

Injury of the spinothalamic tract following whiplash injury: A diffusion tensor tractography study

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Objectives

Using diffusion tensor tractography (DTT), we investigated the injury of the spinothalamic tract (STT) in patients with who have central pain following whiplash injury.

Methods

Nine-teen patients with central pain following whiplash injury and 19 healthy control subjects were recruited for this study. After reconstruction of the STT, fractional anisotropy and tract volume of the STT were measured. In addition, different characteristics of the STT injury according to the collision direction were investigated.

Results

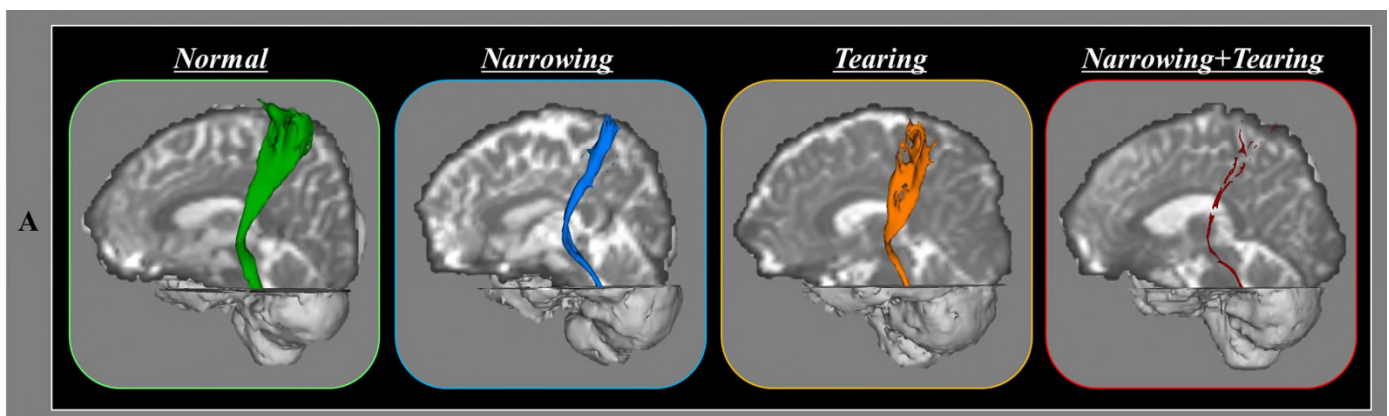
FA value did not show significant difference between the patient and control groups ($p>.05$). However, TV value in the patient group was significantly lower than the control group ($p<.05$). On the results regarding the collision direction, the patients with frontal collision (13.5 days) showed significantly delayed onset duration of the central pain than the patients with real-end collision (0.6 days)($p<.05$). By contrast, Visual Analogue Scale was higher in the patients with real-end collision than the patients with frontal collision ($p<0.05$).

Conclusions

We found injury of the STT in patients with mild TBI who suffered central pain after whiplash injury, using DTT. In addition, we demonstrated the different characteristics of the STT injury according to the collision direction. We believe that DTT would be an useful technique for detection of injury of the STT following whiplash injury.

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Examples of injury of the spinothalamic tract on diffusion tensor tractography