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Electrophysiological Study For The Ulnar Nerve Entrapment – Ulnar Nerve Syndrome

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Abstract

The current research aimed to investigate electrophysiological findings in the Ulnar Nerve Entrapment(UNE). Ulnar nerve entrapment is the second nerve entrapment after the median nerve compression in the(Carpal Tunnel Syndrome); this occurs at the wrist and at the elbow. The neurological finding could be either purely sensory or purely motor or both. Fifty patients were included in this study with ulnar nerve entrapment, who were diagnosed by history, clinical, physical, and neurological examination. Electrophysiological study including nerve conduction examination for ulnar nerves, motor and sensory (bilaterally) for the patients to study the sensory nerve action potential(SNAP), distal motor latency(DML), compound motor action potential(CMAP), distal sensory latency(DSL), and Nerve Conduction Velocities(NCV) were done in Ibn-Senna Teaching Hospital; Nineveh Handicap Rehabilitation center and private clinic; by using Neuropack EMG\EP measuring system–Nihoncodene(MEB-9400K)and(EMG-NT)Electromyography and Nerve Conduction Studies for Galileo NT Line(Nemus2). The investigation demonstrates that there is a highly significant difference in nerve conduction parameters(DL, CMAP, NCV) for the right and left ulnar nerves(motor and sensory) between patients and controls. A positive relationship between the severity of UNE and the duration of the disease. The right hand was affected more than the left hand. Age has no a positive relationship with the severity of the disease. Body mass index has positive relationship with the severity of the UNE, but it is not significant. It was concluded that the findings of the electrophysiological study show a strong role in the diagnosis of the UNE in our study; side by side with the clinical diagnosis.

Keywords: Ulnar nerve, Median nerve, Electrophysiology, Nerve conduction study.

Introduction

Ulnar nerve entrapment (UNE) - ulnar tunnel syndrome occurs when there is ulnar nerve compression. This can happen at both the elbow (Cubital Tunnel Syndrome) and the wrist (Guyon's canal syndrome)]1,2,3,4[. Ulnar nerve entrapment is a second nerve entrapment after the median nerve pressure in the carpal tunnel] 5,6,7,8[. The ulnar nerve arises from the brachial plexus's medial cord (C8-T1), passes through the axilla, enters the anterior compartment of the arm, pierces the intramuscular septum, and exits the posterior region. After that, proceed to the cubital fossa via the posterior medial epicondyle. Then it passes through the flexor carpi ulnaris and flexor digitorum profundus muscles. Before the Guyon's canal, it produces a dorsal cutaneous branch 8.4 cm proximal to the pisiform bone. Before the Guyon's canal, it produces a dorsal cutaneous branch 8.4 cm from the pisiform bone] 9[. The Guyon canal is 4 cm long and is divided into four sections by the following four boundaries: roof, palmaris brevis, hypothenar connective tissue, and palmar carpal ligament. Pisohamete ligament, transverse carpal ligament, flexor digitorum profundus tendons, pisometacarpal ligament, and opponens digiti minimi were all found on the floor. The abductor digiti minimi, pisiform, and flexor carpi ulnaris tendon were all part of the medial wall. Thus, the transverse carpal ligament, the hook of Hamete, and the flexor tendons were all part of the lateral wall]9,10[. Ulnar nerve entrapment(UNE) is conventionally a detailed diagnosis clinical, history, a medical examination, and studies on electrophysiology] 11[. Guyon’s canal syndrome measured an over -employment injury that is commonly caused by direct compression on a gripbar (i.e., bicycle handlebar, building equipment, and weight restorative). Therefore, it is sometimes referred to as “handlebar palsy”. It can also result from excessive transfixing, bendy or repeated wrist and hand movements. Entrapment may develop if the hand is bent and ulnar turned for prolonged periods of time. Transfixing, bendy or repeated wrist, and hand movements. Ulnar neuropathy encompasses two occupational syndromes: Hypothenar hammer syndrome is a condition that affects workers who use a hammer on a regular basis. Occupational neuritis is caused by repeated forceful pressure against a desk surface. The promotion of the appearance of cell phone elbow and game hand is a recent illustration of this]12,13,14[. The ulnar nerve is a sensorimotor nerve that supplies motor nerves to the intrinsic hand muscles, as well as the thenar and lumbrical muscles. The medial aspect of the forearm, wrist, fourth digit, and complete fifth digit are all supplied by sensory nerves] 15[. Depending on the location of the nerve compression, the clinical symptom and sign may be exclusively sensory, purely motor, or both] 1,16[. Pain, numbness, tingling, and weakness in the little and ring fingers of the hand are all symptoms of ulnar nerve entrapment. So, tingling in the fourth and fifth fingers, poor grasp strength, numbness, pain on the ulnar side of the forearm, wrist, hand, muscular atrophy, clawing of the fourth and fifth digits (the sign of benediction). The hand's specialized

