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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Differences in white matter abnormalities according to LOC in mild traumatic brain injury.

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Objectives

We investigated differences in white matter (WM) abnormalities according to the presence of loss of consciousness (LOC) in patients with mild traumatic brain injury (mTBI), using tract-based spatial statistics (TBSS).

Methods

Eighty-eight consecutive patients with mTBI and fifty-one age- and sex-matched control subjects were recruited. We classified the patients into mTBI patients with LOC (group A) and those without LOC (group B). Voxel-wise statistical analysis of fractional anisotropy (FA) data was performed by using TBSS implemented in the FMRIB Software Library. We calculated mean FA values across the WM skeleton and within regions of interest (ROIs) based on the intersection between the skeleton and the probabilistic Johns Hopkins University white matter atlas. Among the 48 ROIs examined, we selected 20 ROIs that showed the highest differences between group A and the control group.

Results

Twenty ROIs with the greatest differences between group A and the control group were selected. Interestingly, the 20 selected ROIs for group A and group B overlapped, but the descending order of FA value differences the 20 ROIs were different between groups A and B ($p < 0.05$). There were significant differences in mean FA values between group A and the control group and between group B and the control group for all ROIs; however, there were no significant differences in mean FA values between groups A and B for any of the ROIs ($p > 0.05$).

Conclusions

We found WM injuries in both mTBI with LOC and mTBI without LOC patients, but the magnitudes of the WM injuries in the two LOC groups were not different. Thus, our results suggest that the vulnerability of WM does not appear to be different according to the presence of LOC in patients with mTBI.

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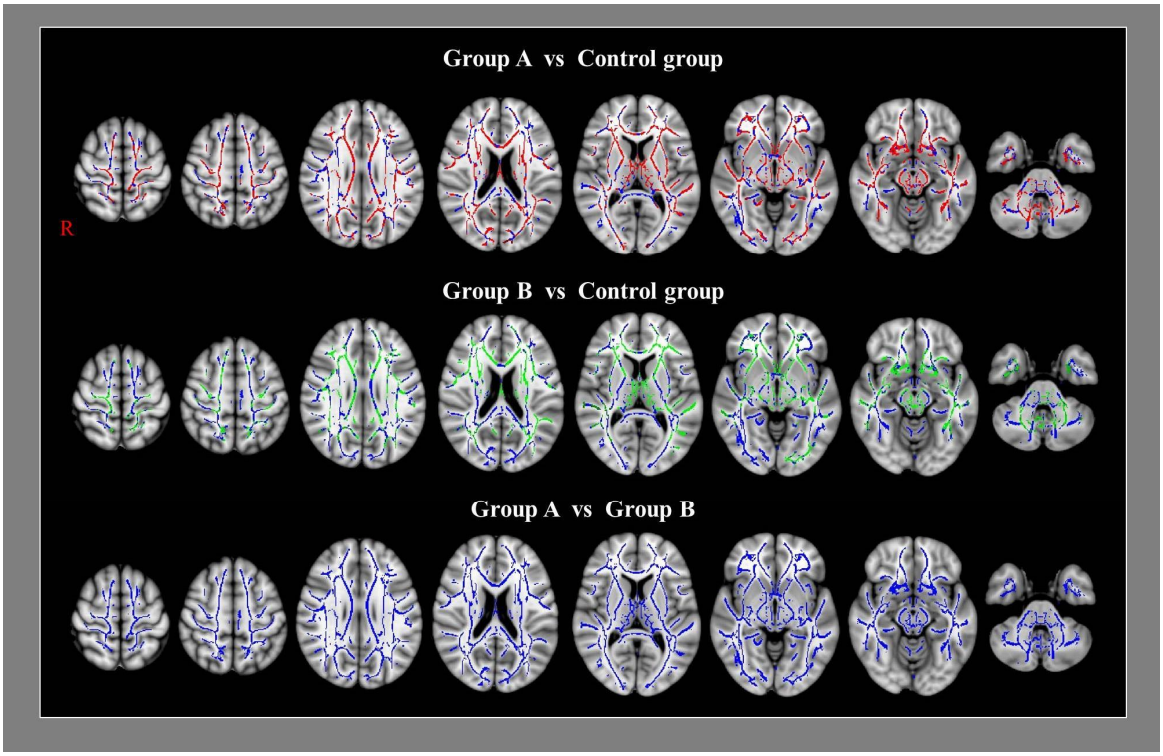

Figure1. Results of tract-based spatial statistics analyses comparing fractional anisotropy (FA) values of patient groups A and B and the control group. The red voxels represent areas of significantly decreased FA values in group A compared to the control group, while the green voxels represent areas of significantly decreased FA values in group B compared to the control group. Notice that there are no significant differences in FA values in the comparison of groups A and B. Significant voxels are overlaid on the mean white matter skeleton (blue).