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Research Article

**AWARENESS OF CARPAL TUNNEL SYNDROME AMONG
ADULT POPULATION OF ALMAJMAAH CITY,
SAUDI ARABIA (2018-2019)**

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Abstract:

Background: Due to the lack of data and studies concerning about measurement of population awareness about carpal tunnel syndrome in almjmaah city, this study aims at determining the level of population awareness among almjmaah adult population in Saudi Arabia and measure the prevalence of CTS in almjmaah city.

Aims: To study the awareness of carpal tunnel syndrome (CTS) among adult population in Almjmaah city, Saudi Arabia, and to estimate the overall prevalence of CTS. In addition, to look for the relationship between CTS and chronic disease. Also, to determine its effect on social life. **Results:** The present study has a huge sample size survey gained a rich information through a structured questionnaire by researchers, follow-up duration of mean of year (2018). 54 of participants (14.0%) have carpal Tunnel Syndrome. One third of them are thought that the main symptom is Pain in wrist. on the other hand, one quarter think that Tingling and numbness in fingers is the main manifestation. The most causes that population think that's it leads to the Carpal tunnel syndrome are Trauma, repeated hand physical activities like using computer and taping, and wrist fracture or dislocation respectively. Also, there is relationship between patients had chronic diseases and carpal Tunnel Syndrome [sig =0.000]. **Methods:** 386 respondents of Almajmaah were participated (42.4% are male and 57.6% female, nearly half are youth aged range between (18-39)). The intervention includes measurement of understanding the clinical features could happen, causes, prevention and management of CTS and the relationship between Carpal tunnel syndrome and chronic diseases. A standardized questionnaire was used to cover 11 different aspects concerning CTS. SPSS package was used to analyze the data collected from the sample. **Conclusions:** The study shows that the awareness of community was sufficient among adult population and shows that the prevalence of carpal Tunnel Syndrome (CTS) is 14% it is nearly equal the international population prevalence. Also, the study shows there is a strong relationship between CTS and chronic disease. In addition, that population think that the CTS can affect the quality of life

Keywords: CTS, clinical feature, prevalence, management, risk factors

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INTRODUCTION:

(CTS) is entrapment of median nerve during passing the wrist within carpal bone (1). The median nerve passes, with nine extrinsic digital flexors, through the tunnel bound by the carpal bones and transverse ligament, which is attached to the scaphoid, trapezoid, and hamate. Anatomically the carpal tunnel narrows in cross section at 2.0 to 2.5 cm distal to the entrance (2). An abnormally high intracarpal tunnel pressure also peaks at this level in patients with carpal tunnel syndrome (3).

Carpal tunnel syndrome (CTS) is the most common entrapment mononeuropathy. Symptoms of CTS include paresthesias (numbness, tingling, and burning) involving the median nerve distribution (first 3 digits and median half of 4th finger) along with a deep aching pain in the hand and wrist (4). These symptoms are intermittent and typically worse at night where the patient is awakened from sleep and relieves the discomfort by vigorously shaking the hand (Flick sign). The diagnosis and Physical examination findings in CTS is vary according to the severity. Hypoesthesia involve the first three digits and the radial half of the fourth digit and wasting of thenar muscles may be seen in severe cases of CTS.

The prevalence of disease is differ from each population to other. in the Netherlands is 0.6% for men and 5.8% for women (5). A more recent study has concluded that approximately 2.7% of the population has both clinically and electrophysiologically documented carpal tunnel syndrome (6). Women are considerably more prone to this disorder in a ratio of 3:1 to about 10:1(4). CTS are bilateral in up to 87% of patients clinically and approximate 50% through neurophysiologic testing (7). Certain conditions, such as diabetes mellitus, amyloidosis, hypothyroidism, and rheumatoid arthritis, can predispose to CTS (5). Obesity and pregnancy are also risk factors for CTS (8). Electrodiagnostic studies are an important electrophysiologic extension of the history and physical in diagnosing CTS with high degree of sensitivity and specificity. Nerve conduction studies and EMG can determine the presence and the severity of median neuropathy at the wrist (4). Carpal tunnel decompression also benefits patients with advanced thenar atrophy and sensory deficits (9), and those with underlying peripheral neuropathy (10).

