RACE 611: CAT

CAT FOR TREATMENT

Clinical Question : Using neutral wrist splint can reduce pain symptom better than another splint in patient with carpal tunnel syndrome?

P : Carpal tunnel syndrome patient

I : Wrist splint with metacarpophalangeal unit

C : Neutral wrist splint

O : Pain

Refference : Golriz B, Ahmadi Bani M, Arazpour M, Bahramizadeh M, Curran S, Madani SP, et al. Comparison of the efficacy of a neutral wrist splint and a wrist splint incorporating a lumbrical unit for the treatment of patients with carpal tunnel syndrome. Prosthetics and Orthotics International. 2016;40(5):617-23

Citation: http://poi.sagepub.com/content/40/5/617.long

A. Study Characteristics : Randomize control trial

1. Patients included

Carpal tunnel syndrome patient who were classified as suffering from mild, moderate or advanced CTS according to the American Association of Electro-diagnosis Medicine guidelines, being over 18 years of age, having positive Tinel's sign or Phalen maneuver, having reported with nighttime pain, numbness and tingling during the previous 12 month.

2. Interventions Compared

Wrist splint with metacarpophalangeal unit : The custom-mold plastic splint in order to position the wrist in neutral alignment (0°) and the MCP joints positioned between 0° and 10° of flexion

Neutral wrist splint : The custom-mold plastic splint in order to position the wrist in neutral alignment (0°)

3. Outcomes Monitored

Primary outcome :

Pain – Visual Analog Scale (VAS) base on a 100-mm straight line scale (0=no pain, 10 = the most severe pain). Patient indicated the intensity of the sensation being experienced by placing a mark on the VAS line.

Secondary outcome :

Grip strength – Jamar Hydraulic Hand dynamometer were used to measure. For assessment of grip strength, patients were seated with the elbow flex at 90° and with the wrist in neutral position between pronation and supination

Pinch strength – Jamar Hydraulic Pinch guage were used to measure. For assessment of pinch strength used same as grip strength test position.

Function – DASH questionnaire was used to determine function. The questionnaire was completed by each patient 1 day before beginning the orthotic intervention and again after 6 weeks after orthosis use.

B. Validity Criteria :

1. Were patients randomized?

- Yes, In this study the patients were using a randomized allocation into two groups (those who wore a neutral wrist splint and those who wore a wrist splint with metacarpophalangeal unit)

2. Was randomization concealed?

- Not mention.

3. Were patients analyzed in the groups to which they were randomized?

- Not mention.

4. Were patients in treatment and control groups similar at baseline?

- Yes, because the baseline characteristics is not different.

	Neutral wrist splint group	**Wrist splint with metacarpophalangeal unit group**	**P-value**
Number of subject	12	12	
Age	46.42 (14.11)	49.58 (11.46)	0.552
Gender (female)	10	10	1.000
Weight (kg.)	78.08 (15.76)	74.25 (9.09)	0.473
Height (cm.)	163.33 (6.71)	166.92 (4.85)	0.148
Average time of splint use (h/day)	7.25 (1.54)	6.75 (1.21)	0.388
Pain score	8.08 (1.78)	8.42 (0.99)	0.577
Grip strength	5.47 (1.77)	4.94 (1.42)	0.429
Pinch strength	1.63 (0.41)	1.50 (0.41)	0.464
Dash score	57.07 (21.37)	63.26 (11.65)	0.458

5. Were patients aware of group allocation?

- No, the author not explain but I can assume that patient not blinded because when fitting splint patients can see their splint.

6. Were clinicians aware of group allocation?

- No, the author not explain but I can assume that clinicians were not blinded.

7. Were outcome assessors aware of group allocation?

- No, the author not explain but I can assume that outcome assessors were not blinded.

8. Was follow-up complete?

- Yes, the follow-up completed and no one loss follow-up.

C. Results

Outcome	Neutral wrist splint group	Wrist splint with metacarpophalangeal unit group	P-value
	Mean (SD)	Mean (SD)	
Pain score	4.42(2.19)	3.17(1.11)	0.022
Grip strength	7.26(3.54)	7.30(0.37)	0.675
Pinch strength	2.27(0.39)	2.30(0.50)	0.650
DASH score	27.91(14.97)	25.19(4.28)	0.027

From the table there were no significant differences in grip strength (P=0.675) and pinch strength (P=0.650) between the neutral wrist splint group and wrist splint with metacarpophalangeal unit group after 6 weeks of splint use. However, there were significant differences in pain score (P=0.022) and DASH score (P=0.027) between group.

D. Applicability:

1. Are the study patients similar to the patients in my practice?

-Yes, the symptom and outcome in this study are not difference from our setting therefore, using wrist splint with metacarpophalangeal unit will improve the management strategies.

2. Were all clinically relevant outcomes reported?

-Yes, the author reported all clinically relevant outcome.

3. Are the likely treatment benefits worth the harm and costs?

- Using wrist splint with metacarpophalangeal have benefit in patient with carpal tunnel syndrome because it can reduce pain symptom also increase function, pinch strength and grip strength

Author's Conclusion:

- From the study both splints reduced pain and increase function, pinch strength and grip strength but the wrist splint with metacarpophalangeal unit was significantly more effective than the neutral wrist splint in pain reduction and improvement of function.

Reviewer's Conclusion:

-Carpal tunnel syndrome is one of the most common hand disorders. There are many treatment modalities but no consensus regarding the best treatment to manage CTS. Splinting is the most popular conservative treatment that are available for CTS. In this study is compare the efficacy between wrist splint with metacarpophalangeal unit and neutral wrist splint. From the result it was found that both splints showed the same high effective in reduce pain symptom. The weak point in this study is researcher can not blind patients, clinician and assessor outcome that make the validity is low. The result from this study can use in Thai setting but quality of life must be concern when using. Further study must be determine the cost effectiveness and risk in long time treatment.

Reviewer: Phongphitch Saensri **Date** : 28/11/2016