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**Effects of transcranial direct current stimulation to restorative and chronic stage stroke patients
—Case report ; study of immediate effects by using kinesiological evaluation—**

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【Purpose】 Transcranial direct current stimulation (: tDCS) studies for the stroke related symptoms such as motor paralysis and neuropsychological dysfunctions at the chronic phase were reported. We aimed to investigate the effect of tDCS on the improvement of the paretic hand function by using kinesiological parameters. In order to assess the improvement of the upper extremity movements, the angle and velocity was evaluated by using motion capture analysis.

【Methods】 Two stroke inpatients participated in this study. Case A : 68 year - old man who had suffered a right radiata ischemic stroke (60 days from onset : restorative stage inpatient). Case B : 55 year - old man who had suffered a medial pre-frontal cortex, precentral and postcentral gyrus ischemic stroke (3.3 years from onset : chronic patient). We applied tDCS (1mA, 20 minutes) bilateral primary motor cortex. Paretic wrist extension and thumb abduction motion were analyzed with motion capture and analysis software (Flame-DIAS IV). Measurement was taken at before and after the tDCS and sham-stimulation.

【Results】 Case A : Angle velocity of wrist extension movement improved after tDCS stimulation (164 to 273 degree/second : 66%). Case B : Angle velocity of thumb abduction 12.0 to 23.4 degree/second : 94%). There are not significant change in the other movement and parameters.

【Discussion】 The findings demonstrated the feasibility and efficacy of tDCS. The facilitative or inhibitory effect of tDCS on motor cortex resulted in improvement of paretic hand with faster and wider movement. The results indicate implications for the use of tDCS for stroke rehabilitation.