CLINICAL PROFILE OF PATIENTS WITH CARPEL TUNNEL SYNDROME

by Sohail Amir

FILE	17431-67689-1-RV.DOCX (32.42K)		
TIME SUBMITTED	06-FEB-2017 05:12PM	WORD COUNT	2354
SUBMISSION ID	767144220	CHARACTER COUNT	13212

CLINICAL PROFILE OF PATIENTS WITH CARPAL TUNNEL SYNDROME

DEPARTMENT OF NEUROSURGERY
NASEER TEACHING HOSPITAL PESHAWAR

PRINCIPAL AUTHOR

Dr. SOHAIL AMIR

Assistant professor Neurosurgery
Naseer Teaching Hospital Peshawar
Cell: 03325723653, 03219181303
Email id: dr.sohailamir@gmail.com

CO-AUTHOR

Dr. Maimoona Qadir

Registrar Gynae B unit
Khyber Teaching Hospital Peshawar.
Cell: 03469196731
Email id: dr.maimoona1983@gmail.com

Dr. Muhammad Usman

District specialist
Department of Neurosurgery
Naseer ullah Babar Memorial Hospital, Peshawar.
Cell: 03334788921
Email id: usman786@yahoo.com

CLINICAL PROFILE OF PATIENTS WITH CARPEL TUNNEL SYNDROME

ABSTRACT:

Objective: To review the clinical characteristics and demography of carpal tunnel syndrome

Material and Methods: A descriptive (cross sectional) study was done for 250 patients in the department of Neurosurgery 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 almost similar to the pattern seen in studies conducted at other places. Sensory symptoms and dominant hand involvement is more common with female dominancy.

Key words: carpal tunnel syndrome, demography, entrapment neuropathy

INTRODUCTION:

Carpel tunnel syndrome is the most well known form of median nerve entrapment [1-6] and accounts for 90% of all entrapment neuropathies [7].It was first described by Paget in 1854 [8], and is defined as a mononeuropathy or radiculopathy caused by mechanical distortion produced by compressive force [9].It was believed to be present in 3.8% of the general population [10].Incidence rates of up to 276:100,000 annually has been reported [11] ,with a prevalence rate up to 9.2% in women and 6% in men [12].More common in females than in males, its occurrence is commonly bilaterally with a peak age range of 40 to 60 years [13].Congenital predisposition is the commonest cause of CTS in which carpel tunnel is simply narrower in some people than in others especially middle aged people. Other factors which contribute in its causation are stressful work, injury, fluid retention and the development of any space occupying lesions in the tunnel [14,15].

The symptoms and signs are caused by compression of the median nerve along the carpel tunnel, which is formed on the distal, medial and lateral sides by the carpel bones and on the volar surface by the deep transverse carpal ligaments [16].Primary features of CTS include pain in the hand, unpleasant tingling, pain or numbness in the distal distribution of the median nerve(thumb, index, middle finger and the radial side of the ring finger) [17], and the reduction of the grip strength and function of the affected hand [18].Symptoms tend to be worse at night, and clumsiness is reported during the day with activities requiring wrist flexion [19].Patients often describe a phenomenon termed the 'flick sign' which shaking or flicking their wrists relieves symptoms [20].Others are Tinnel sign triggered by digital percussion to the level of carpel tunnel and flexor retinaculum, and Phanel test, there will be paraesthesia in the region innervated by the median nerve after wrist flexion for 30-120 seconds [21].

The nerve conduction studies is a definite diagnostic test for CTS [22,23].The treatment for CTS is either surgical or conservative. Surgical treatment is generally recommended for those with severe CTS, while conservative treatments are recommended for the initial management of those who have intermittent symptoms or in whom surgery is contraindicated [24].Examples of conservative treatment include oral steroids ,steroid injection, physical therapy, electrotherapy, night splinting and workplace alteration. [25].

The aim of this study is to review the clinical characteristics and demography of CTS cases presented to a tertiary care hospital. It emphasizes the health care planners and providers at government, private and personal level to initiate prevention and management plan in the light of local as well as international past and recent scientific research findings and updates.

MATERIALS AND METHODS:

This descriptive (cross sectional) study was conducted at Neurosurgery unit 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 sign or symptom of median nerve compression at level of carpel tunnel. Exclusion criteria was patients who have underwent previous neurolysis of the median nerve at the carpel tunnel level and those with known radiculopathy.

Patients were reviewed for epidemiological data including age, gender, symptomatic side, dominance, neurophysiological grades i.e. Mild, moderate, severe and very severe according to American association of Electrodiagnostic Medication. 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 + decreased sensory amplitude. (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 either with allow or absent sensory nerve action potential or compound muscle 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 subjected to descriptive analysis. Categorical data was analyzed in form of percentages and presented in form of tables.

