

## **P 1-8**

### **Effects of head lift exercise on swallowing function according to reclining angle in stroke patients**

JeeYoung Kim<sup>1\*</sup>, Nami Han<sup>1†</sup>, Hyun dong Kim<sup>1</sup>, Mi ja Eom<sup>1</sup>, Sang Hoon Jung<sup>1</sup>, Ji-Su Park<sup>2</sup>, Na-Kyoung Hwang<sup>3</sup>, Joo Young Lee<sup>4</sup>

Inje University Busan Paik Hospital, Department of Physical Medicine and Rehabilitation<sup>1</sup>, Graduate School of Inje, Department of Rehabilitation Science<sup>2</sup>, Seoul North Municipal Hospital, Department of Occupational Therapy<sup>3</sup>, Seoul North Municipal Hospital, Department of Physical Medicine and Rehabilitation<sup>4</sup>

#### **BACKGROUND**

Recently, HLE in a reclining position was introduced, and the potential for therapeutic effects was confirmed by surface electromyography. However, the clinical evidence of the effect is still lacking.

#### **OBJECTIVE**

The purpose of this study was to compare the effects of HLE in the supine position and HLE in a reclining position, on swallowing function in patients with dysphagia after stroke.

#### **METHODS**

Thirty-five patients with stroke and dysphagia were randomly assigned to either the HLE in supine position group (n=18), or the HLE in a 45-degree angle reclining position group (n=17). Both groups performed HLE 5 days a week for 4 weeks and received the same conventional dysphagia therapy. The primary outcome measures were evaluated using videofluoroscopic dysphagia scale (VDS) based on videofluoroscopic swallowing study. Secondary outcome measures were evaluated using functional oral intake scale (FOIS). Finally, this study checked the dropout rate and subjective feedback.

#### **RESULTS**

In total, 25 participants completed this study. Both groups showed significant improvement in the oral and pharyngeal phase of VDS and FOIS ( $p < 0.05$ ). After the intervention, there were no significant differences between groups ( $p > 0.05$ ). In addition, 4 of 18 patients undergoing HLE in the supine position, and 1 of 17 patients undergoing HLE in a reclining position dropped out of the study due to neck discomfort, temporary pain, or fatigue.

#### **CONCLUSIONS**

This study suggests that both exercises have similar effects in patients with dysphagia after a stroke. However, compliance is considered to be better in the group of patients undergoing HLE in a reclining position than that in the patients undergoing HLE in a supine position because it is less strenuous to perform HLE in a reclining position.

Table 1. Characteristics of participants

Characteristics	HLE group(n=13)	RHLE group(n=12)
Age(year),mean±SD	63.00±10.55	63.40±6.65
Gender (male/female)	7/6	6/6
Type of stroke (Hemorrhage/Infarction)	6/7	7/5
Side of stroke (Right/Left)	5/8	7/5
Time since onset of stroke months, mean ± SD	3.00±1.18	3.90±1.28

SD: standard deviation.

Table 2. Comparison of results between both group

	HLE group				reclined HEL group				Between groups P-values
	Before treatment	After treatment	Mean difference	p-value	Before treatment	After treatment	Mean difference	p-value	
VDS (Score)									
Oral phase	13.86(5.24)	26.63(10.27)	12.77(5.08)	.005*	10.55(4.43)	20.30(8.69)	9.75(4.31)	.005*	.055
Pharyngeal phase	37.54(7.60)	71.81(14.44)	34.27(6.97)	.003*	29.95(9.05)	58.10(17.51)	28.15(8.60)	.005*	.120
FOIS (Score)	3.27(0.78)	4.82(0.40)	1.55(0.68)	.000*	3.20(1.31)	4.20(1.13)	1.00(0.66)	.001*	.089
Dropout-rate related compliance (%)	18	14		22 %	17	16		6%	

The values are mean (standard deviation), VDS:videofluoroscropydysphagia scale, FOIS: functional oral intake scale  
\*p< 0.05 by Mann Whitney Utest, †p<0.05 Wilcoxon signed ranktest.