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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Alterations of Functional Connectivity in a Patient with Cortical Deafness: A Case Report Study

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Background

Cortical deafness is a hearing disorder caused by damage of bilateral primary auditory cortex or white matter, having a very rare prevalence. This case report presents alterations of functional connectivity in intrinsic auditory, motor, and sensory networks in a patient with hearing loss after bilateral putaminal hemorrhage.

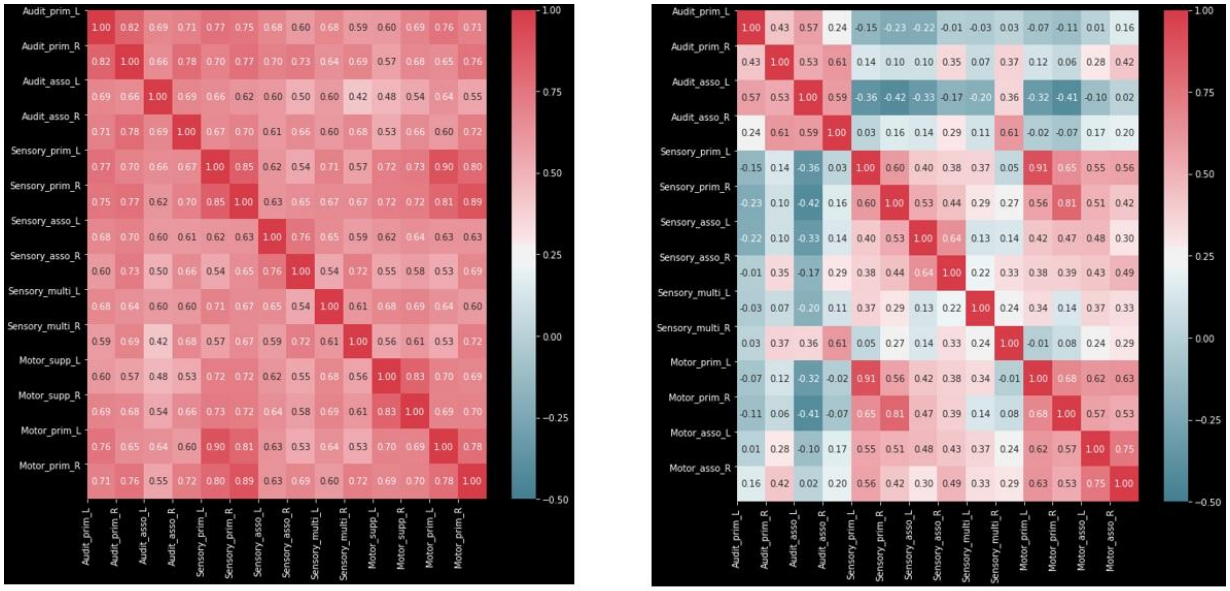
Case

A 41-year-old woman was referred to an inpatient consultation to Department of Rehabilitation Medicine for sequelae after the second hemorrhagic stroke. She had diagnosed as hypertension but did not take a medicine. Eight years earlier, she had suffered from a left putaminal hemorrhage, however she almost fully recovered. After 7 years later, she got a right putaminal hemorrhage and transferred to our department and then received an intensive rehabilitation therapy. At that time, she had quadriparesis, gait imbalance, hypoesthesia and complete hearing loss. The patient could not respond to auditory stimuli, but the ability of writing and reading was intact. Although there was not reliable response to pure tone audiometry, auditory brainstem response and distortion product otoacoustic emission were intact. After 6 months later her receiving rehabilitation therapy, we obtained resting-state fMRI (rs-fMRI). Although the corticospinal tract and somatosensory track were intact, the acoustic radiation of central auditory pathway was not detected using deterministic tracking methods. Furthermore, in the patient compared to healthy controls, decreased functional connectivity between auditory and motor networks was shown. Also, there was decreased functional connectivity between auditory and sensory networks. However, functional connectivity between motor and sensory networks was relatively preserved.

Conclusion

According to our knowledge, this is the first rs-fMRI report of cortical deafness patient. Our case represents decreased functional connectivity among intrinsic auditory, motor

and sensory networks when considering disabled with complete deafness, motor and sensory impairments after bilateral putaminal hemorrhagic stroke.



Control Case

Fig 1. Functional connectivity between auditory and motor networks in control group and a patient with cortical deafness.