

2nd International Conference on

Brain Disorders and Therapeutics

Chicago, USA October 26-28, 2016

Comparison of frontal function during verbal fluency task by near-infrared spectroscopy and functional MRI

Michihiko Koeda¹, Moe Kidoguchi², Yuki Takahashi², Tomoko Hama², Tokuhiro Kawara², and Yoshiro Okubo¹¹Nippon Medical School, Japan²Bunkyo Gakuin University, Japan

In order to understand the pathophysiology of depression, development of a convenient clinical application for evaluating frontotemporal function using near-infrared spectroscopy (NIRS) is a very important challenge. In terms of time resolution, NIRS is more effective than functional MRI (fMRI), although anatomical resolution is not much better than by fMRI. However, whether the significant brain activation by NIRS is equivalent to that shown by fMRI is unclear. To confirm the anatomical validity of brain function, in the present study, by comparing the results of NIRS and fMRI, we investigated frontotemporal function during verbal fluency. 20 normal subjects participated in this study. Brain function of all subjects was examined by both NIRS and fMRI during a verbal fluency procedure. Two tasks were examined; period A: they simply spoke vowel sounds repeatedly; period B: they spoke words as much as possible after their initials were displayed. In both the results of NIRS and fMRI, under the condition of period B compared with period A, a significant activation was observed in the bilateral dorsolateral prefrontal gyrus. From these findings, we concluded that frontal activation of verbal fluency by NIRS conveniently reflects frontal brain function by fMRI.

Biography

Michihiko Koeda is a senior assistant professor of the psychiatry department at Nippon Medical School, Tokyo, Japan. He completed his PhD at the Medical Research Institute of Tokyo Medical and Dental University. He was a visiting researcher at the University of Glasgow. He is continuing to investigate auditory brain function by the use of functional MRI to clarify the pathophysiology of psychiatric symptoms, and pharmacological and/or genetic effects.

mkoeda@nms.ac.jp

Notes: