



CORRELATION BETWEEN CLINICAL FINDINGS & NCS FOR THE DIAGNOSIS OF CTS

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ABSTRACT

Objective: In this study our main goal is to evaluate the correlation between clinical findings (S/S + Tinels sign + Phalen's test) & NCS (nerve conduction studies) for the diagnosis of CTS. **Method:** This cross-sectional observation study was carried out at tertiary medical college and hospital from January 2018 to January 2019 where 51 patients who attended the neurophysiology service for investigation of suspected CTS were included in the study. **Results:** During the study, CTS diagnosed positively in right hand about 37.3% cases where hypothyroidism cases were 1%, followed by CTS diagnosed positively in left hand about 29.4% cases where diabetes cases were 2.5%, both diabetes and hypothyroidism cases were 1%, CTS diagnosed positively in both hands about 15.7% also negative cases were 17.6%. According to association of Radiculopathy on NCS, negative association was found 70.6% cases, 17.6% were C6 Radiculopathy (Right), 3.9% were C6 Radiculopathy (Left), 5.9% were C7 Radiculopathy (Right), 2.0% were C7 Radiculopathy (Left). **Conclusion:** From our study we can conclude that, Clear guidelines regarding the indications for referral for NCS studies should be established in response to the increased concerns about the cost effectiveness of diagnostic tests.

KEYWORDS: Carpal tunnel syndrome (CTS), nerve conduction studies (NCS), clinical Diagnosis.

INTRODUCTION

Carpal tunnel syndrome (CTS) arises from entrapment of the median nerve at the wrist, which if necessary, can be treated by surgical decompression. Typically, the disorder is characterized by numbness or tingling in the sensory distribution of the nerve in the hand, which in some cases may be accompanied by pain, or by weakness of the muscles of thumb abduction and opposition. Pointers to the diagnosis include positive findings on challenge tests in which either tapping over the median nerve at the wrist (Tinel's sign) or sustained flexion of the wrist (Phalen's test) produce numbness, tingling or pain in the nerve's sensory distribution. However, neurophysiological demonstration of impaired conduction in the median nerve is widely regarded as a more reliable indicator of the disease.^[1]

That said, nerve conduction studies cannot be regarded as a gold standard for diagnosis since the correlation of symptoms with abnormal nerve conduction, however

defined, is imperfect.^[2-3] Thus, there are no universally agreed diagnostic criteria for CTS, and decisions to carry out surgical decompression may depend on a combination of symptoms, signs and findings from nerve conduction studies, according to the practice of the surgeon.^[4] In this study our main goal is to evaluate the correlation between clinical findings (S/S + Tinels sign + Phalen's test) & NCS for the diagnosis of CTS.

OBJECTIVE

To evaluate the correlation between clinical findings (S/S + Tinels sign + Phalen's test) & NCS for the diagnosis of CTS.

METHODOLOGY

Types of study

This was a cross sectional observation study.

Place and period: This study was carried out at tertiary medical college and hospital from January 2018 to January 2019 where 51 patients who attended the

neurophysiology service for investigation of suspected CTS were included in the study.

Method

During the study, the questionnaire asked about sex, age, and the occurrence of numbness, tingling and pain in each hand during the past four weeks. Those who had experienced symptoms were asked to mark their anatomical distribution on hand diagrams (one diagram for each symptom).

Data analysis: Result of the study was calculated and analyzed by standard statistical package for social sciences version 20.0 for windows (SPSS Inc, Chicago, Illinois, USA) and was presented in forms of tables and graphs.

RESULTS

In table-1 shows age distribution of the patients where most of the patients belong to 36 to 46 years age group. The following table is given below in detail:

Table 1: Age distribution of the patients.