innervation allows for symptom-based diagnosis of ulnar nerve impingement. All of these muscles can be paralyzed by ulnar nerve injury, resulting in an ulnar claw position of the hand at rest and frequent dropping of things from the hand]17[. ulnar compression is indicated by intrinsic hand muscle atrophy, notably of the first dorsal interosseus, weak abductor digiti minimi, and positive Froment signs: The patient was instructed to hold a piece of paper between the first and second digits, the assessor attempts to extract a piece of paper from the patient's grip, the Froment sign is positive if there is hyperflexion of the interphalangeal joint of the flexor pollicis longus, which is a compensating mechanism for the weakening adductor pollicis longu] 18[. The Wartenberg sign is used to assess ulnar nerve motor weakness. The patient was told to keep their fingers fully adducted, with full extension at the metacarpophalangeal joint, proximal interphalangeal, and distal interphalangeal joints, so that if the small finger drifted away from the others into abduction, it was considered a positive sign] 19 [. When it comes to diagnosing ulnar nerve entrapment, electrodiagnostic studies can be very helpful. Nerve Conduction Studies (NCS) are used to measure the latency, duration, and amplitude of large myelinated sensory and motor fibers. They should be performed in ideal conditions, such as room temperature. Nerve Conduction Velocity (NCV) is the speed of the fastest conducting motor axon, and it is influenced by demyelinating illnesses, amplitude, compound motor, and sensory action potentials (CMAP and SNAP): It is the voltage difference between baseline and maximal negative peak with depolarization, a reflection of depolarizing muscle fibers in healthy, non-diseased muscle fibers. Generally, the period between the stimulus and the initial compound motor and sensory deflection from baseline is known as distal latency (DL). So, the duration is the synchronous transmission of action potentials, it can provide a comprehensive assessment of motor fiber conduction, with a large number of fibers slowing conduction and affecting action potential duration. The time between an initial deflection from baseline and the first crossing is measured]20,21[.

Material And Methods

This study is a prospective clinical trial to assess the electrophysiological parameter (EPP) changes for the ulnar nerves (motor and sensory) entrapment (UNE) patients. Interestingly, fifty patients were included in this research 32-males (64%) and 18-females (36%), their mean age was (29.34 ± 8.4) arranged between (17 – 48 years), who suffered from ulnar nerve entrapment. The patients were diagnosed by detailed history taking (including age, sex, marital status, smoking, duration of the disease, type of work, personal habits, body mass index (BMI), Right or Left-handed, presence of previous trauma, surgical and medical history); full clinical, physical and neurological examination, x-ray for both

wrists were done for all the patients. Normal (BMI) was (18.5-24.9%), obese equal to (25-29.9%). Nerve conduction the study for ulnar and median nerves, bilaterally (motor and sensory) were done for all patients. Fifty healthy age group-matched volunteers, with consent (32 male and 18 female)with no symptoms or signs of ulnar nerve entrapment(UNE),were bilaterally studied; for the ulnar and median nerves, as a control group, the unaffected hand of the patients was used as a control. An electrophysiological study was done in Ibn- Senna Teaching Hospital; Nineveh Handicap Rehabilitation center and in a private clinic in Mosul city; through the duration 1\ June\2021 up to 1\ November\2021. Nerve conduction research for median plus the ulnar nerves, bilaterally, motor with sensory, are done for all patients and controls to research the distal motor and sensory latency(DML and DSL) in addition compound motor and sensory action potential (CMAP plus SNAP) and nerve conduction velocities (NCV) in agreement with the (American association of electrodiagnostic medicine(AANEM) recommendations]20[; by using Nihoncodene (MEB-9400K); and EMG_NT Electromyography & Nerve Conduction Studies for Galileo NT Line (Nemus-2). All of the experiments were carried out in a room with a skin temperature of at > 33°C. In addition to electrodes are positioned over the muscles innervated by the ulnar nerve (e.g., the abductor digiti minimi, quinti, or the first dorsal interosseous muscle, and the fifth digit tendon) to estimate ulnar neuropathy. To help to determine the implicated areas of entrapment or neuropathies, the ulnar nerve is stimulated at the elbow and wrist. Symptoms vary in severity from mild to moderate to severe] 21[. Patients reported a history of polyneuropathy, acute upper-extremity trauma, and past elbow trauma (prior surgery, swelling, fractures, vascular or bony pathologies/ abnormalities.), or brachial plexus injury; were excluded from our research. Clinical diagnosis includes the following tests, Froment's sign: the patient was asked to hold a piece of paper between his first and second digits while the examiner tried to pull it out of his hands; The test is positive if the flexor pollicis longus has hyperflexion at the interphalangeal joint, which is a compensating mechanism for the weakening adductor pollicis longus] 20[. So, the patient is instructed to hold their fingers full adduction and extension at the metacarpophalangeal joint, proximal interphalangeal joint, and distal interphalangeal joint; if the tiny finger slides away from the others into abduction, it is termed a positive Wartenberg sign]21[.

