

Neurogenic fever due to injury of the hypothalamus in a stroke patient

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Objectives

We report on a stroke patient with neurogenic fever due to injury of the hypothalamus, demonstrated by using diffusion tensor imaging (DTI).

Case description

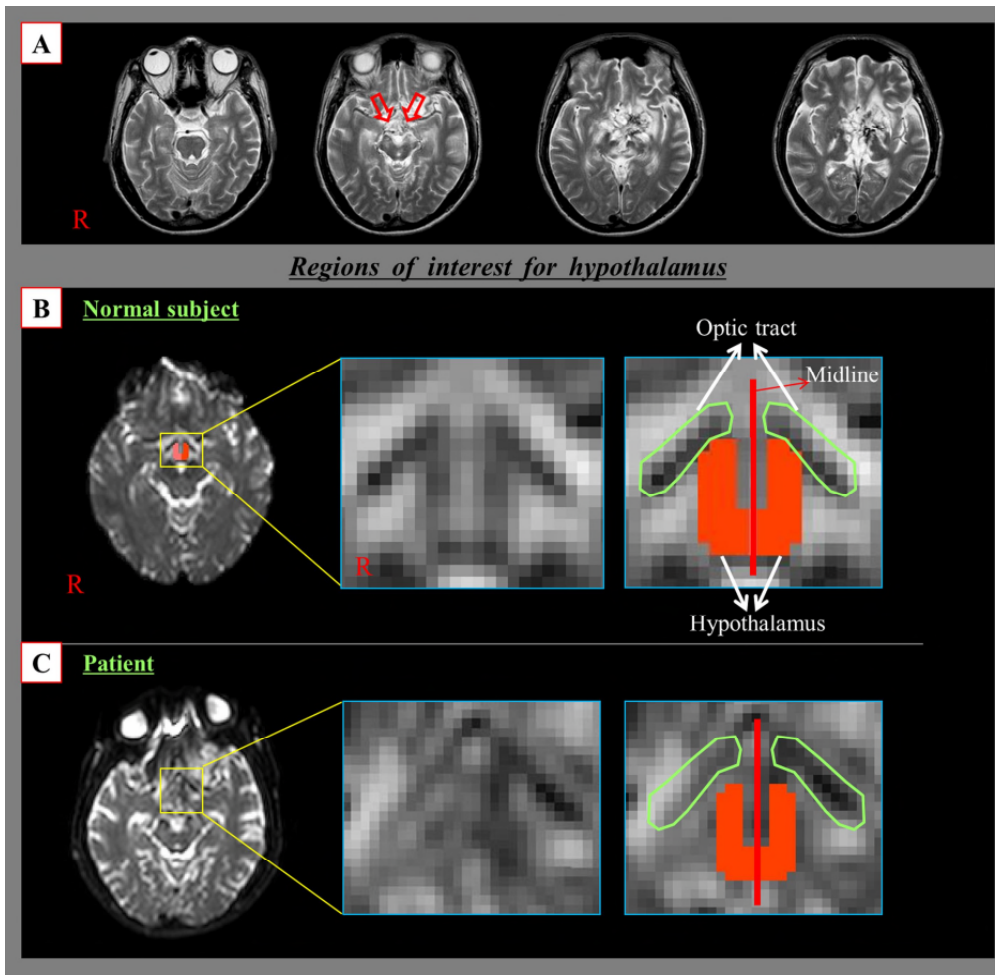
A 28-year-old male patient with intraventricular hemorrhage and intracerebral hemorrhage in the left basal ganglia underwent extraventricular drainage and ventriculoperitoneal shunting for hydrocephalus. At thirty months after onset, he was admitted to the rehabilitation department of our university hospital. Brain magnetic resonance imaging showed leukomalactic lesions in the hypothalamus, bilateral medial temporal lobe, and bilateral basal ganglia. He showed intermittent high body temperature (maximum: 39.5°C, range 38.5°C~39.2°C), but did not show any infection signs upon physical examination or after assessing his white blood cell count and inflammatory enzyme levels such as erythrocyte sedimentation rate and C-reactive protein. In addition, 8 age-matched normal (control) subjects (4 male, mean age, 26.6 years; range, 21–29 years) were enrolled in the study. DTI was performed at thirty months after onset, and fractional anisotropy (FA) and apparent diffusion coefficient (ADC) values were obtained for the hypothalamus. The FA and ADC values of the patient were lower and higher, respectively, by more than two standard deviations from the control values.

Conclusions

Injury of the hypothalamus was demonstrated in a stroke patient with neurogenic fever. Our results suggest that evaluation of the hypothalamus using DTI would be helpful in patients show unexplained fever following brain injury.

Acknowledgment

This work was supported by the National Research Foundation of Korea (NRF) grant funded by the Korean Government(MSIP) (No. 2018R1A2B6000996).



(A) T2-weighted brain magnetic resonance images show leukomalactic lesions in the hypothalamus (arrows), bilateral medial temporal lobe, and bilateral basal ganglia. (B) Regions of interest for the hypothalamus were localized by using the optic tract (anterior boundary), the mammillary body (posterior boundary), and the midline (medial boundary) at the level of the upper midbrain in the patient and a representative normal subject.