뇌신경재활

게시일시 및 장소 : 10 월 18 일(금) 13:15-18:00 Room G(3F)

질의응답 일시 및 장소 : 10 월 18 일(금) 15:45-16:30 Room G(3F)

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The Effect of Dynamic Taping on Hemiplegic Shoulder Pain and Functional Outcomes of Stroke patients.

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Objective

Hemiplegic shoulder pain (HSP) has serious effects on rehabilitation and activities of daily living in stroke patients. Kinesio taping (KT), commonly used in musculoskeletal pain and sports injury, is known to have effects of increasing mobility of joint and proprioceptive sense [1]. Previous study showed that KT has the effect of increasing ROM, decreasing pain and improving activities of daily living when applied on hemiplegic shoulder of chronic stroke patient [2]. Compared to KT, dynamic tape is a tape with strong resistance and recoil. So, dynamic taping (DT) can absorb loads, contribute forces and modify movement [3]. Accordingly, DT on hemiplegic shoulder might support the weight of upper limb, facilitate shoulder movement and improve functional outcome. The purpose of this study is to investigate the effects of DT on HSP and functional outcome in subacute stroke patients.

Method

Inclusion criteria were; (1) first incidence of stroke, with onset less than 3 months ; (2) pain in the affected shoulder. Exclusion criteria were; (1) shoulder pain or a history of surgery in the affected shoulder before the onset of stroke; (2) skin problems, wounds, or infection on the affected shoulder. Participants were randomly assigned in two groups. All participants had 3 weeks of conventional therapy including physical therapy and occupational therapy. Intervention group had conventional therapy with DT. DT used dynamic tape®(The original biomechanical tape®) and was attached in the two ways; shoulder abduction assist taping and shoulder flexion assist taping. Shoulder abduction assist taping is attached across the shoulder joint from medial border of contralateral scapula to deltoid tuberosity of ipsilateral humerus with shoulder abducted at 90 degrees. Shoulder flexion assist taping is attached across the shoulder joint from medial border of ipsilateral scapula to midpoint of ipsilateral biceps brachii with shoulder flexed at 90 degrees. Dynamic taping was attached with 20-30% extended state for elastic potential energy [figure 1]. Primary outcome is visual analog scale (VAS) for shoulder pain (resting and passively moving). Secondary outcome included pain free passive ROM of shoulder,

Manual function test (MFT), Berg balance scale (BBS), Modified Barthel index (MBI). All evaluations were conducted at baseline and after 3 weeks of rehabilitation therapy

Results

Eight stroke patients were enrolled in this study. Rehabilitation therapy with DT significantly improved shoulder pain compared with baseline ($p<0.05$). However, the changes of shoulder pain had no significant difference between the two groups. In addition, other outcomes had no significant difference between pre- and post-treatment.

Conclusion

Rehabilitation therapy with DT had an effect of improving HSP. However, there was no significant effect on passive ROM and other functional outcomes. To clarify these results, larger sample size will be needed.

