

FRONTAL LOBE OXYHEMOGLOBIN LEVELS IN PATIENTS WITH BURN DURING WALKING ASSESSED USING fNIRS

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Introduction

An understanding of the mechanisms associated with locomotor networks has the potential to benefit the burn rehabilitation of patients with neurological locomotor deficits. However, the effects of peripheral neurological injury on locomotor network remain unknown. This study is purposed to examine patterns of cortical activation using the NIRST functional nearinfrared spectroscopy(fNIRS) device in patients with neurological injury caused by lower extremities burn.

Method

15 patients with lower extremities burn, 10 patients with upper extremities burn and 11 healthy controls were assessed in this study. We evaluated gait related cortical activity using an fNIRS system at baseline and usual walking. Cortical activity was determined through the relative changes in the hemoglobin concentrations.

Results

fNIRS showed increased cortical activation in the prefrontal cortex in patients with lower extremities burn compared with cortical activation in the patients with upper extremities burn and healthy controls

Conclusion

This study is the first to evaluate the changes in cortical activity measured with an fNIRS system on patient with burn injury. Prefrontal activation during walking is dependent on lower extremities burn and that the patients with neurological injury apparently rely more on cognitive resources even during usual walking task.

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