Min.	Max.
Age	42,25	16,82	22,00	77,00
DASH	34,61	27,70	4,16	96,66
PSQI	7,75	4,01	2,00	16,00
			N	%
Gender		Female	8	40,0%
		Male	12	60,0%
Level of Entrapment		Elbow	9	45,0%
		Wrist	11	55,0%

DASH: The Disabilities of the Arm, Shoulder, and Hand
PSQI: Pittsburg Sleep Quality Index

Table 2: Results of 'Correlation Analysis' Between Patients' Age and DASH and PSQI Scores

		Age	DASH	PSQI
Age	r	1		
	p.	.		
DASH	r	0,260	1	
	p.	0,268	.	
PSQI	r	-0,390	0,081	1
	p.	0,089	0,735	.

r: Spearman's correlation coefficients; p: Significance levels of the correlation coefficient
DASH: The Disabilities of the Arm, Shoulder, and Hand
PSQI: Pittsburg Sleep Quality Index

with cubital tunnel entrapment (7.55) (figure 1). However, this difference was not statistically significant (p = 0.787) (table 4).

Correlation between motor conductions and PSQI: The PSQI score averages of patients whose right-side ulnar CMAP, motor latency, and motor speed averages were measured as 'normal and low' were found to be higher (worse) than those of patients whose averages were measured as 'none'. However, these differences were not statistically significant (p = 0.244, p = 0.194, p = 0.190, respectively) (table 4).

The PSQI score averages of patients with low or prolonged averages of ulnar CMAP, motor latency, and motor speed on the left side were found to be slightly higher (worse) than those of patients with 'normal' measurements. However, these differences were not statistically significant (p = 0.840, 0.969, and 0.972, respectively) (table 4).

Correlation between sensory conductions and DASH: The PSQI score averages of the patients whose ulnar SNAP, sensory latency, and sensory speed averages on the right side were measured as 'low, prolonged, or slow' were found to be higher (worse) than the patients whose averages were measured as 'normal' and 'none'. However, these differences were not statistically significant (p = 0.477, p = 0.481, and p = 0.482, respectively) (table 4).

The PSQI score averages of the patients whose left-side ulnar SNAP, sensory latency, and sensory speed averages were measured as 'none' were found to be higher (worse) than the patients whose averages were measured as 'low/prolonged/slow' and 'normal'. However, this relationship was not statistically significant (p=0.237, p=0.163, p=0.165, respectively) (table 4).

Discussion

Ulnar nerve neuropathy at the elbow is the second most common entrapment neuropathy in the upper extremity after carpal tunnel syndrome. In contrast to carpal tunnel syndrome, electrophysiological localization of the lesion site is more difficult in patients with ulnar neuropathy (23).

Although the symptoms caused by ulnar neuropathy are often documented as numbness and pain, complaints of nocturnal pain and

Table 3: Comparison Results of Patients' "DASH" Measurements According to "Categorical Variables"