MATERIALS AND METHODS:**Study design, and end points**

Survey used a structured questionnaire created for a study objectives awareness of carpal tunnel syndrome

among adult population at Almjma'ah City including the prevalence of CTS, the understanding of clinical features, etiology, management, and prevention and its effect in social life.

Study Planned duration: the timetable of study has been created to collect data from sample population in a period not rather than 6 months from May to Oct. 2018.

Inclusion Criteria:

1. Age >18.
2. Both gender.
3. Saudi population

Exclusion Criteria:

1. Age <18.
2. Non-Saudi population

End Point and Outcomes

1. Primary end point awareness of carpal tunnel syndrome among adult population.
2. Secondary outcomes were population understanding of clinical features, causes, prevention and management of CTS and its relationship with chronic disease. Also, its prevalence among adult Saudi people in almjmaah city.

Measurement

- A structured questionnaire has been designed to measure the following variables:
- the prevalence of carpal tunnel syndrome among Saudi population in almjmaah city.
- Understanding of clinical features, causes, prevention and management options in percentages (%).
- Fixed and measure the relationship between CTS and chronic disease

Analysis:

All the demographic and 11 variables of a structured questionnaire to gather information of 386 participants should be entered to Statistical Software and processing with SPSS Program. Variables are Gender, Age, Marital status. prevalence of carpal Tunnel Syndrome, clinical features, causes, prevention and management of disease will have analyzed through percentages and other statistical commands. Also, chi square test will have done to fixed the CTS and chronic disease relationship.

RESULTS:

There are 386 participants volunteered in CTS study from almjmaah population. The prevalence of CTS is 14% of the participants reported that they had CTS which equal 54 person while 86% they have not which equal 332 illustrated on (figure 1).

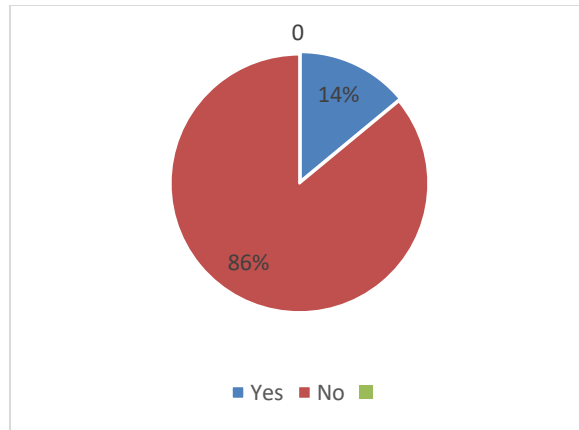


Figure (1): percentage of sample who suffer from CTS

Demographic variables:

The Females are more than Males (57.6% to 42.4%) in the study. While Youth are more participating involve study (43.1%), category (40-60) represent 40.7%, and a few participants from overage (16.2%). And nearly over two third of participants are married. Illustrated In (Table 1)

Table 1: Socio-demographic Data gender, age, and marital status.

		frequency	Percent
Gender	Male	164	42.4
	Female	222	57.6
Age	18-39	166	43.1
	40-60	157	40.7
	>60	63	16.2
Marital Status	Married	268	69.5
	Single	118	30.5
Total		386	100.0

About one third (30.1%) of the sample are think that clinical features can happen with carpal Tunnel Syndrome is " Pain in wrist ", and 26.8% of the sample are think that clinical features can happen with carpal Tunnel Syndrome is " Tingling and numbness in thumb, index and middle finger ", and 8.4% of the sample are thought that the symptom can happen with carpal Tunnel Syndrome is " Weakness affecting the thumb muscle ", and 11.6% of the sample think that the manifestation is " Decreased overall hand grip ", and 12.7% of the sample are think that clinical features can happen with carpal Tunnel Syndrome is " Muscle wasting in the hand ", and 10.3% of the sample are thought that clinical features can happen with carpal Tunnel Syndrome is " Changing of pain intensity while moving the wrist". . Illustrated In (Table 2)