Statistical Analysis

The mean, standard deviation (SD) was calculated for the patients and controls in every parameter. The differences between the two means were calculated using the student (t) test. The findings were

analyzed using the ANOVA test and the Post Hoc (Duncan) test. The mean± SE (Standard Error) is used to describe errors. For all analyses, the significant statistical value remained fixed at ($P < 0.05$)]22[.

Results

Our study includes fifty patients; 32 (64%) male,18(36%) female; their age arranged between (17 – 48) years; mean age was (29.34 ± 8.465) who suffer from ulnar nerve entrapment. BMI between 18.5 and 24.9% is considered normal when were shown in 40 patients; 28(56%) males; 12 (24%) females; overweight (body mass index) (25 - 29.9%) were shown in 10 patients; 4(8%) male and 6(12%) female. Disease duration were ranged between (2- 11 month). Right hand was affected in 41(82%)patients; 28 (56%) males; 13 (26%) females. left hand were affected in 9(18%) patients; 4(8%) males; 5(10%) females refer to table (1).

TABLE 1: Disease duration, body mass index, sex, age, and right\ left-hand affection of the ulnar nerve entrapment patients.

Parameters			
Age (year)			
Range	(17 – 52)		
Mean	(29.34 ± 8.465)		
Sex			
Males	32 (64 %)		
Females	18 (36 %)		
Body mass index	**Males**	**Females**	**Total**
(Normal wt.) 18.5 - 24.9%	28(56%)	12(24 %)	40(80%)
(Over wt.) 25 - 29.9 %	4 (8%)	6(12%)	10(20%)
Disease duration (month)	(2 – 11)		
RightLefthand UNE.	**Patient no.(%)**	**Males**	**Females**
Rt. Hand	41 (82%)	28 (56%)	13 (26%)
Lt. Hand	9 (18%)	4 (8%)	5 (10%)

The mean normal error of the mean± SE *($P < 0.05$).