		DASH				*p.
		Mean	Std.Dev.	Median	Range	
Gender	Female	30,25	33,75	16,22	92,50	0,396
	Male	37,51	24,03	36,24	68,84	
Level of Entrapment	Wrist	42,58	29,10	48,33	87,50	0,210
	Elbow	28,08	26,00	14,00	73,84	
Side	Right	44,51	30,47	51,66	87,50	0,289
	Left	23,86	22,11	14,92	50,84	
	Bilateral	29,69	27,42	20,00	65,50	
CMAP (Right)	None	53,33	25,21	53,33	10,52	0,164
	Low	47,58	27,37	51,66	61,40	
	Normal	28,64	27,58	14,92	92,50	
Motor Latency (Right)	None	53,33	25,21	53,33	10,52	0,579
	Low	37,30	28,46	22,50	68,84	
	Normal	31,48	28,91	17,92	92,50	
Motor Speed (Right)	None	53,33	25,21	53,33	10,52	0,596
	Low	37,30	28,46	22,50	68,84	
	Normal	31,48	28,91	17,92	92,50	
CMAP (Left)	None	.	.	.	.	0,663
	Low	27,09	17,35	20,00	42,50	
	Normal	38,66	31,83	22,50	92,50	
Motor Latency (Left)	None	.	.	.	.	0,817
	Prolonged	33,45	24,12	22,08	65,50	
	Normal	35,38	30,87	19,55	92,50	
Motor Speed (Left)	None	.	.	.	.	0,808
	Low	33,45	24,12	22,08	65,50	
	Normal	35,38	30,87	19,55	92,50	
SNAP (Right)	None	65,66	17,44	65,66	24,67	0,095
	Low	46,50	36,05	45,00	87,50	
	Normal	23,49	17,87	16,22	50,84	
Sensory Latency (Right)	None	65,66	17,44	65,66	24,67	0,090
	Prolonged	46,50	36,05	45,00	87,50	
	Normal	23,49	17,87	16,22	50,84	
Sensory Speed (Right)	None	65,66	17,44	65,66	24,67	0,098
	Slowed	46,50	36,05	45,00	87,50	
	Normal	23,49	17,87	16,22	50,84	
SNAP (Left)	None	48,33	20,15	48,33	10,12	0,639
	Low	26,57	23,89	15,83	72,17	
	Normal	40,47	31,44	37,08	92,50	
Sensory Latency (Left)	None	48,33	20,15	48,33	10,12	0,262
	Prolonged	24,33	23,62	14,92	73,84	
	Normal	44,51	30,47	51,66	87,50	
Sensory Speed (Left)	None	48,33	20,15	48,33	10,12	0,266
	Slowed	24,33	23,62	14,92	73,84	
	Normal	44,51	30,47	51,66	87,50	

*Significance levels according to Mann-Whitney U and Kruskal-Wallis test results
Std. Dev.: Standard Deviation; Range: Minimum-Maximum value (range)
DASH: The Disabilities of the Arm, Shoulder and Hand
CMAP: Compound Muscle Action Potential
SNAP: Sensory Nerve Action Potential

Table 4: Comparison Results of Patients' "PSQI" Measurements According to "Categorical Variables"

		PUKI				*p.
		Mean	Std.Dev.	Median	Range	
Gender	Female	7,75	4,06	6,00	11,00	0,990
	Male	7,76	4,16	6,00	14,00	
Level of Entrapment	Wrist	8,00	4,56	6,00	14,00	0,787
	Elbow	7,55	3,72	6,00	11,00	
Side	Right	7,89	4,08	6,00	12,00	0,747
	Left	7,83	5,31	5,00	13,00	
	Bilateral	7,40	2,79	6,00	7,00	
CMAP (Right)	None	2,00	2,01	2,00	1,06	0,244
	Low	7,00	2,00	6,00	5,00	
	Normal	8,43	4,36	6,00	13,00	
Motor Latency (Right)	None	2,00	2,01	2,00	1,06	0,194
	Low	8,14	3,08	8,00	9,00	
	Normal	8,00	4,41	6,00	13,00	
Motor Speed (Right)	None	2,00	2,01	2,00	1,06	0,190
	Low	8,14	3,08	8,00	9,00	
	Normal	8,00	4,41	6,00	13,00	
CMAP (Left)	None	.	.	.	.	0,840
	Low	7,86	4,38	6,00	11,00	
	Normal	7,69	3,99	6,00	12,00	
Motor Latency (Left)	None	.	.	.	.	0,969
	Prolonged	7,88	4,05	6,00	11,00	
	Normal	7,67	4,16	6,00	12,00	
Motor Speed (Left)	None	.	.	.	.	0,972
	Low	7,88	4,05	6,00	11,00	
	Normal	7,67	4,16	6,00	12,00	
SNAP (Right)	None	5,00	4,24	5,00	6,00	0,477
	Low	8,83	4,12	7,00	9,00	
	Normal	7,67	4,05	6,00	13,00	
Sensory Latency (Right)	None	5,00	4,24	5,00	6,00	0,481
	Prolonged	8,83	4,12	7,00	9,00	
	Normal	7,67	4,05	6,00	13,00	
Sensory Speed (Right)	None	5,00	4,24	5,00	6,00	0,481
	Slowed	8,83	4,12	7,00	9,00	
	Normal	7,67	4,05	6,00	13,00	
SNAP (Left)	None	16,00	5,26	16,00	5,21	0,237
	Low	7,22	3,15	6,00	8,00	
	Normal	7,40	4,14	6,00	12,00	
Sensory Latency (Left)	None	16,00	5,26	16,00	5,21	0,163
	Prolonged	6,80	3,26	5,50	10,00	
	Normal	7,89	4,08	6,00	12,00	
Sensory Speed (Left)	None	16,00	5,26	16,00	5,21	0,165
	Slowed	6,80	3,26	5,50	10,00	
	Normal	7,89	4,08	6,00	12,00	

