뇌신경재활

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

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Relation between language-related brain white matter and aphasia test battery in stroke patients

Jin-Kook Lee[1,4*], Myoung-Hwan Ko[3,4], Young-Bin Oh[1,3], Yu Hui Won[1,2], Sung-Hee Park[1,2], Jeong-Hwan Seo[1,2], Gi-Wook Kim[1,3†]

Chonbuk National University Medical school and Hospital, Department of Physical Medicine and Rehabilitation[1], Chonbuk National University and Hospital, Research Institute of Clinical Medicine and Biomedical Research Institute[2], Chonbuk National University Hospital, Translational Research & Clinical Trial Center for Medical Device[3], Chonbuk National University, Department of Speech-Language Therapy[4]

Objective

Language-related brain white matters includes arcuate fasciculus (AF), inferior frontal occipital fasciculus (IFOF), inferior longitudinal fasciculus (ILF), and uncinate -fasciculus (UF). The aphasia test battery is used clinically for assessing and classifying aphasic patients. To determine whether language-related brain white matters are sufficiently objective to assess the severity of aphasia, and identify the correlation relationship between language-related white matter and the results of the aphasia test battery.

Method

The retrospective study of 64 patients with aphasia due to left hemisphere lesion who were assessed by Korean-Western Aphasia Battery (K-WAB) and Diffusion Tensor Imaging (DTI). K-WAB, which consisted of spontaneous speech, auditory verbal comprehension, repetition, naming, was performed at mean 25.2 ± 15.2 days after stroke. The aphasia severity was classified according to Aphasia Quotient as 51 points. DTI was performed at mean 24.6 ± 13.8 days after stroke and FA (fractional anisotropy), ADC (apparent diffusion coefficient) and fiber number were analyzed. Receiver Operation Characteristic curves were used to determine the optimal cutoff scores of a single fiber, such as AF, IFOF, ILF, or UF, and multiple fibers, depending on the severity of aphasia. We also analyzed the correlation between each language-related brain white matter fiber and K-WAB subscores.

Results

In receiver operating characteristics analysis of single brain white matter according to severity of aphasia , the optimal cut-off value was 0.38 at the AF FA (sensitivity, 80%; specificity, 79.2%; AUC, 0.816). In ROC analysis of two brain white matters according to severity of aphasia, the optimal cut-off value was 0.81 at the AF + IFOF FA (sensitivity, 80%, specificity, 70.8%; AUC, 0.844). the optimal cutoff value was 0.75 at AF + UF FA (sensitivity,

75%; Specificity, 79.2%; AUC, 0.806). In ROC analysis of three brain white matters according to severity of aphasia, AF + IFOF + UF FA sensitivity was 75% and specificity was 66.7%, the optimal cutoff-value was 1.18 and AUC was 0.821. In the correlation analysis, between AF FA, IFOF FA and K-WAB subscores showed statistically significant results.

Conclusion

We conclude that according to aphasia severity, Optimal cut-off values were obtained in AF FA, AF + IFOF, AF + UF FA and AF + IFOF + UF. also AF and IFOF FA correlated with subscores of K-WAB. The integrity of language-related brain white matter may be helpful to predict the severity of language impairment who suffered stroke

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