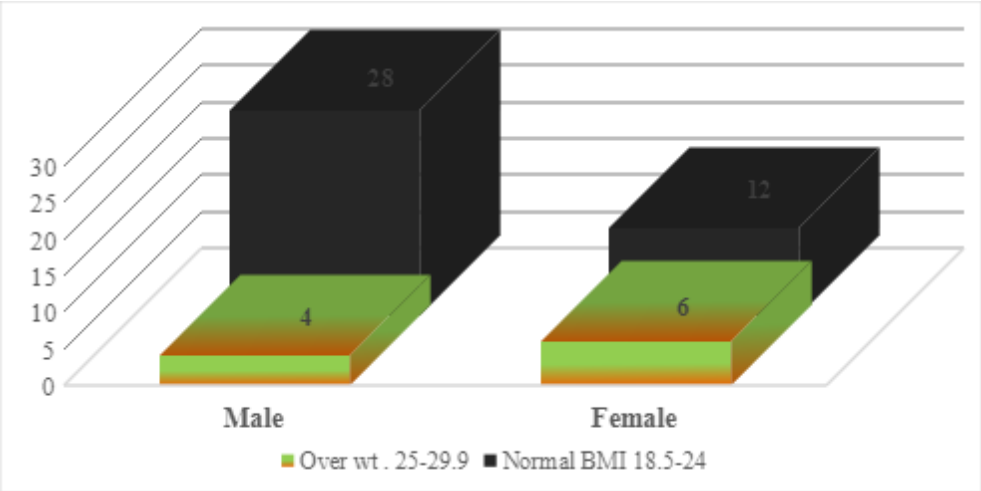

Fig. 1: Body Mass Index(BMI) for the patients

Generally, the 50 patients who were diagnosed clinically as ulnar nerve entrapments (UNE); show positive electrophysiological findings. Ten (20%) patients show severe ulnar nerve entrapment; 15(30%) patients show moderate ulnar nerve entrapment, and 25(50%) patients show mild ulnar nerve entrapment (motor and sensory) for the right ulnar nerves, as shown in table (2).

TABLE 2: Right Ulnar nerve entrapment (UNE), according to the severity (mild, moderate, severe) of the lesion for the patients.

Mild - UNE			Moderate – UNE			Severe - UNE		
Patients no. (%)	Sex		Patients no. (%)	Sex		Patients no. (%)	Sex	
	Males	Females		Males	Females		Males	Females
25 (50%)	15(30%)	10(20%)	15 (30%)	8(16%)	7(14%)	10(20%)	7(14%)	3 (6%)

The mean normal error of the mean± SE (Standard Error). *(P < 0.05).

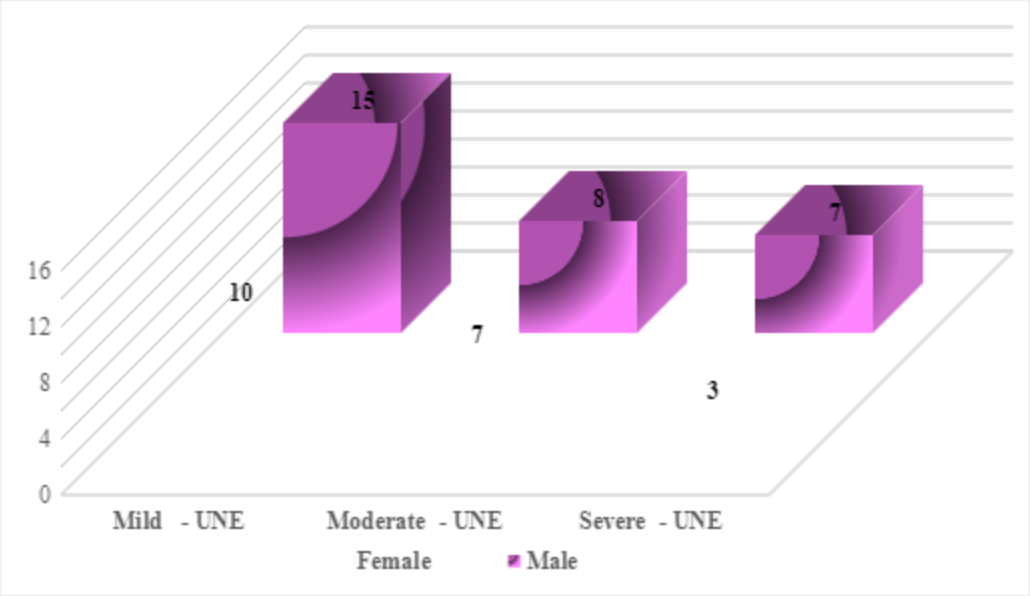

Fig. 2: The severity (mild, moderate, severe) of UNE for the patients.

The left ulnar nerve entrapment was shown in 9(18%) patients, 4(8%) male, 5(10%) female, have mild ulnar nerve entrapment. Moderate ulnar nerve entrapment was seen in 6 (12%) patients, 3(6%) male, 3(6%) female, no severe ulnar nerve entrapment in our patient, as shown in table (3).

TABLE 3: Left Ulnar nerve entrapment (UNE) according to the severity (mild, moderate, severe).

Mild - UNE			Moderate – UNE			Severe - UNE		
Patients no. (%)	Sex		Patients no. (%)	Sex		Patients no. (%)	Sex	
	Males	Females		Males	Females		Males	Females
9 (18%)	4 (8%)	5 (10%)	6 (12%)	3 (6%)	3 (6%)	0 (0.0 %)	0(0.0%)	0 (0.0%)

The mean normal error of the mean± SE (Standard Error). *($P < 0.05$).

