ORAL PRESENTATION 2-3

뇌신경재활

발표일시 및 장소: 10 월 19 일(토) 10:00-10:10 Room B(5F)

OP2-3-1

The Correlations between Swallowing Function and Vowel Space in Dysarthria Patients with Stroke

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Objective

Dysphagia and dysarthria tend to coexist in stroke patients. This is presumably due to speech and swallowing that share many peripheral structures such as oral, pharyngeal, and laryngeal structures. Dysarthria has been reported as the best predictor of oral stage problem in swallowing disorders. In dysarthric speech, vowel space was used as a parameter of objective acoustic evaluation through formant measurement of vowels. The degree of comprehension of listener may vary according to the vowel space, and vowel space area is reduced and centralized in dysarthria patients. The purpose of this study was to determine the correlation between vowel space and swallowing function, to determine whether vowel space is a predictor of swallowing disorder.

Method

Thirty-one dysphagia and dysarthria patients with stroke were included in the study. Patients with cognitive impairment, hearing problems, structural abnormalities of articulatory organs, aphasia, and apraxia were excluded. The formant parameter representing the resonance frequency of the vocal tract as a two-dimensional coordinate point was measured for the /a/, /ae/, /i/, and /u/ vowels and the quadrilateral vowel space area (VSA) and formant centralization ratio (FCR) was measured. For evaluating the swallowing function, a videofluoroscopic swallowing study (VFSS) was performed and videofluoroscopic dysphagia scale (VDS) and the penetration aspiration scale (PAS) scores were evaluated. Then, pearson correlation coefficient was used to assess the correlation of VSA and FCR with VDS value and PAS

Results

hirty-one patients with stroke were enrolled in the final anlyses. The study population consisted of 24 infarction and 7 hemorrhage patients, 15 brain stem lesion and 16 non brain stem lesion. There were no significant differences in VDS, PAS, VSA, and FCR values between brain stem lesion group and non-brain stem group. VSA was significantly negative

correlated with oral phase VDS (r=-0.726, p=0.001), pharyngeal phase VDS (r=-0.567, p=0.001), total VDS (r=-0.718, p<0.001) and PAS (r=-0.459, p=0.009). FCR was significantly positive correlated with oral phase VDS (r=0.484, p<0.001) and total VDS (r=0.460, p<0.001)

Conclusion

This study showed that VSA was negative correlated with oral and pharyngeal phase VDS score and PAS, and FCR was positive correlated with oral phase VDS score. These findings suggested that VSA and FCR may be helpful in predicting dysphagia severity in stroke