RESULTS:

A total of 250 patients including 210 females and 40 males were included in the study. A mean age of 48.5 years was found in females and 50.5 years was observed in males, The female to male ratio was 5.2:1 and this disorder was most commonly seen in the age group 46 – 60 years. Bilaterality of this disorder was seen in 137(55%) subjects.s(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 prevalent symptom, being present in all cases followed by, weakness a thenar eminances in 230(92%), nocturnal pain 225(90%) and daytime pain in 212(85%). Proximal irradiation of pain to entire upper limb was reported by 175(70%)of subjects.162(65% of cases complained of sleeping disorders secondary to the symptoms. Majority of cases had three or more symptoms of median nerve compression at the carpel tunnel level as seen in 232(93%) patients.(Table no. IV)

Co morbidities were found in form of diabetes which was the most frequent disorder 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%
Proximal irradiation 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 most common peripheral neuropathy [26] and its diagnosis is based on the combination of clinical signs and symptoms and electromyographic studies [27].It is estimated that 1:1000 people are diagnosed annually with CTS according to an English study [28].

In our study, the higher predominance of CTS is in females with a ratio of 5.2:1 which is comparable to that of other studies 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 subjects in our study was found to be 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 in females was 52.4 years and 48.5 years in males [32].Likewise Abumunaser et al in their study reported 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 bilateral CTS, 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.

This study was confined to demographic profile with CTS category and pattern. It has the importance in the perspective of highlighting the consistency of our findings with those of other studies ,to build a solid evidence of epidemiology, demographic and clinical profile of this disease.

CONCLUSION:

In conclusion, the demographic pattern of CTS in our study was almost similar to the pattern seen in studies conducted at other places. Sensory symptoms and dominant hand was more common. Over all predominant age group was 46-60years with female dominance. Future studies are required to find out correlating risk factors and associated diseases in both genders.

REFERENCES:

1.American Academy of Orthopaedic Surgeons Work Group Panel. Clinical guidelines on diagnosis of carpel tunnel syndrome, 2007.

2.Amirlak B, Upadhyaya K, Ahmad O, Wolff T. Median Nerve Entrapement. 1-11- 2010. Internet Communication.(Accessed: 24/10/2011)

3.Padua L, LoMonaco M, Padua R. Neurophysiological classification of carpel tunnel syndrome: assessment of 600 symptomatic hands. Ital J Neurol Sci 1997; 18: 145- 50.

4.INAIL: Italian Worker's Compensation Authority, Annual Report 2000. Available at: http://www.inail.it/cms/ultilingua/inglese/rapportoannuale2001/RappAnn2000RelPresInglese.pdf (Accessed: 24/10/2011)

5.Lo SL, Raskin K, Lester H, Lester B. Carpel Tunnel syndrome: a historical perspective. Hand Clin 2002; 18(2): 211-7.

6.Pfeffer GB, Gelberman RH, Boyes JH, Rydevik B. The history of carpel tunnel syndrome. J Hand Surg Br 1988; 13(1): 28- 34.

7.Aroori S, Spence RA.Carpel tunnel syndrome. Ulster Medical J 2008; 77(1): 6- 17.

8.Alfonso C, Jann S, Massa R, Torreggiani A. Diagnosis,treatment and follow up of carpel tunnel syndrome: a review. Neurolog Sci 2010; 31(3): 243- 52.

9.Paget J. Lectures on Surgical Pathology. Philadelphia: Lindsay and Blakiston 1854.

10.Atroshi I, Gummesson C, Johnsson R, Ornstein E, Ranstam J, Rosen I, Prevalence of carpel tunnel syndrome in general population. JAMA 1999; 282(2): 153- 8.

11.Mondelli M, Giannini F, Giachhi M. Carpel tunnel syndrome incidence in general population. Neurology 2002; 58: 289- 94.

12.Rask MR. Anterior Interosseous nerve entrapement: report of seven cases. Clin Orthop Relat Res 1979; 142: 176- 81.

13.Phalen GS. The carpel tunnel syndrome. J Bone and Joint Surg Am 1966; 48: 380- 3.

14.NINDS(National Institute of Neurological Disorder and Stroke),Carpel Tunnel Syndrome fact sheet, 2007. http://www.ninds.nih.gov/disorders/carpel_tunnel/detail_carpel_tunnel.htm#68963049

15.Lam N, Thurston A. Association of obesity,gender,age and occupation with carpel tunnel syndrome. Aust N Z J Surg 1998; 68(3): 190- 3.

16.Tay LB, Urkude R, Verma KK. Clinical profile, electrodiagnosis and outcome in patients with carpel tunnel syndrome: a Singapore perspective. Singapore Med J 2006; 47(12): 1049-52.

17.Solomon L, Warwick D, Nayagam S. Apley's concise system of orthopaedics and fractures. NY: Oxford university press 2005.

18.Zyluk A, Kosovets L. An assessment of the sympathetic function within the hand in patients with carpel tunnel syndrome. J Hand Surg Eur 2010; 35(5): 402- 8.

19.Dorwart BB. Carpel tunnel syndrome: a review. Seminars in arthritis and rheumatism 1984; 14(2): 134- 40.

