

노인재활

게시일시 및 장소 : 10 월 18 일(금) 08:30-12:20 Room G(3F)

질의응답 일시 및 장소 : 10 월 18 일(금) 10:00-10:45 Room G(3F)

P 1-36

Contributing Factors to Aspiration in Non-neurogenic Ill Patients with Dysphagia

Kang Lip Kim^{1*}, Hee Kyung Cho^{1†}, Gi Young Park¹, Dong Rak Kwon¹, Sang Gyu Kwak²

Daegu Catholic University Medical Center, Department of Rehabilitation Medicine¹, Daegu Catholic University Medical Center, Department of Medical Statistics, College of Medicine²

Objective

Swallowing difficulties can occur in medical care patients even they had no history of previous neurologic disease. The aim of this study is to investigate the factors contributing to aspiration in non-neurogenic ill patients who had swallowing difficulty.

Methods

This is a retrospective study including 52 non-neurogenic patients who complained of swallowing difficulty and were consulted to the department of rehabilitation medicine for videofluoroscopic swallowing studies (VFSSs) between January 2018 and June 2019. The patients were divided into two groups according to the presence of airway invasion (penetration or aspiration) based on VFSS findings; group 1 (n = 26) consisted of patients with airway invasion, and group 2 (n = 26) consisted of patients without airway invasion. Demographic information, activity level in the past 3 months, presence of pneumonia, nutritional status, degree of dehydration, history of stay in intensive care unit, history of endotracheal intubation, and videofluoroscopic dysphagia scale (VDS) were reviewed.

Results

Patients with airway invasion exhibited decreased walking ability in the past 3 months, greater incidence of pneumonia, and lower serum albumin level than patients without airway invasion ($p < .05$) (Table 1). Airway invasion in non-neurogenic ill patients was significantly associated with walking ability (odds ratio [OR], 3.57; 95% confidence interval [CI], 1.14-11.19; $p = .029$), serum albumin level under 3.5 g/dL (OR, 4.90; 95% CI, 1.39-17.32; $p = .014$), and presence of pneumonia (OR, 5.06; 95% CI, 1.56-16.44; $p = .007$) (Table 2). VDS showed 37.18 in group 1 and 16.17 in group 2 ($p < .05$). Regarding to VDS, bolus formation, tongue-to-palate contact, premature bolus loss, vallecular residue, coating of pharyngeal wall, and aspiration score was significantly different between group 1 and group 2 ($p < .05$) (Table 3).

Conclusion

Airway invasion in non-neurogenic ill patients was associated with decreased walking ability, lower serum albumin level, and presence of pneumonia. Additionally, patients

with airway invasion had difficulty in oral phase of swallowing process. These results could help improve clinical management for preventing aspiration in non-neurogenic ill patients.

Table 1. Demographics and clinical characteristics in non-neurogenic ill patients with dysphagia

	Group 1 (n=26)	Group 2 (n=26)	P value
Age, y, mean \pm SD	75.27 \pm 8.93	73.58 \pm 11.59	.558
Sex, n (%)			.560
Male/female	18 (69.23) / 8 (30.77)	16 (61.54) / 10 (38.46)	
BMI, mean \pm SD	20.2 \pm 5.54	21.78 \pm 2.81	.236
DM, n (%)	5 (19.23)	7 (26.92)	.510
Current smoking, n (%)	2 (7.69)	1 (3.85)	.552
Current medication			
Anticholinergics, n (%)	3 (11.54)	3 (11.54)	1.000
Hypnotics, n (%)	7 (26.92)	2 (7.69)	.067
Independent walking, n (%)	19 (73.08)	11 (42.31)	.025*
Pneumonia, n (%)	16 (61.54)	4 (15.38)	.004*
Albumin, g/dL, mean \pm SD	2.78 \pm 0.44	3.38 \pm 0.72	.002*
Albumin, n (%)			.004*
≥ 3.5	1 (4.35)	9 (40.91)	
< 3.5	22 (95.65)	13 (59.09)	
BUN/Cr, mean \pm SD	30.45 \pm 19.91	21.17 \pm 12.27	.066
ICU stay, n (%)	8 (30.77)	4 (15.38)	.188
LOS-ICU, d, mean \pm SD	22.75 \pm 18.01	13.00 \pm 5.72	.325
Intubation, n (%)	7 (26.92)	4 (15.38)	.308

Values are presented as mean \pm SD or number (%), Group 1, Patients with penetration or aspiration in VFSS; Group 2, Patients without penetration or aspiration in VFSS; ICU stay, Intensive care unit stay; LOS-ICU, Length of stay at ICU; *p < 0.05

Table 2. Multivariate logistic regression analysis for airway invasion in non-neurogenic ill patients

		OR	95% CI for OR	P value
Independent walking	no	3.57	1.14, 11.19	.029*
	yes	1	-	-
Albumin	< 3.5g/dL	4.90	1.39, 17.32	.014*
	≥ 3.5 g/dL	1	-	-
Pneumonia	yes	5.06	1.56, 16.44	.007*
	no	1	-	-

OR, Odds ratio; CI, Confidence interval; *p < 0.05

Table 3. Comparison for videofluoroscopic dysphagia scale in non-neurogenic ill patients with dysphagia

	Group 1 (n=26)	Group 2 (n=26)	P value
Lip closure	0.23 ± 0.65	0.00 ± 0.00	.077
Bolus formation	1.38 ± 1.53	0.35 ± 1.29	.011*
Mastication	1.23 ± 1.88	0.77 ± 1.97	.391
Apraxia	0.00 ± 0.00	0.00 ± 0.00	-
Tongue-to-palate contact	1.92 ± 2.48	0.38 ± 1.96	.017*
Premature bolus loss	2.42 ± 1.59	1.04 ± 1.18	.001*
Oral transit time	0.81 ± 1.36	0.58 ± 1.21	.520
Triggering of pharyngeal swallow	0.69 ± 1.66	0.69 ± 1.66	1.000
Vallecular Residue	3.85 ± 1.59	2.85 ± 1.62	.029*
Laryngeal elevation	1.04 ± 2.93	0.35 ± 1.77	.307
Pyriformis sinus residue	6.40 ± 3.41	5.02 ± 2.94	.123
Coating of pharyngeal wall	6.58 ± 4.07	3.46 ± 4.47	.011*
Pharyngeal transit time	0.46 ± 1.63	0.69 ± 1.95	.646
Aspiration	10.15 ± 2.82	0.00 ± 0.00	-

Values are presented as mean ± SD, Group 1, Patients with penetration or aspiration in VFSS; Group 2, Patients without penetration or aspiration in VFSS; *p < 0.05