Our study reveals Carpal Tunnel Syndrome(CTS) affecting the Median Nerve, shown in the right hand for 10 (20%) patients; for the same patient with ulnar nerve entrapmesnt; 7 (14%) patients show mild CTS,

2(4%) male, 5(10%) female. Three (6%) patients show moderate CTS; 2(4%) males; 1(2%) female; no severe CTS can be detected affecting our patients. Left-hand shows mild CTS in 3(6%) patients only.

There is a considerable difference between the patients and the controls in this study. Thus, the electrophysiological parameters (DL, CMAP, NCV) for the Rt. ulnar nerve (motor) entrapment, as shown in table (4).

TABLE 4: Right ulnar (motor) nerve parameters (DL, CMAP, NCV) for the patients and controls.

Parameter	Pt. no.= 50 (100%)	Control no.=50 (100%)	t-value	sig
	Mean ±SD	Mean ±SD		
DL (ms)	4.0720 ±0.81317	2.3060 ± 0.19630	14.928	0.000 **
CMAP (mv)	12.2600 ±3.141	24.9200 ±2.0187	-23.972	0.000 **
NCS(m\s)	38.9600 ± 7.439	66.3200 ±2.535	-24.615	0.000 **

The mean normal error of the mean± SE (Standard Error). *(P < 0.05).

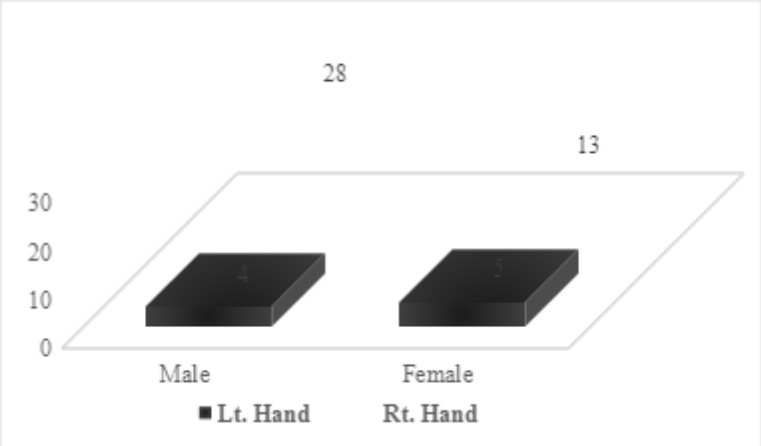

Fig. 3: The Rt. and Lt. hand affection in UNE.

There is a considerable difference between the patients and the controls in this study. Thus, the electrophysiological parameters (DL, CMAP, NCV) for the Lt. ulnar nerve (motor) entrapment; as shown in table (5).

TABLE 5: Left ulnar (motor) nerve parameters (DL, CMAP, NCV) for the patients and controls.

Parameter	Pt. no.=50 (100%)	Control no.=50(100%)	t-value	sig
	Mean ± SD	Mean ±SD		
DL (ms)	2.8520 ± 0.71235	2.4360 ± 0.26860	3.864	0.000 **
CMAP (mv)	22.2600 ±4.74583	23.1200 ± 2.18193	-2.164	0.000 **
NCS(m\s)	58.9400 ± 11.14361	65.3200 ±2.79533	-3.927	0.000 **

The mean normal error of the mean± SE (Standard Error). *P<0.05.

There is a considerable difference between the patients and the controls in this study. Thus, the electrophysiological parameters (DL, CMAP, NCV) for the Rt. ulnar nerve(sensory) entrapment; as shown in table (6).

TABLE 6: Right ulnar(sensory) nerve parameters (DL, CMAP, NCV) for the patients and controls.

Parameter	Pt. no.=50 (100%)	Control no.=50 (100%)	t-value	sig
	Mean ±SD	Mean ±SD		
DL (ms)	4.0340 ±.82428	2.2420 ± 0.13566	15.169	0.000 **
CMAP(µv)	15.2400 ±3.32314	27.9400 ± 2.95828	-20.184	0.000 **
NCS(m\s)	41.4600 ± 6.77092	64.700 ± 3.22142	-21.916	0.000 **

The mean normal error of the mean± SE (Standard Error). *P < 0.05.

