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The Importance of Age as a Factor of Carpal Tunnel Syndrome management

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- Abstract -

Background : Carpal tunnel syndrome(CTS) is the most common entrapment neuropathy that refers to a group of signs and symptoms resulting from compression of the median nerve at the wrist. The course of CTS in older patients is different from the younger patients. This difference may be the result of different underlying mechanisms. The different nerve conduction studies of CTS may signify different approaches in management. This study was done to assess the differences in nerve conduction study of CTS in younger and older patients.

Methods : This study involved 224 patients who visited Gachon Medical School, Gil Medical Center and was diagnosed by nerve conduction study from October 1997 to October 1999. We compared the results of nerve conduction study to age, especially in between those under 60 years and those 60 years or over CTS patients. Nerve conduction study consists of motor studies of both median nerves(terminal latency, compound action potential) and sensory studies(nerve conduction velocity, nerve action potential). And we also evaluated the variables between younger and older patients group. Those variables include sex, symptom period, laterality, abnormal physical findings and radiculopathy.

Results : We found that a significant increase of terminal latency($p<0.1$), but a decrease in compound motor action potential($p<0.05$) in older patient's group. There was no significant differences in sensory nerve conduction velocity and action potential between those under 60 years and those 60 years or even patients. And also there was no significant difference in sex, symptom period, laterality, abnormal physical findings, radiculopathy between older and younger patients.

Conclusions : This study showed a significant increase in the terminal latency and a decrease in compound action potential in older patients. The different nerve conduction studies of CTS by age effect may need different approaches in management.

Key Words : Carpal tunnel syndrome, Age group, Nerve conduction velocity

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 Tinel (Phalen test),
 (compression test), (two
 point discrimination)
 224
 2-5 가
 2. ()
 Tinel 가
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 60 23 ~ 25
 가 가 (terminal latency)
 3.9 msec (compound motor
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) 50.6 m/sec
 10 가 (palmar cutaneous branch)
 34.05 m/sec (digital cutaneous
 branch) 40.6 m/sec
 8 3.
 60 t-
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 11 가 가
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 SPSS 8.0 p
 0.1

1. 224 47 (21%), 177 (79%) 50 가 93 (41.5%) 가 , 60 48 (21.4%), 40 41 (18.3%), 30 28 (12.5%), 70 14 (6.3%) . 60 60 49 , 60 63 (Table 1).

2. 60 가 , 60 가 ,

Table 1. Age and sex distribution of study subjects.

Age (years)	Sex		Total n=224(%)
	Male n=47(%)	Female n=177(%)	
39	11(23.4)	17(9.6)	28(12.5)
40~49	8(17.0)	33(18.6)	41(18.3)
50~59	17(36.2)	76(43.0)	93(41.5)
60~69	9(19.1)	39(22.0)	48(21.4)
70	2(4.3)	12(6.8)	14(6.3)

Table 2. Variables between those under 60 years and those 60 years or over carpal tunnel syndrome patients

Age group / Variables	<60 years n=162(%)	60 years n=62(%)	Total n=224(%)	p
Sex				
Male	36(22.2)	11(17.7)	047(21.0)	0.997
Female	126(77.8)	51(82.3)	177(79.0)	
Symptom period				
1 year <	31(19.1)	7(11.3)	38(17.0)	0.401
1 year <2 years	36(22.2)	10(16.1)	46(20.5)	
2 years <3 years	13(8.0)	5(8.1)	18(8.0)	
3 years <	20(12.4)	10(16.1)	30(13.4)	
Laterality				
Bilateral	118(72.8)	46(74.2)	164(73.2)	0.372
Unilateral	44(27.2)	16(25.8)	60(26.8)	
Rt	31(19.1)	8(12.9)	-	
Lt	13(8.1)	8(12.9)	-	
Abnormal physical findings				
Tinel or Phalen sign positive	32(19.7)	10(16.1)	42(35.8)	0.534
Thenar atrophy	13(8.0)	6(9.7)	19(17.7)	0.691
Radiculopathy	9(5.6)	6(9.7)	15(15.3)	0.270

가 (Table 2).

3.

가 가 (Fig. 1).

4. 60

60 가 (p < 0.05), (p < 0.1) 가 (Table 3).

