CLINICAL PROFILE OF PATIENTS WITH CARPAL TUNNEL SYNDROME

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ABSTRACT:

Objective: To evaluate the clinical profile and demography of carpal tunnel syndrome

Material and Methods: This descriptive (cross sectional) study was done for 250 patients in the Neurosurgery department, Naseer Teaching Hospital, Peshawar from 1st January 2015 to 31st December 2016. Patients were reviewed for epidemiological data including age, gender, symptomatic side, dominance and neurophysiological grades. Data was analyzed by using SPSS version 20.

Results: A total of 250 patients (210 female and 40 male) were included in study. Mean age was 48.5year.female to male ratio was 5.2:1. CTS was most commonly seen in the age group of 46-60years. Bilateraliy was seen in 137(55%). Mild form of CTS was the most common 126(50.4) followed by moderate 120(48%) severe and very severe in minimum number of patients. Paraesthesia 250(100%) ,weakness in thenar eminence 230(92%),nocturnal pain 225 (90%), pain after physical activity 212(85%) are the most frequent symptoms observed.co morbidities were found in form of Diabetes and hypothyroidism.

Conclusion: The demographic pattern of CTS in our study was very close to the pattern seen in other studies. Sensory losses, dominant hand involvement and female predominance is more common.

Key words: carpal tunnel syndrome, demography, entrapment neuropathy

INTRODUCTION:

The commonest form of median nerve entrapment is Carpel Tunnel Syndrome [1-6] and attributes to 90% of all entrapment neuropathies [7].It was first described by Paget in 1854 [8], and is defined as a mononeuropathy due to a compressive force distorting the carpel tunnel [9], in 3.8% of the population [10].Annual incidence of this disorder is 276:100,000 [11] ,with a prevalence of 9.2% in females and 6% in males [12] being most prevalent in age group of 40 to 60 years [13].Factors leading to its causation are congenital predisposition, weight lifting, trauma, fluid accumulation and presence of any mass in the tunnel [14,15].

The troublesome features are due to pressure on the median nerve within the carpel tunnel, created its three sides by the carpel bones and on the volar surface by the deep transverse carpal ligaments [16].Classical signs and symptoms of CTS include painful hand, tingling sensation, absent sensation in the distribution of the median nerve(lateral side of the ring finger,index,thumb and middle finger) [17], weakness of the thenar eminence and reduced functional capacity of the hand [18].Patients are more distressed at night, and complain of clumsiness during wrist flexion [19].Patients frequently complain of the 'flick sign' in which shaking their wrists alleviates their problem [20].Others are Tinnel sign, caused by tapping to the regions of carpel tunnel and flexor retinaculum, and in Phanel test, there will be paraesthesia in the involved nerve innervating area after flexing the wrist for 30-120 seconds [21].

The nerve conduction studies is certainly a diagnostic tool for CTS [22,23]. The treatment for CTS is either surgical or medical. Surgical treatment is reserved for those with more distressing symptoms, while medical treatments are recommended for those who have mild symptoms or in whom the contraindications limit surgery [24].Examples of conservative treatment include oral and injectable steroids, physical therapy, electrotherapy, night splinting and workplace alteration. [25].

Our study aims to evaluate the clinical profile and demography of CTS patients attending a tertiary care hospital. It emphasizes the health care providers at Governmental and non Governmental level to plan preventive initiatives and strategies in the light of past and latest scientific research findings and updates.

MATERIALS AND METHODS:

This descriptive (cross sectional) study was done at Neurosurgery Department of Naseer Teaching Hospital, Peshawar from 1st January 2015 to 31st December 2016.Sample size was 250 and sampling technique was consecutive (non probability) sampling. Approval was obtained from hospital ethical committee. Inclusion criteria were patients with one or more clinical feature of compression of median nerve at carpel tunnel. Exclusion criteria was patients who have underwent any type of intervention to the median nerve and those with known neurological disorder.

Patients were reviewed for epidemiological data including age, gender, symptomatic side, dominance, four neurophysiological grades in order of severity i.e mild, moderate, severe and very severe (described below). The patients were divided into four different age groups 15-30years, 31-45 years, 46-60years and greater than 60 years. Neurophysiological grades were defined as (a) Mild CTS: prolonged distal sensory peak latency with sensory amplitude reduce. (b) Moderate CTS: abnormal median sensory peak latencies with prolongation of the distal motor latency. (c) Severe CTS: prolonged motor and sensory distal peak latency with absent sensory nerve action potential. (d) Very severe CTS: absent thenar motor or sensory response either with a present or absent lumbrical response.

Data was analyzed by using SPSS 20.0 and descriptive analysis was done. Categorical data was analyzed in form of percentages and presented in form of tables.

