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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Voxel-based Lesion-Symptom Mapping Study of Subcortical Aphasia

Gowun Kim[1,3*], Myungwon Choi[2], Won-Seok Kim[1], Cheol E Han[2], Jihong Park[1], Nam-Jong Paik[1†]

Seoul National University Bundang Hospital, Department of Rehabilitation Medicine[1], Korea University, Sejong, Department of Electronics and Information Engineering [2], Kangwon National University Hospital, Department of Rehabilitation Medicine[3]

Background and aims

Subcortical aphasia develops as a result of damage to subcortical brain areas without loss of cortical function. Although some previous voxel-based lesion-symptom mapping (VLSM) studies have shown possible neural correlates for aphasia, the brain regions associated with subcortical aphasia are still a matter of debate. The aim of this study was to investigate the neural substrates associated with subcortical aphasia in patients with subacute stroke, by using VLSM.

Methods

Fifty Patients, who admitted to Department of Rehabilitation Medicine, Seoul National University Bundang hospital from March 1, 2013 to April 13, 2017 with subacute subcortical stroke, were retrospectively enrolled. Of the 50 patients, 24 patients were diagnosed with aphasia by Korean version of Western Aphasia Battery (K-WAB). Twenty-six Patients with a score of 0 for the best language subscore of the National Institutes of Health Stroke Scale were assigned to the non-aphasia group. The K-WAB score of the non-aphasia group was assumed to be normal value, and then the VLSM study was performed using the K-WAB score and the fluid-attenuated inversion recovery images.

Results

The VLSM analysis demonstrated that the brain regions significantly associated with subcortical aphasia (minimum significant t-value of 2.41, $p < 0.01$) were the left fronto-parietal subcortical whiter matter including external capsule, extereme capsule and corona radiate (Figure 1). There regions seems to be matched with previously known language pathways, dorsal and ventral pathways. Dorsal area of fronto-parietal subcortical white matter was most significantly associated with the aphasia score.

Conclusions

Damage to the left fronto-parietal subcortical white matter, especially dorsal area, is associated with subcortical aphasia in patients with subacute stroke.

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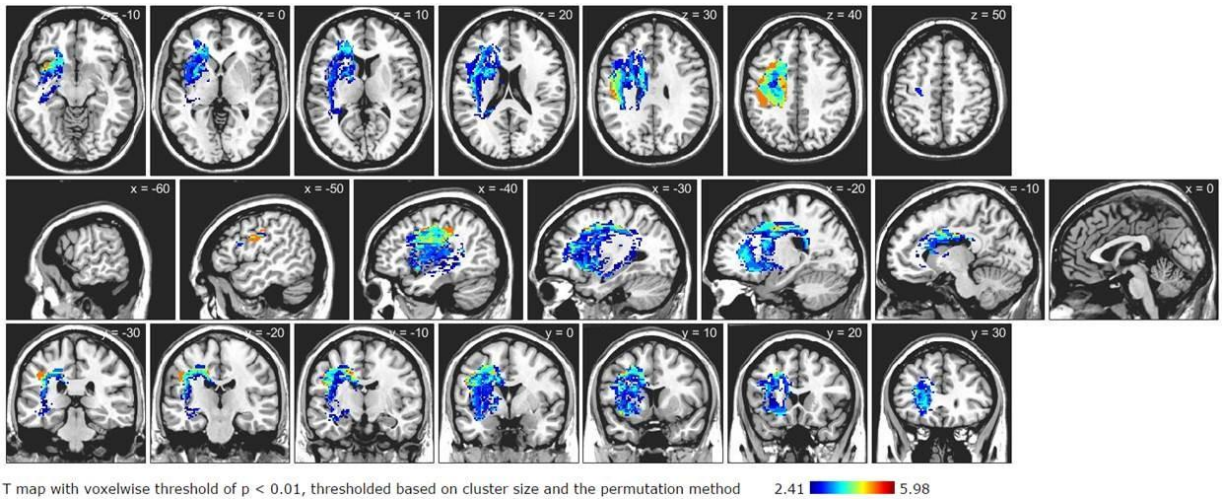

Figure 1. Voxel-based lesion-symptom mapping results using permutation testing of $p < 0.01$ with covariates including age, gender and aphasia quotient score