There is a considerable difference between the patients and the controls in this study. Thus, the electrophysiological parameters (DL, CMAP, NCV) for the Lt. ulnar nerve (sensory) entrapment; as shown in table (7).

TABLE 7: Left ulnar(sensory)nerve parameters (DL, CMAP, NCV) for the patients and controls.

Parameter	Pat. no.= 50 (100%)	Ulnar nerve(sensory) Mean ±SD	Control no.=50 (100%)	Ulnar nerve(sensory) Mean ±SD	t-value	Sig.
DL (ms)		2.7400 ±0.76399		2.4100 ±0.33335	2.799	0.006 **
CMAP(µv)		23.980 ±.5.25858		22.700 ±1.84336	2.624	0.004 **
NCS(m\s)		60.8200±.12.01817		66.240 ±2.91765.	-3.099	0.003 **

The mean normal error of the mean± SE (Standard Error). *(P < 0.05).

The relation between the nerve conduction parameters (DL, CMAP, NCV), There is no significant difference in ulnar nerve entrapment for patients of different ages. Although there is a significant difference between the patients and the controls as shown in the table (8).

TABLE 8: Ulnar nerve (motor) parameters for the patients and controls according to age.

Age (year)	Pt.no= (%)	Parameters		Cont. no. (%)	Parameters	t-value	sig
15 – 25	12	**DL (ms) Mean ±SD**	4.0941a ±0.89685 A	12	2.2882 a ± 0.24719 C	7.432	0.00
		CMAP (mv)	11.9412 a ± 3.28768 B		25.8235 a ± 2.06867 A	-14.665	0.00

		Mean ±SD					
		NCS(m\s) Mean ±SD	38.8235 a ± 7.76398 C		66.6471a ±a 2.64436 A	- 13.797	0.00
26 – 35	15	**DL (ms) Mean ±SD**	4.1500 a ±0.57144 A	15	2.3417 a ± 0.17425 C	9.387	0.00
		CMAP (mv) Mean ±SD	12.0500 a ±3.3635 B		24.6250 ab±1.68916 A	- 16.432	0.000
		NCS(m\s) Mean ±SD	38.6500 a ±8.09337 C		66.1250 a ±2.72369 A	- 15.834	0.00
36 – 45	13	**DL (ms) Mean ±SD**	4.0364 a ±0.57144 A	13	2.2500 a ±0.13784 C	7.436	0.00
		CMAP (mv) Mean ±SD	12.6364 a ±2.73030 B		23.500 b ±2.42899 A	-8.127	0.00
		NCS(m\s) Mean ±SD	38.5455 a ±6.39318 C		66.333 a ±2.33809 A	- 10.155	0.00
> 45	10	**DL (ms) Mean ±SD**	3.300 a ± 0.14142 B	10	2.2333 a ±0.15275 C	7.838	0.004
		CMAP (mv) Mean ±SD	15.00 a ±1.41421 B		25.00 ab ±2.00 A	-6.00	0.009
		NCS(m\s) Mean ±SD	45.500 a ± 2.12132 B		66.00 a± 1.00 A	- 15.256	0.001

The mean normal error of the mean± SE (Standard Error). *($P < 0.05$).

The big letters are used to compare the patients themselves according to their age. The small letters are used to compare between the patients and controls according to their age. The t-value is used for the comparison between the patients and controls; according to the age.

The relation between the ulnar nerve parameters (DL, CMAP, NCV) for the patients according to their sex show no significant difference; as shown in table (9).

TABLE 9: Ulnar nerve parameters (DL, CMAP, NCV) for the patients according to their sex.

Male pt. no.=32 (64%)	Mean ±SD	**Female pt. no. = 18 (36 %)**	**Mean ±SD**	**t-value**	**sig**
Parameters		**Parameters**			
DL (ms)	3.1750 ±1.07748	**DL (ms)**	3.2139 ±1.05672	0.174	0.862 n.s
CMAP (mv)	18.6719 ± 6.98082	**CMAP (mv)**	18.444 ±6.80103	-0.158	0.875 n.s
NCS(m\s)	52.6562±14.78010	**NCS(m\s)**	52.6111 ± 15.0983	-0.15	0.988 n.s

The mean normal error of the mean± SE (Standard Error). *($P < 0.05$).

The relationship between the ulnar nerve parameters; according to the severity of the entrapment (mild, moderate, severe) and the duration of the disease for the patients; show a significant difference; as shown in table (10).