RESULTS:

A total of 250 patients were taken into account, comprising of 210 females and 40 males. For females the mean age was 48.5 years and 50.5 years was seen in males, The ratio of female to male was 5.2:1 and this disorder was most commonly seen in the age group 46 – 60 years. Bilaterally of this disorder was seen in 137(55%) subjects. (Table No .I)

Mild form of CTS was the most commonest form noticed in 126(50.4%) of subjects, followed by moderate form. Severe and very severe forms were seen in small minority (Table No.II).Bilateral CTS pattern was observed most frequently in females predominating in192(86.48%) female subjects.(Table No. III)

Paraesthesia was the most common symptom, present in 100% cases followed by, weakness at thenar eminances in 230(92%), nocturnal pain 225(90%) and daytime pain in 212(85%). Radiation of pain to the upper limb was seen in 175(70%) of patients.162(65%)of cases complained of sleep disturbances due to the symptoms. Most of patients had $\geq$ three symptoms of CTS as seen in 232(93%) patients.(Table no. IV)

Co morbidities were found in form of diabetes which the most frequent disorder was found in 80 (32%) cases, followed by hypothyroidism which was observed in 35 (12%) cases while 3 (1.2%) patients were pregnant.

TABLE NO.I: DEMOGRAPHICAL DATA (n=250)

Gender	**Frequency**	**percentage**
Female	210	84%
Male	40	16%
Total	250	100%
Age Group in years		
15-30years	10	4%
31-45years	85	34%
46-60years	93	37.2%
>60years	62	24.8%
Total	250	100%
Laterality		
Bilateral	137	55%
Unilateral	113	45%
Left	34	30%
Right	79	70%

TABLE NO. II: CTS CATEGORIZATION (n=250)

Category	Frequency	Percentage
Mild	126	50.4%
Moderate	120	48%
Severe	1	0.4%
Very severe	3	1.2%
Total	250	100%

TABLE NO. III : CTS PATTERN AMONG GENDER (n=250)

	Unilateral	**Bilateral**
Female	18(64.28%)	192(86.48%)
Male	10(35.7%)	30(13.5%)
Total	28(100%)	222(100%)

TABLE NO. IV : FREQUENCY OF SIGNS AND SYMPTOMS

Clinical Feature	Frequency	Percentage
Paraesthesia	250	100%
Weakness in thenar eminence	230	92%
Nocturnal Pain	225	90%
Pain after physical activity	212	85%
Radiation of pain to Upper limb	175	70%
Sleeping disorder secondary to symptoms	162	65%

** Single patient can have more than one clinical feature.

DISCUSSION:

Carpel tunnel syndrome is the commonest form of mononeuropathy [26] diagnosed purely by its clinical features and nerve conduction studies [27].According to a study conducted at London, 1:1000 people are diagnosed each year with CTS [28].

In our study, CTS is very much common in women with a ratio of 5.2:1 which is close to that of studies by other authors where this ratio was observed to be 5.6:1, 5.4:1,5:1 and 4.9:1 [29,30,16,32].Mean age of CTS patients according to our study was 48.5 years in females and 50.5 years in males with peak incidence in the age group of 46-60 years. Malibary HM et al in their study conducted at Jeddah, Saudi Arabia recruited 336 subjects and observed the mean age for women was 52.4 years and 48.5 years in men [32].Likewise Abumunaser et al in their study concluded the mean age in females to be 45.5 years and 48.5 years in males [33] which is much closer to our results.

Regarding the laterality, Malibary HM et al in 2013 observed that 90.5% of their patients had CTS on both sides, this figure is observed to be 88.8% in our study.Similarly,11.2% of our cases had unilateral CTS whereas it was reported as 9.5% in the same study [32].

Paraesthesias was the most prevalent symptom, as it was observed in all of our cases, followed by weakness in thenar eminence which was seen in 92% of our subjects. These figures were observed as almost same with paraesthesias in all and weakness in same number of subjects by Azevedo JWV et al [21].Likewise sleeping disorder was observed in 60% of their subjects and seen in 65% of our subjects.

Although our study was mainly confined to the clinical profile and demographic features of CTS, its importance lies in the context of comparing the consistency of our findings with those of studies conducted by other authors ,to build a strong evidence of epidemiological and clinical profile of this disease.

CONCLUSION:

In conclusion, the demographic feature of CTS in our study was almost similar to the pattern seen in studies conducted by other authors. Sensory symptoms and dominant hand was more common. The common age group was 46-60 years with female population more prevalent. Further studies and trials are needed to find out more risk factors and associated morbidities in both genders.

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