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)

P 2-87

Diagnostic approach to traumatic axonal injury of the STT in individual patients with mild TBI

Sung Ho Jang[1†], Han Do Lee[1†], Seung Hwa Jang[1*†]

Yeungnam University Medical Center, Department of Rehabilitation Medicine[1]

Objectives

We investigated an approach to the diagnosis of traumatic axonal injury (TAI) of the spinothalamic tract (STT) that was based on diffusion tensor tractography (DTT) results and a statistical comparison of individual patients who showed central pain following mild traumatic brain injury(mTBI) with control group.

Methods

Five right-handed female patients in their forties and with central pain following mTBI and 12 age-, sex-, and handedness-matched healthy control subjects were recruited. After DTT reconstruction of the STT, we analyzed the STT in terms of three DTT parameters (fractional anisotropy[FA], mean diffusivity[MD], and fiber number[FN]) and its configuration (narrowing and tearing). To assess narrowing, we determined the area of the STT on an axial slice of the subcortical white matter.

Results

the FN values were significantly lower in at least one hemisphere of each patient compared to those of the control subjects($p<0.05$). Significant decrements from the STT area in the control group were observed in at least one hemisphere of each patient($p<0.05$). Regarding configurational analysis, the STT showed narrowing and/or partial tearing in at least one hemisphere of each of the five patients.

Conclusions

Herein, we demonstrate a DTT-based approach to the diagnosis of TAI of the STT. The approach involves a statistical comparison between DTT parameters of individual patients who show central pain following mTBI and those of an age-, gender-, and handedness-matched control group. We think the method described in this study can be useful in the diagnosis of TAI of the STT in individual mTBI patients.

Acknowledgment :This work was supported by the Medical Research Center Program (2015R1A5A2009124) through the National Research Foundation of Korea funded by the Ministry of Science, ICT, and Future Planning.

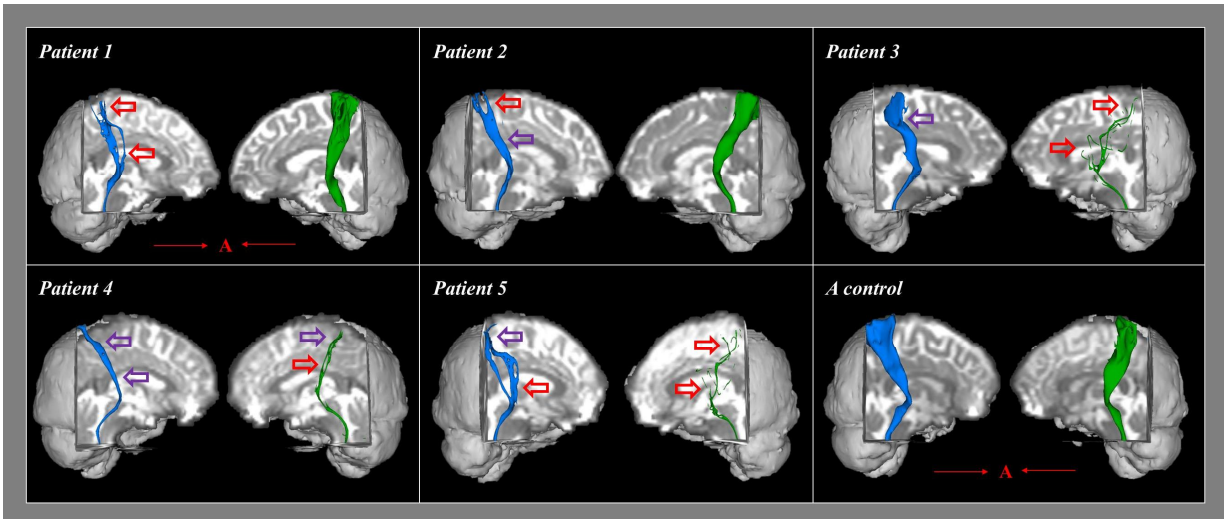

Figure. 1 Results of diffusion tensor tractography (DTT) for the spinothalamic tract of five patients and a representative control group subject. Partially torn and narrowed areas are marked with red arrows while narrowed areas are marked with purple arrows.