1863 James Paget 0.1% (flexor retinaculum)

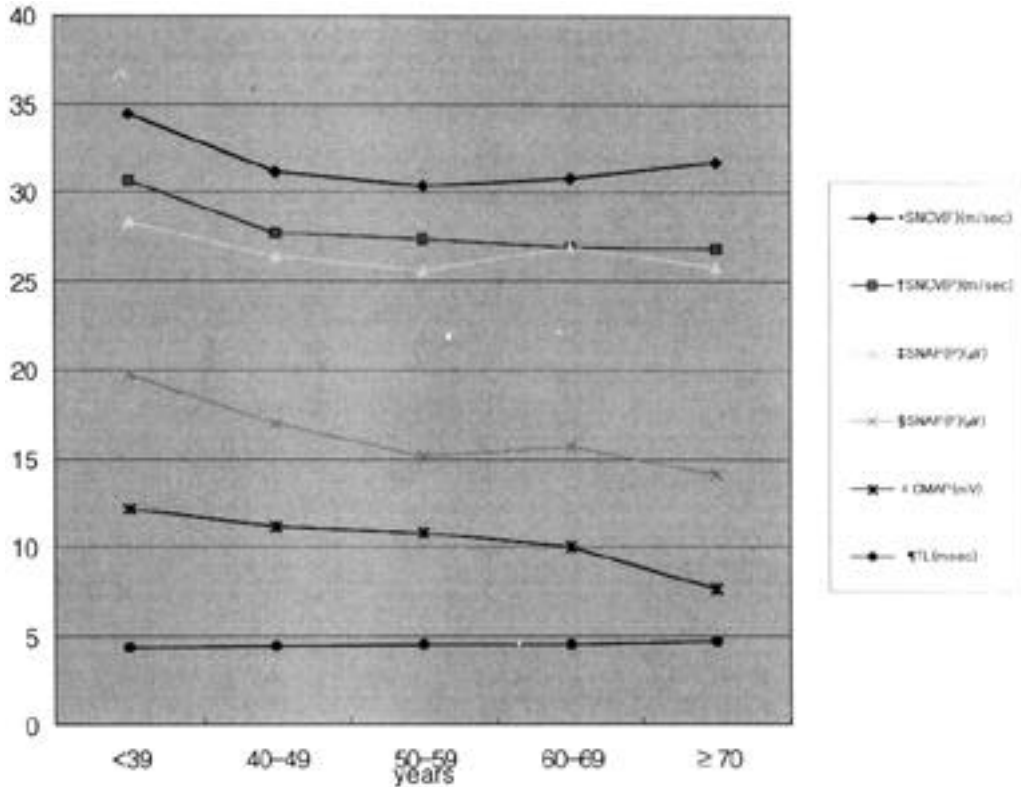


Figure 1. The comparison of median nerve conduction studies to age.

*SNCV(F): Sensory nerve conduction velocity finger to wrist(m/sec)
 †SNCV(P): Sensory nerve conduction velocity palm to wrist(m/sec)
 ‡SNAP(P): Sensory nerve action potential palm to wrist(μV)
 §SNAP(F): Sensory nerve action potential finger to wrist(μV)
 ||CAMP: Compound action motor potential(mV)
 ¶TL: Terminal latency(msec)

Table 3. The comparison between those under 60 years and those 60 years or over carpal tunnel syndrome patients in nerve conduction velocity studies.

Age group	<60 years	60 years	p
Variables	Mean±SD (n=162)	Mean±SD (n=62)	
SNCV(F)*	28.5±11.9	28.9±12.5	0.835
SNCV(P)†	25.2±10.3	25.7±10.3	0.775
SNAP(P)‡	23.5±13.9	25.5±15.6	0.355
SNAP(F)§	14.8±8.6	14.0±7.7	0.529
CAMP	10.7±4.5	9.3±4.5	0.035
TL¶	4.4±1.2	4.6±1.4	0.098

*SNCV(F) : Sensory nerve conduction velocity finger to wrist(m/sec)
 †SNCV(P) : Sensory nerve conduction velocity palm to wrist(m/sec)
 ‡SNAP(P) : Sensory nerve action potential palm to wrist(μV)
 §SNAP(F) : Sensory nerve action potential finger to wrist(μV)
 ||CAMP : Compound motor action potential(mV)
 ¶TL : Terminal latency(msec)

50 41.5% 33.9%

(lumbricalis)

(abductor pollicis brevis)

가 가 가

Schwartz Charf

가

2,14,15 100 가 가

78% , 가 가 가

, 60 msec , 60 6.5 msec 4.8 가
 2.1 mV 가 8.0 mV Szabo 4
 70 1.8 msec 69 1.2 msec, 가 가
 40 m/sec , 10 μ V (,) 가
), 34.05 m/sec ~ 40.6 m/sec(3.9 msec()
 가
 1.2 msec , 60 60 4.4 \pm 가 가
 4.6 \pm 1.4 msec (p<0.1).
 60 10.7 \pm 4.5 mV, 60
 9.3 \pm 4.5 mV (p<0.05)

Schwarz Charf 60
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 , 60 18 , 60 가
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 1 2 가 36 (22.2%) 가
 , 60 1 2 3
 10 (16.1%) 가 가
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 53.5%

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