LASER SURGERY IN TREATMENT DIABETIC FOOT SYNDROME

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Treatment of purulent-necrotic wounds against diabetes is particularly complicated, due to violation of intra-cellular metabolism, low regenerative potential and tendency to spread. Unsatisfactory results leads to the search for new factors of modern treatment. Experimental and clinical studies proved the effectiveness of high-power CO2 laser with purulent necrotic wounds in diabetics, due to strong bactericidal and coagulating action, minimal trauma surrounding tissue, and local immune-modulating effect.

Aim:To improve results of surgical treatment of purulent necrotic wounds in diabetic foot syndrome (DFS) by using high-CO2 laser.

Materials and methods. Results of treating 316 patients for the period 2006-2011. DFS patients were divided according to the classification of Meggi-Wagner; with stage II - 44.6%, -25.4% in III, IV of -12.2% in the - 18 , 8%. Neuropathic form DFS was diagnosed in 72 (22.8%), - ischemic in 74 (23.4%), neuro-ischemic - in 170 (53.4%) patients. The reaction of tissue in the wound area in 64% of patients had inflammatory-degenerative, and in 36% - necrotic-degenerative type. Without the stabilization of carbohydrate metabolism, antibacterial, disaggreganive, neurotropic therapy, immunotherapy with thymic peptides, patients conducted surgical sterilization of purulent wounds. In 30 (9.5%) - multi-stage surgery, in 144 (45.6%) – necrectomy, in 70 (22.2%) - amputation of fingers, in 40 (12.7%) – transmetatarsal amputation of the foot, in 32 (10.1%) - transfemoral amputation. For laser necrectomy and removing of pus cells using high-energy carbon laser "beam-M" (wave length 10.6 microns), the output power - 25 watts. In 42 (13.3%) patients used laser necrectomy and wound irradiation smoothly defocused beam energy density of radiation 18-20 J/cm2. Later served with dressing. The effectiveness of treatment was estimated at 5, 10, 14 days based on the following criteria: the appearance of granulation, epithelialization, cytochemical and microbiological studies.

Results. In patients after laser necrectomy granulation appeared on average for 5-7 days and on 10 days observed epithelization. Already for 5 days significantly reduced the number of microorganisms in wound fluid. In all patients in smears-imprints from wounds in earlier terms increased number of mononuclear cells, lymphocytes, macrophages, indicating the active regeneration of wounds. Healing wounds after LS happening 1.4 times faster than with traditional surgical treatment. Thus, the use of LS in the complex treatment of patients with DFS was accompanied by a positive effect, which manifests accelerated wound healing and reduction of stay of patients in hospital.