TABLE 10: Ulnar nerve entrapment parameters (DL, CMAP, NCV) for the patients based on the severity (mild, moderate, severe) as well as the disease's duration.

Severity	**pt.no. = 50 (100%)**	**Parameters**	**Mean±SD**	**p-value**	**Entrapment Duration (month)**	**Mean ±SD**	**P-Value**
Mild	25(50%)	**DL (ms)**	3.364 ± 0.147 c	0.00 **	2-5	3.65±0.48 c	**0.00 ****
		CMAP(mv)	14.92 ±0.954 a	0.00 **		13.82±1.99a	**0.00 ****
		NCS(m\s)	45.36 ± 1.91 a	0.00 **		42.78±4.917a	**0.00 ****

Moderate	15 (30%)	**DL (ms)**	4.380 ± 0.211 b		5-8	4.34±0.69 b	
		CMAP(mv)	11.200 ± 0.676 b			11.30±2.79 b	
		NCS(m\s)	36.0667 ±2.49 b			36.20±5.49 b	
Severe	10 (20%)	**DL (ms)**	4.072± 0.148 a		8-11	5.413±0.813 a	
		CMAP(mv)	7.260 ± 0.7889 c			7.25±0.707 c	
		NCS(m\s)	27.300 ±1.767 c			27.13±27.13 c	

Discussion

This study is a prospective clinical trial to assess the electrophysiological parameter (EPP) changes for the ulnar nerve (motor and sensory) entrapment patients. Ulnar Nerve Entrapment(UNE) - Ulnar Tunnel Syndrome(UTS), occurs when there is ulnar nerve compression; this occurs in two sites; at the wrist(Guyon's canal syndrome) and at the elbow(Cubital Tunnel Syndrome)]1,2,3,4[. Following median nerve compression in the carpal tunnel, ulnar nerve entrapment occurs] 5,6,7,8[. A complete history, clinical, physical examination, and electrodiagnostic(EDx) investigation of ulnar nerve entrapment (UNE) including nerve conduction studies (NCS) are used to identify]11[for more than 50 years most experts consider a combination of clinical and Electrophysiological study as a "gold standard" for the most common entrapment] 22,23,24[.

The study includes 50 patients; 32 (64%) males; 18(36%) females; this is not mimic the other study] 25[. Their age is ranged between (17-52 years); mean age is (29.34 ± 8.465). Disease duration for our patients is ranged between (2 – 11) months, and this is not mimic other studies [25[. Normal body mass index (BMI) for 40(80%) patients are (18.5 -24.9%), while the overweight (25 - 29.9%) are found in 10 (20%) patients.

Our study reveals that: The electrophysiological study for the right and left ulnar nerve (motor) parameters (DL, CMAP, NCV); for the patients and controls, shows the differences between them are

highly significant. The electrophysiological study for right and left ulnar nerve (sensory) parameters (DL, CMAP, NCV); for the patients and controls, show the differences between them are highly significant, this is mimic the other study[24[. Mild ulnar nerve entrapment (UNE) is seen in 25 (50%) patients; 16(32%) male and 9(18%) female. Moderate UNE are seen in 15(30%) patients; 9(18%) male and 6(12%) female. Severe UNE is seen in 10(20%) patients; 7 (14%) male and 3(6%) female; this is nearly similar to other studies women[24[.

The severity of the ulnar nerve entrapment parameters (DL, CMAP, NCV) for the male's and females' patients' comparison show no significant difference between them; and this is not mimic other studies which show that; the men are affected more severely than women]25[.

Patients with body mass index (BMI) are overweight; show ulnar nerve entrapment in 10 (20%) patients; 4(8%) male and 6(12%) female; mild UNE seen in 2(4%) patients; 1(2%) male and 1 (2%) female. Moderate UNE seen in 3(6%) patients; 1(25%) male and 2(4%) female. Severe UNE seen in 5(10%) patients; 2(4%) male and 3(6%) female. But the difference between them is not significant.

Right median nerve entrapments; carpal tunnel syndromes (CTS) are seen in 10(20%) patients; 4(8%) male, 6(12%) female. Mild CTS seen in 7(14%) patients; 2(4%) male and 5(10%) female. Moderate CTS seen in 3(6%) patients; 2(4%) male and 1(2%) female. No severe CTS can be detected in our patients. Mild left (median nerve entrapments and carpal tunnel syndrome) (CTS) is seen in 3(6%) patients; 2(4%) males (one of them his BMI is overweight), 1(2%) female (whose BMI is overweight). Neither moderate nor severe CTS can be detected in our patients.

