

A SINGLE PHOTON EMISSION COMPUTED TOMOGRAPHY STUDY OF THE THERAPY OF INTRAVASCULAR LOW INTENSITY LASER IRRADIATION ON BLOOD FOR BRAIN INFARCTION

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Abstract

We used single photon emission computed tomography (SPECT) in brain perfusion imaging to study the changes of regional cerebral blood flow (rCBF) and cerebral function in brain infarction patients treated with intravascular low intensity laser irradiation of blood (ILIB). Seventeen of 35 patients with brain infarction were admitted to be treated by ILIB on the base of standard drug therapy, and SPECT brain perfusion imaging was performed before and after ILIB therapy with self-comparison. The results were analyzed using the brain blood flow function change rate (BFCR%) model. The effect of ILIB during the therapy process in the other 18 patients was also observed. In the 18 patients, SPECT indicated an improvement of rCBF (both in focus and in total brain) and cerebral function after a 30 min-ILIB therapy. And the 17 patients showed an enhancement of total brain rCBF and cerebral function after ILIB therapy in comparison with that before, especially for the focus side of the brain. The enhancement for the focal area itself was extremely obvious with a higher significant difference ($P < 0.0001$). The mirror regions had no significant change ($P > 0.05$). BFCR% of foci was prominently higher than that of mirror regions ($P < 0.0001$). In conclusion, the ILIB therapy can improve rCBF and cerebral function and activate brain cells of patients with brain infarction. The results denote new evidence of ILIB therapy for those patients with cerebral ischemia.