Exactly one third (33.8%) of the sample are think that the causes lead to carpal Tunnel Syndrome is

"Trauma ", while 29.1% of the sample are think that " Repeated physical activities like using computer and taping", is the cause. Also, 21.4% of the sample think that the causes lead to carpal Tunnel Syndrome is " wrist fracture or dislocation", and 9.5% of the sample thought that the leading cause of carpal Tunnel Syndrome is " Arthritis ", and 6.2% of the sample think that the causes lead to carpal Tunnel Syndrome is " Tumor of bone ". table and chart below shown that. Illustrated In (Table 3).

29.7% of participants reported that they thought that oral analgesics is a method of treat CTS, 23.8% thought it could be treat by splint & Surgical intervention, 13.4% thought that the treatment is by NSAID, and only 9.3% of participants were thought CTS could be treat by Steroid Injection. the results are shown in the following graphs, and. Illustrated In (figure 2).

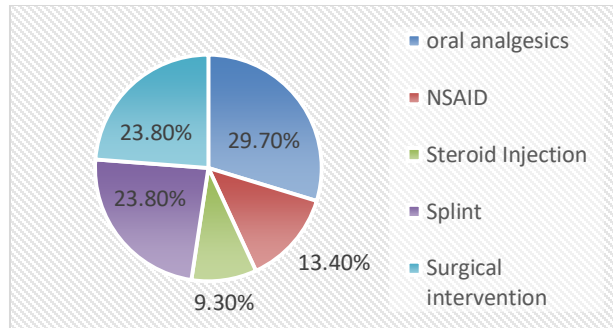


Figure 2: frequency and percent of population awareness of treatment of CTS

The table showed that 25.6% from the sample used to Prevent Carpal Tunnel Syndrome " Avoid repetitive movement ", and 15.2% from the sample used to Prevent Carpal Tunnel Syndrome "Keep your wrist straight while at rest.", and 25.2% from the sample used to Prevent Carpal Tunnel Syndrome " Wear

splint while sleeping. ", and 25.3% from the sample used to Prevent Carpal Tunnel Syndrome are "Avoid Fall or direct impact", and 8.7% from the sample used to Prevent carpal Tunnel Syndrome are "Stay warm".. Illustrated in (Table 4)

Table 2: frequency and percent for population knowledge about clinical features of carpal Tunnel Syndrome

	frequency	percent
Pain in wrist.	239	30.1%
Tingling and numbness in thumb, index and middle finger.	213	26.8%
Weakness affecting the thumb muscle.	67	8.4%
Decreased overall hand grip	92	11.6%
Muscle wasting in the hand	101	12.7%
Changing of pain intensity while moving the wrist.	82	10.3%
Total	794	100.0%

Table 3: Awareness of causes lead to CTS

	frequency	percent
Trauma	196	33.8%
Repeated physical activities like using computer and taping.	169	29.1%
wrist fracture or dislocation.	124	21.4%
Arthritis	55	9.5%
Tumor of bone	36	6.2%
Total	580	100.0%

Table 4: frequency and percent for population awareness of prevention of CTS

	frequency	Percent
Avoid repetitive movement	170	25.6%
Keep your wrist straight while at rest.	101	15.2%
Wear splint while sleeping.	167	25.2%
Avoid Fall or direct impact.	168	25.3%
Stay warm.	58	8.7%
Total	664	100.0%

29.5% of the participant had chronic diseases which equal to 114 persons More than half (57.7%) of the affected had "Diabetes Mellitus ", and 32.5% of the affected had "Hypothyroidism ", and 9.6% of the affected had "Rheumatoid Arthritis ", and there is no any " Amyloidosis " illustrated in (table 5) and (figure 3).

