

뇌신경재활

게시일시 및 장소 : 10 월 19 일(토) 08:30-12:30 Room G(3F)

질의응답 일시 및 장소 : 10 월 19 일(토) 11:00-11:30 Room G(3F)

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Increased thalamocortical connectivity to med-PFC with recovery of impaired consciousness

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Objectives

We report a stroke patient who showed increased thalamocortical connectivity to the medial prefrontal cortex (mPFC) with recovery of impaired consciousness that was demonstrated on diffusion tensor tractography (DTT) of the ascending reticular activating system (ARAS).

Case presentation

A 48-year-old male patient underwent craniectomy and hematoma removal for spontaneous intracerebral hemorrhage in the right basal ganglia and thalamus. When he started rehabilitation at five weeks after onset he was in a vegetative state (VS) with a Coma Recovery Scale-Revised (CRS-R) score of 6. He underwent comprehensive rehabilitation including transcranial direct current stimulation and repetitive transcranial magnetic stimulation of the left prefrontal lobe (Brodmann area 10). After five weeks of rehabilitation, the patient had recovered to a nearly normal conscious state with a CRS-R score of 22. On 10-week DTT, thickening of the lower dorsal ARAS was observed on both sides compared with 5-week DTT. Decreased neural connectivity to the left PFC was observed on 5-week DTT whereas decreased neural connectivity to the left PFC was increased on 10-week DTT, especially the mPFC.

Conclusions

Increased thalamocortical connectivity to the mPFC was demonstrated in a stroke patient who showed concomitant recovery from a vegetative state to a nearly normal conscious state. The results suggest that the increased neural connectivity to the mPMC contributed to recovery of consciousness in this patient.

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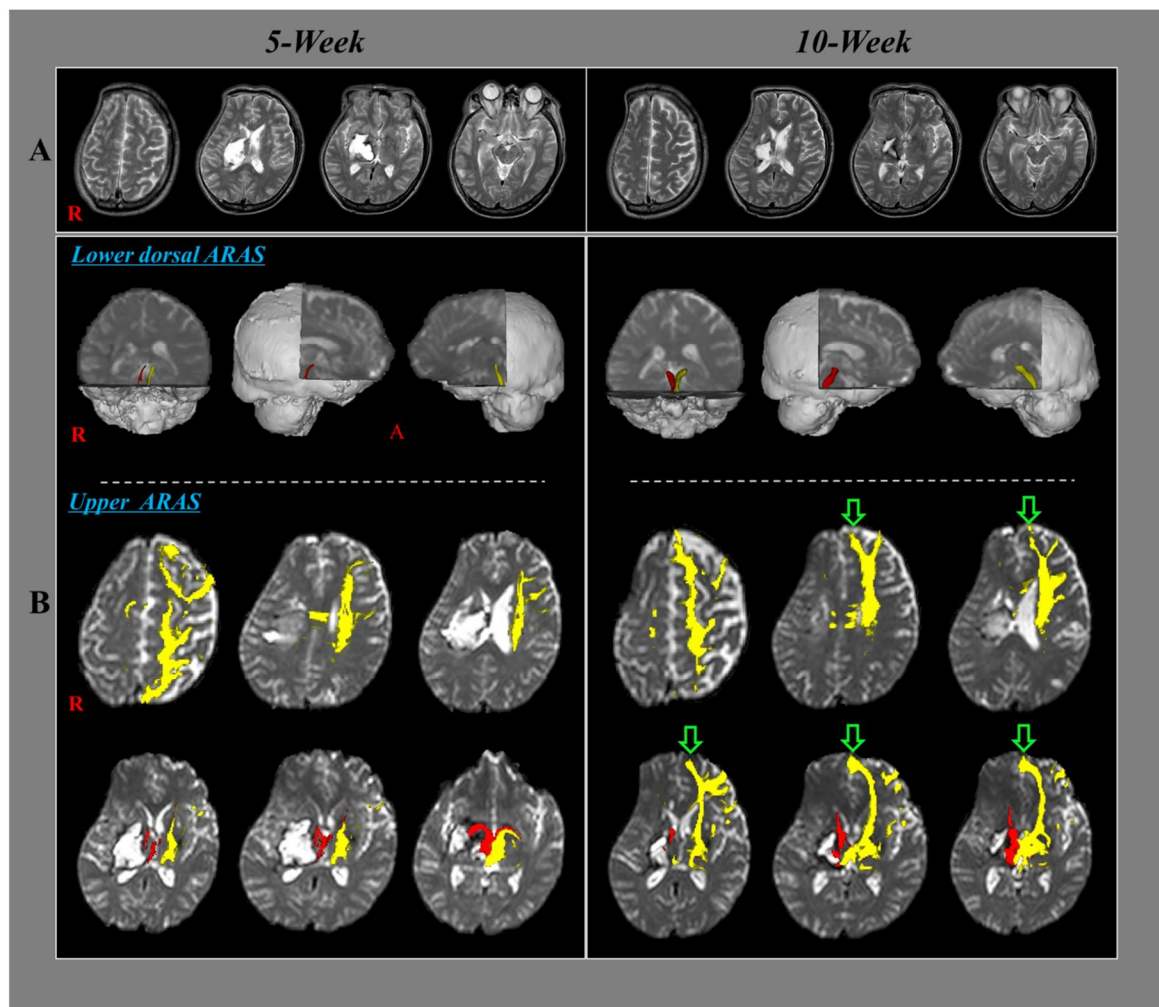


Fig 1. (A) Brain magnetic resonance images at five and ten weeks after onset show leukomalactic lesions in the right basal ganglia and thalamus. (B) Results of diffusion tensor tractography (DTT) of the ascending reticular activating system (ARAS). On the 10-week DTT, thickening of the lower dorsal ARAS is observed on both sides when compared with the 5-week DTT. Decreased neural connectivity to the left prefrontal cortex is observed on the 5-week DTT whereas the decreased neural connectivity to the left prefrontal cortex is increased on the 10-week DTT, especially the medial prefrontal cortex (green arrows).