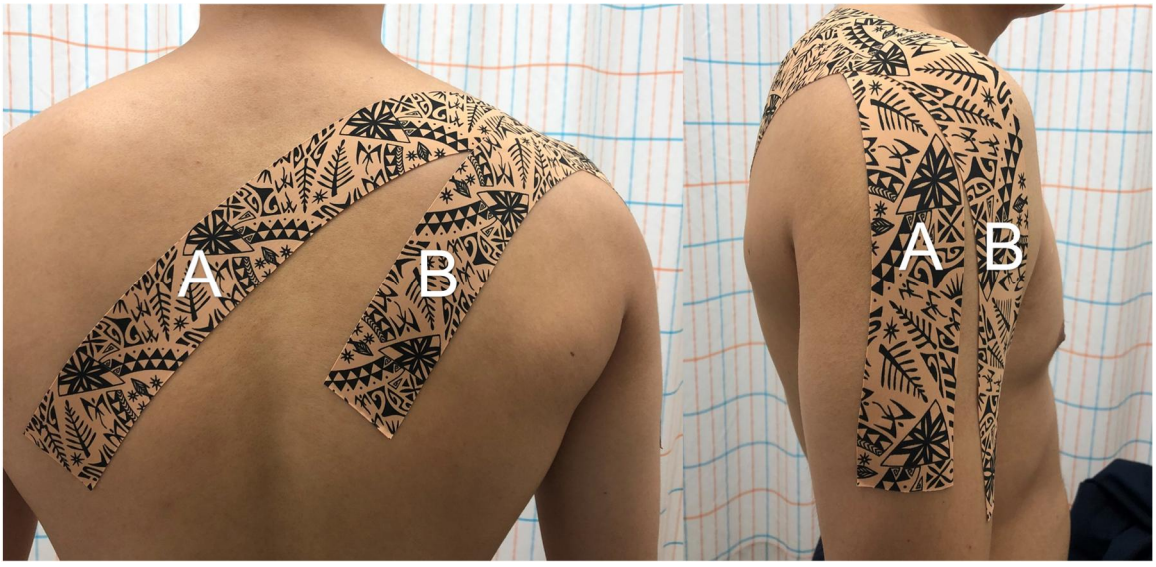

Figure 1. Shoulder adduction assist taping and shoulder flexion assist taping (Posterior and lateral view)

Table 1. Demographics and clinical characteristics of study subjects

Variable	Total	Dynamic Taping	Control	p-value
	(N=8)	(N=4)	(N=4)	
Age (year)	56.88 ± 2.7	59.25 ± 3.6	54.50 ± 4.1	0.486
Sex				0.500
Male	3(37.5%)	1(25.0%)	2(50.0%)	
Female	5(62.5%)	3(75.0%)	2(50.0%)	
Affected side				0.500
Right	3(37.5%)	1(25.0%)	2(50.0%)	
Left	5(62.5%)	3(75.0%)	2(50.0%)	
Etiology				0.786
Infarction	2(25.0%)	1(25.0%)	1(25.0%)	
Hemorrhage	6(75.0%)	3(75.0%)	3(75.0%)	

Data were reported as mean±standard deviation for continuous variables and n (%) for categorical variables.

Table 2. Comparison between 2 groups; pre and post treatment

Variable	Group	Pre	Post	p-value	Δ (Post - Pre)	p-value
VAS	D	5.75 ± 0.4	2.50 ± 0.2	**0.011***	−3.25 ± 0.4	0.225
	C	6.25 ± 0.6	4.25 ± 0.2	0.066	−2.25 ± 0.6	
P.ROM (Flexion)	D	115.00 ± 11.7	145.00 ± 15.0	0.068	30.00 ± 5.4	0.144
	C	103.75 ± 8.0	123.75 ± 12.3	0.068	20.00 ± 4.5	
P.ROM (Abduction)	D	100.00 ± 15.4	130.00 ± 17.3	0.066	30.00 ± 2.0	0.219
	C	86.25 ± 3.7	107.50 ± 7.5	0.066	21.25 ± 5.1	
P.ROM (Ext. rotation)	D	47.5 ± 6.6	67.50 ± 9.6	0.059	20.00 ± 5.0	0.508
	C	41.25 ± 7.1	56.25 ± 3.7	0.102	15.00 ± 6.1	
P.ROM (Int. rotation)	D	55.0 ± 3.53	71.25 ± 7.1	0.102	15.00 ± 6.1	1.000
	C	45.00 ± 2.0	60.00 ± 2.0	0.063	2.00 ± 1.4	
MFT	D	3.00 ± 1.7	9.50 ± 3.1	0.068	6.50 ± 1.7	0.081
	C	0.00	2.00 ± 1.4	0.180	2.00 ± 1.4	
BBS	D	9.25 ± 4.5	31.50 ± 9.9	0.068	22.25 ± 8.6	0.139
	C	5.75 ± 3.9	13.50 ± 7.2	0.066	7.75 ± 3.4	
MBI	D	35.25 ± 8.6	63.75 ± 12.4	0.068	28.50 ± 9.3	0.076
	C	22.00 ± 10.6	36.00 ± 10.6	0.066	14.00 ± 0.4	

VAS, Visual analog scale; P. ROM, Passive Range of Motion; MFT , Manual Function Test; BBS, Berg Balance Scale; MBI, Modified Barthel Index; D, dynamic taping group; C, control group.
Data were reported as mean±standard deviation.
*** P-value < 0.05**