*Significance levels according to Mann-Whitney U and Kruskal-Wallis test results
Std. Dev.: Standard Deviation; Range: Minimum-Maximum value (range)
PSQI: Pittsburg Sleep Quality Index
CMAP: Compound Muscle Action Potential
SNAP: Sensory Nerve Action Potential

paresthesia may also lead to deterioration in sleep quality secondary to pain and drowsiness at night in patients with ulnar neuropathy syndrome, whose entrapment neuropathy mechanisms are similar to CTS. There are studies in the literature that evaluate sleep and quality of life related to CTS, which is a more common upper extremity entrapment neuropathy (7-11,24).

In a study conducted by Patel et al., it was shown that 80% of the patients had a significant decrease in sleep quality (global PSQI score>5). They found a significant decrease in sleep quality and sleep duration with increasing CTS symptom severity and decreasing functional capacity (7). Aydin et al. found that the overall sleep quality of patients with carpal tunnel syndrome was significantly worse than the control group. When the components of the Pittsburgh score were evaluated in detail, they found that habitual sleep efficiency was significantly impaired in patients with carpal tunnel syndrome (25). Rubin et al. have shown that there is a relationship between sleep position and CTS symptoms and that poor sleep position increases the severity of CTS and causes insomnia (26).

In this study, which we planned considering the scarcity of studies examining sleep and quality of life in ulnar neuropathy entrapment syndrome, 20 cases who were evaluated in our electrophysiology laboratory and diagnosed with ulnar neuropathy were included. According to our evaluation, the mean PSQI score of patients with ulnar nerve entrapment in the wrist (8.00) was slightly higher (worse) than the mean PSQI score of patients with cubital tunnel entrapment (7.55). These two values were compatible with poor sleep results, according to PSQI scoring (6–10 points). Although it was not statistically significant, the PSQI score of patients with WUN was found to be higher (worse) than that of patients with EUN. Likewise, although it was not statistically significant, the DASH score of patients with WUN was found to be higher (worse) than patients with EUN.

The relatively small number of our patients (20 patients) may have affected the results in terms of statistical significance. The main limitation of our study may be the number of patients. However, the high calculated PSQI and DASH scores in both groups indicate that nocturnal paresthesia, pain symptoms, and basal sleep quality are impaired due to ulnar neuropathy.

Due to its anatomical structure, the ulnar nerve can be entrapped and damaged for many different reasons. The ulnar nerve is trapped at the elbow, where it is most vulnerable to environmental pressure and trauma. Entrapments at the Guyon channel level come second.

Sleep and dysfunction are known phenomena in compressive neuropathies such as carpal tunnel syndrome. We designed the study based on the assumption that ulnar neuropathy is in the class of entrapment neuropathies like CTS and that due to its mechanism, it causes nocturnal complaints and that night sleep quality and extremity functions in daily life may be impaired as a result of complaints of pain and numbness.

In our study, it was planned to determine the most common entrapment sites of ulnar neuropathy and evaluate the changes in DASH and PSQI scores according to the electrophysiological findings of entrapment neuropathy in the EMG examination performed due to entrapment. PSQI and DASH scores were found to be high at both levels of entrapment, consistent with poor sleep and decreased upper extremity function.

A more detailed analysis and a more meaningful and qualified analysis may be possible with larger numbers of patients. There are frequently studies of this type on CTS, one of the upper extremity entrapment neuropathies, in the literature, and due to the lack of such an evaluation in ulnar neuropathy, our study may shed light on future studies on ulnar neuropathy, even though it has a small patient group.

The severity of symptoms in Ulnar Entrapment Neuropathy Syndrome negatively affected both functional status and sleep quality. This negative effect on functional status was found to be more intense in Guyon compression of the ulnar nerve than in cubital compression; however, the difference in the negative effects on sleep quality was minimal. In the treatment of ulnar entrapment neuropathy, approaches to restore not only entrapment symptoms but also upper extremity function and sleep quality should be considered.

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