

10 | S2 | 00

Released May 2000

ISSN 1015-9770

10 (suppl 2) 1-116 (2000)

Supplement for subscribers free of charge

Cerebrovascular Diseases

ABSTRACTS



9th European Stroke Conference

Vienna, Austria, May 24-27, 2000

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8 Recovery and Rehabilitation

Cutaneous Stimulation Enhances Sensorimotor Recovery in Chronic Stroke

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After a severe cerebrovascular accident the recovery of limb sensorimotor functions plateaus by six months from the insult and the condition is considered chronic. We hypothesized that added afferent stimulation may enhance the sensorimotor reorganization in the injured brain and facilitate functional recovery in chronic stroke.

Methods and Results: The effect of monophasic twin-pulse cutaneous electrical stimulation was assessed on sensorimotor recovery of chronic stroke subjects. Thirty-five subjects with chronic stroke (mean age 56 y, mean stroke duration 3.7 y) received treatment and thirteen chronic stroke subjects (age 54 y, duration 3.1 y) received no-current treatment. Treatment was tailored to each subject's sensory threshold via a glove electrode to the affected hand twice daily for 3 weeks in addition to regular rehabilitation. A functional test battery, including well-known ADL scales, electrophysiology, subject questionnaire, etc., was performed before and after treatment period. Treatment and placebo groups received 21 ± 6 and 20 ± 4 stimulation sessions, respectively. Functional scales showed similar small mean improvements in both groups. Improved hand function and skin sensitivity as well as diminished pain was observed in 63 % of the treatment group compared to that of 23 % of the placebo group. 10 treated subjects gained new finger or wrist movement while 1 placebo-treated subject gained some movement. Treatment effect was statistically significant in sensory and motor hand functions.

Conclusions: Cutaneous electrical stimulation improved objective and subjective sensorimotor recovery of the affected hand in chronic stroke subjects compared to placebo-treated subjects. Enhanced recovery may be due to cortical reorganization.