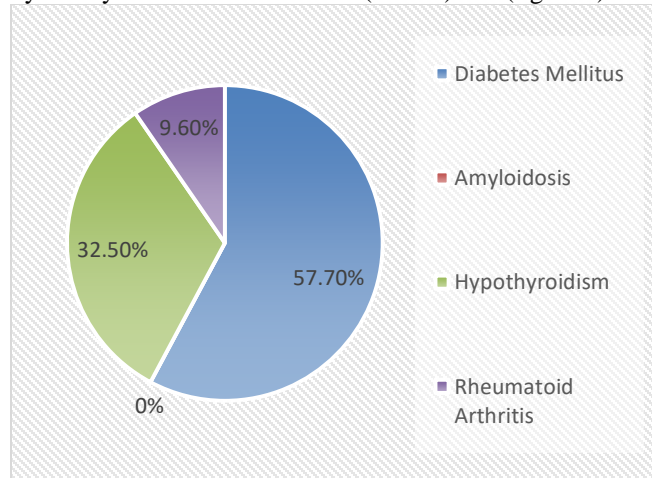


Figure 3: frequency and percent of chronic disease

Table 5: shows the relation between chronic disease and CTS

Chronic diseases present		CTS present	
		Yes	No
Yes	N	34	80
	%	28.8	67.8
No	N	6	217
	%	2.6	95.6

79.01% of participants people thought that CTS could affect patient sleep, 84.97% of them thought could affect patient job performance, and 70.4% they thought affected social life. Following table and chart shown that illustrated in (table 6)

Table 6: frequency and percent of population awareness of CTS effect.

		frequency	Percent
Thinking of CTS affect patient sleep	Yes	305	79.01
	No	81	20.99
Thinking of CTS affect patient job performance	Yes	328	84.97
	No	58	15.03
Thinking of CTS affected social life	Yes	272	70.4
	No	114	29.6
Total		386	100.0

DISCUSSION:

There are number of studies discussed the awareness of Carpel Tunnel Syndrome among different types of populations. In this study, the population awareness of CTS is sufficient which is reflected by their knowledge about the disease. In details, their knowledge about clinical features of CTS is 30.1% of them said that pain in the wrist is one of manifestation and 26.8% know that the tingling and numbness in

finger is one of symptom. In addition, their knowledge about causes is 33.8%, 29,1% and 21,4% said that Trauma, repetitive hand activity and wrist fracture or dislocation is the cause respectively. In addition, their knowledge about treatment is 29.7% people reported that oral analgesics is a method of treat and 23.8% of population said it could be treat by splint & Surgical intervention.

In this study, the adult population has good awareness which is different than study done in India which reflect that Nearly 72% of the population were unaware about Carpal Tunnel Syndrome, and the people were then asked whether they knew that the previously mentioned symptoms were actually symptoms of CTS, and nearly 76.5% of the people were unaware about the symptoms being those of CTS. People were also asked if they were affected by CTS, and nearly 85 people out of the 102 people answered that they suffer from CTS, most people answered on the basis of experiencing the causative symptoms while a few (7 people) agreed to being affected and to be undergoing medication for the same. It was then asked what method of medication people take and most people opted for methods without drugs (e.g.: rotating of wrists).

In this study, the prevalence of the CTS is slightly high which is 14% of people in almjmaah city suffer from CTS. There is significant relationship between CTS and the chronic disease especially diabetes mellitus and hypothyroidism

Carpel Tunnel Syndrome cause a strong impacting on social life for 79.01% of participants people thought that CTS could affect patient sleep, 84.97% of them thought could affect patient job performance, and 70.4% they thought affected social life.

CONCLUSION:

The aim of the study was to study the awareness of carpal tunnel syndrome (CTS) among adult population in Almjmaah city, Saudi Arabia, and to estimate the overall prevalence of CTS. The results show that the awareness of community population was sufficient among population and show that the prevalence of carpal Tunnel Syndrome (CTS) is 14% it is nearly equal the international population prevalence. Also, the study shows there is a strong relationship between CTS and chronic disease. In addition, that population think the CTS can affect the quality of life.

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