Age group	Percent
25 to 35 years	39.2
36 to 46 years	43.1
47 to 57 years	17.6
Total	100.0

In figure-1 shows gender distribution of the patients where 80.4% were female. The following figure is given below in detail:

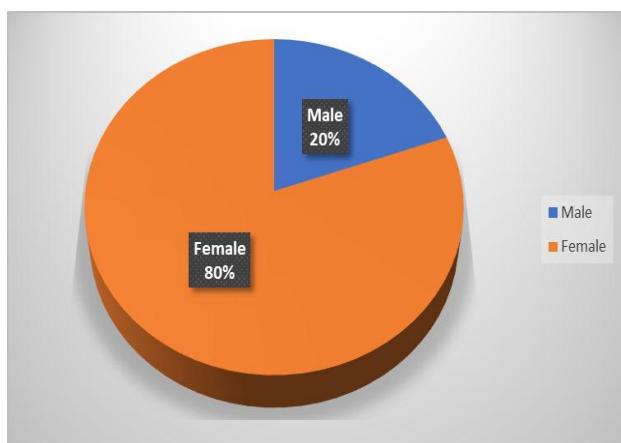


Figure 1: Gender distribution of the patients.

In table-2 shows positive clinical diagnosis status of the patients. CTS diagnosed positively in right hand about 37.3% cases where hypothyroidism cases were 1%, followed by CTS diagnosed positively in left hand about 29.4% cases where diabetes cases were 2.5%, both diabetes and hypothyroidism cases were 1%, CTS diagnosed positively in both hands about 15.7% also negative cases were 17.6%. the following table is given below in detail:

Table 2: Positive clinical diagnosis status of the patients.

Variable	Percent
Positive Right	37.3
Positive Left	29.4
Positive both	15.7
Negative	17.6
Total	100.0

In table-3 shows association of Radiculopathy on NCV where negative association was found 70.6% cases, 17.6% were C6 Radiculopathy (Right), 3.9% were C6 Radiculopathy (Left), 5.9% were C7 Radiculopathy (Right), 2.0% were C7 Radiculopathy (Left). The following table is given below in detail:

Table 3: Association of radiculopathy on NCV.

Variable	Percent
C6 Radiculopathy (Right)	17.6
C6 Radiculopathy (Left)	3.9
C7 Radiculopathy (Right)	5.9
C7 Radiculopathy (Left)	2.0
Negative	70.6
Total	100.0

In table-4 shows NCV diagnosis status where positive right-hand cases were 43.1% followed positive left-hand cases were 27.5%, positive in both hand cases were 17.6%, negative cases were found 11.8%. the following table is given below in detail:

Table 4: NCS diagnosis status.

Variable	Percent
Positive right	43.1
Positive left	27.5
Positive both	17.6
Negative	11.8
Total	100.0

DISCUSSION

In one study reported in their study that, 35 men and 127 women. The mean age in this group was 48.7 (SD 13.6). The median duration of symptoms was 12 months.^[5] Which was quite similar to our study where most of the patients belong to 36 to 46 years age group and 80.4% were female.

In our study we noted that, CTS diagnosed positively in right hand about 37.3% cases where hypothyroidism cases were 1%, followed by CTS diagnosed positively in left hand about 29.4% cases where diabetes cases were 2.5%, both diabetes and hypothyroidism cases were 1%, CTS diagnosed positively in both hands about 15.7% also negative cases were 17.6%. which was supported to several studies.^[6-8] whereas another study reported that, 13 (16.25%) and 4 (5%) patients had diabetes mellitus and rheumatoid arthritis, respectively.^[9]

Nerve conduction studies (NCS) confirm CTS by detecting impaired median nerve conduction across the carpal tunnel, with normal conduction elsewhere.^[10] In our study according to NCV diagnosis status, positive right-hand cases were 43.1% followed positive left-hand cases were 27.5%, positive in both hand cases were 17.6%, negative cases were found 11.8%.

CONCLUSION

From our study we can conclude that, Clear guidelines regarding the indications for referral for NCV studies should be established in response to the increased concerns about the cost effectiveness of diagnostic tests.

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