20.Krendel DA, Jobsis M, Gaskell PC, Sanders DB. The flick sign in carpel tunnel syndrome. J Neurol Neurosurg Psychiat 1986; 49(2): 220- 1.

21.Azevedo JW, Oliveira AB, Nascimento VG. Profile of patients on sick leave with carpel tunnel syndrome. Acta Orthop Bras 2015; 23(5): 244- 6.
22.Sternbach G. The carpel tunnel syndrome. J Emerg Med 1999; 17(3): 519- 23.
23.Bland JD. Do nerve conduction studies predict the outcome of carpel tunnel compression?. Muscle Nerve 2001; 24(7): 935- 40.
24.Page MJ, Massy-Westropp N, O'Connor D, Pitt V. Splinting for carpel tunnel syndrome. Cochrane Database Syst Rev 2012; 7: CD010003.
25.Huisstede BM, Hoogvliet P, Randsdorp MS. Carpel tunnel syndrome: effectiveness of nonsurgical treatments- a systemic review. Arch Phys Med Rehabil 2010; 91(7): 981- 1004.
26.Bland JD. Carpel tunnel syndrome. BMJ 2007; 335(7615): 343- 6.
27.Rempel D, Evanoff B, Amadio PC.Consensus criteris for the classification of carpel tunnel syndrome in epidemiological studies. Am J Public Health 1998; 88(10): 1447- 51.
28.McCornick A, Fleming D, Charlton J. Morbidity practice from general practice,4th national study 1991-2.Series MB5 No 3. London: HMSO; 1992.
29.Chako J, Chand R, Bulusu S. Clinical profile of carpel tunnel syndrome in Oman. Neurosciences 2000;5(4): 223-5.
30.Bahou YG. Carpel Tunnel Syndrome: a series observed at Jordan University hospital, June 1999- December 2000.Clin Neurol Neurosurg 2002; 104(1):49-53.
31.Al-Suleiman AA, Ismail HM. Carpel tunnel syndrome: a clinical and electrophysiological study of 220 consecutive cases at King Fahd hospital of the university, Al-Khobar. Saudi Med J 1997; 18(1): 59- 63.
32.Malibary HM, Al Najjar AT, Yassen DM, Abuhussain HAA. Clinical profile of carpel tunnel syndrome in a teaching hospital. Pak J Med Sci 2013; 29(1): 119- 21.
33.Abumunaser LA.Demographic pattern of carpel tunnel syndrome in western Saudi Arabia. Neuroscience 2012; 17(1): 44- 7.

CLINICAL PROFILE OF PATIENTS WITH CARPEL TUNNEL SYNDROME

ORIGINALITY REPORT

46%	37%	38%	%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	www.ncbi.nlm.nih.gov Internet Source	29%
2	Azevedo, Judson Welber Veríssimo de, Alexandre Barbosa de Oliveira, Valdênia das Graças Nascimento, Henver Ribeiro de Paiva Filho, Leandro Viecili, and Murilo Antonio Rocha. "PROFILE OF PATIENTS ON SICK LEAVE WITH CARPAL TUNNEL SYNDROME", Acta Ortopédica Brasileira, 2015. Publication	8%
3	www.sma.org.sg Internet Source	3%
4	eprints.keele.ac.uk Internet Source	2%
5	Malibary, Hussein Mohammed, Afnan Al-Najjar, Dina Yassen, Hamad Abuhussain, Osman Radhwi, and Zainab Alfares. "Clinical profile of carpal tunnel syndromein a teaching hospital", Pakistan Journal of Medical Sciences,	1%

2012.
Publication

6	Nawaz, Saadia; Naeem, Amjad and Zeb, Ahmed. "THYROID SURGERY: DRAIN VERSUS NO DRAIN", JPMI: Journal of Postgraduate Medical Institute, 2015. Publication	1%
7	Mondelli, M., G. Filippou, A. Aretini, B. Frediani, and F. Reale. "Ultrasonography before and after surgery in carpal tunnel syndrome and relationship with clinical and electrophysiological findings. A new outcome predictor?", Scandinavian Journal of Rheumatology, 2008. Publication	<1%
8	www.pjms.com.pk Internet Source	<1%
9	L. Padua. "Neurophysiological classification of carpal tunnel syndrome: assessment of 600 symptomatic hands", The Italian Journal of Neurological Sciences, 03/1997 Publication	<1%
10	Castro, Adham do Amaral e, Thelma Larocca Skare, Paulo Afonso Nunes Nassif, Alexandre Kaue Sakuma, Bruno Luiz Ariede, and Wagner Haese Barros. "Ultrasound evaluation on carpal tunnel syndrome before and after bariatric	<1%

surgery", Revista do Colégio Brasileiro de Cirurgiões, 2014.
Publication

11	jamc.ayubmed.edu.pk Internet Source	<1%

EXCLUDE QUOTES	ON	EXCLUDE MATCHES	OFF
EXCLUDE BIBLIOGRAPHY	ON		