Right hand affected in 41(82%) patients; 28(56%) males; and 13(26%) females. While the left hand affected in 9(18%) patients; 4 (8%) males; and 5(10%) females; as shown in figure (3); and this is not mimic that found in other studies in which the left hand affected more than the right hand]25,26[. This is maybe due to that; the right hand is the dominant hand in most of our patients.

There is a positive relationship between the duration of the UNE (which is ranged between 2-11 months) and the severity (mild, moderate, severe) of the UNE. Mild UNE was seen in 25 (50 %) patients; whose disease duration is (2-5) months. Moderate UNE was seen in 15(30%) patients; whose disease duration is (5-8) months. Severe UNE was seen in 10(20 %) patients; whose disease duration is (8-11) months. That means the chronicity of the disease has a positive relationship with the severity of the entrapment,

and that difference is highly significant; this is agree with the other study [24[. Ulnar nerve entrapments in our study are more common among men than women, and this is mimic the other studies]27,28[.

Conclusions

The electrophysiological study is essential in our study for the UNE diagnosis; males are more commonly affected in UNE than females; the right hand is more commonly affected than the left hand; the duration of the UNE has a positive relation regarding the severity of the entrapment. No significant role for the BMI with the severity of UNE.

Recommendation

In the diagnosis of ulnar neuropathy, localization of ulnar nerve dysfunction, determining the severity, and following up on the prognosis of the entrapment, a combination of physical examination and electrophysiological investigations, particularly nerve conduction studies (NCSs), are crucial tools]29,30,31[. Although the use of ultrasonography and MRI has grown in popularity as diagnostic tools, electrophysiological tests remain the basis for diagnosis]32,33,34[.

Acknowledgment

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Conflict of Interest

This study was approved by the scientific committee at the Alnoor- University college. After a thorough explanation of the trial, all patients signed a formal consent form.

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دراسة كهربائية فسلجه الاعصاب لانضغاط العصب الزندي- متلازمة العصب الزندي

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الخلاصة:

كان الهدف من الدراسة الحالية هو التحقيق في النتائج الفيزيولوجية الكهربائية في انحباس العصب الزندي (UNE). انحباس العصب الزندي هو ثاني انحباس للعصب بعد ضغط العصب الوسطي في النفق الرسغي .يحدث هذا عند الرسغ وعند المرفق .يمكن أن تكون الاعراض العصبية إما حسيه بحته أو حركيّه بحتّه أو كليهما .تم تضمين خمسين مريضا في هذه الدراسة مصابون بانحباس العصب الزندي ، والذين تم تشخيصهم عن طريق الفحص تاريخ المرض والفحص السريري والجسدي والعصبي .فحص التوصيل العصبي للأعصاب الزندية والحركية

، (DSL) والكمون الحسي البعيد ، (DML) والحسية)ثنائياً (للمرضى لدراسة الكمون الحركي البعيد و سرعات التوصيل ، (SNAP) وإمكانات عمل العصب الحسي ، (CMAP) وإمكانات الحركة المركبة ؛ تم إجراؤها في مستشفى ابن سينا التعليمي ، مركز نينوى لتأهيل المعاقين , (CNV) العصبي والعيادة الخاصة ،باستخدام الاجهزة ادناه:

تكشف الدراسة أن هنالك اختلاف كبير بين المرضى والاصحاء فيما يتعلق بمعلمات التوصيل للعصب الزندي الأيمن والأيسر)الحركي والحسي.(ووجود علاقة (DL ، CMAP ، NCV) العصبي إيجابية بين شدة انحباس العصب الزندي ومدة المرض .تأثرت اليد اليمنى أكثر من اليد اليسرى .لا ، UNE توجد علاقة إيجابية بين العمر وشدة المرض .مؤشر كتلة الجسم له علاقة إيجابية مع شدة في UNE لكنه ليس فرقا معنويا .نتائج دراسة الفيزيولوجيا الكهربائية تظهر دورًا فعالا في تشخيص دراستنا ؛ جنبًا إلى جنب مع التشخيص السريري.