

Changes of erythrocyte forms and microcirculation in pathological processes and their correction with laser influences

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The majority of pathologic processes increase share of pathologic forms of erythrocytes - PFE in zone of lesion and in peripheral blood. The latter is associated with disturbances of microcirculation – MC. Local laser irradiation-LLI of pathologic areas as well as intravascular irradiation of peripheral blood - ILIB are the effective methods for reducing the mentioned changes. An analysis of correlations between the ratios of erythrocyte forms, parameters of microcirculation, structures of pathologically changed organs and actions of laser had not been performed before. The structural changes of organs in pathology, shifts in the ratios of erythrocyte forms in peripheral blood and in the blood sampled from lesions were studied by means of light, transmission and scanning electron microscopes, and morphometry. ILIB was administered with “Matrix-VLOK”, with attached to it irradiating nozzle, which emits waves with length of 0.63 microns, output power-1.5-2 mW. The parameters of LLI on pathologic foci were following: exposition time -5 min, frequency-1000 Hz, per diem, number of sessions-5-10. MC was assessed with LAKK-01. In all studied types of pathologies there were particular variants of changes in the share of PFE. This was accompanied by corresponding specific changes of MC and of ultra structure in the areas of lesions in organs. Although separate applications of LLI and of ILIB cause marked reduction of the changes in organs and normalization of erythrocytes in blood, the complex usages of ILIB together with LLI gives far better results.

Biography

Iskander Baybekov is the Chief of Laboratory of pathologic anatomy of Center of Surgery Since 1979. He is the author of more than 400 scientific publications among them fifteen are monographs. He has been studying the problems of gastroenterology, wound healing and biomedical problems of laser irradiation and the electrochemical activated solutions and their influence on cells, tissues, organs and organisms since 1978. In his investigations he uses transmission and scanning electron microscopy, stereology, radioautography and other methods. He is the member of Laser Academy of Sciences of Russia.

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