Transcranial Application of Low-Energy Laser Irradiation Improves Neurological Deficits in Rats Following Acute Stroke

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Background and Objectives: Low-level laser therapy (LLLT) has been shown to have beneficial effects on ischemic skeletal and heart muscles tissues. The aim of the present study was to approve the effectiveness of LLLT treatment at different locations on the brain in acute stroked rats.

Study Design/Materials and Methods: Stroke was induced in 169 rats that were divided into four groups: control non-laser and three laser-treated groups where laser was employed ipsilateral, contralateral, and both to the side of the induced stroke. Rats were tested for neurological function.

Results: In all three laser-treated groups, a marked and significant improvement in neurological deficits was evident at 14, 21, and 28 days post stroke relative to the nontreated group.

Conclusions: These observations suggest that LLLT applied at different locations in the skull and in a rather delayed-phase post stroke effectively improves neurological function after acute stroke in rats. Lasers Surg. Med. 38:70–73, 2006. _ 2006 Wiley-Liss, Inc.