

LASER THERAPY FIELD MODEL

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The wide use of the laser and light therapy allows to accumulate the huge practical material on application of the low-level electromagnetic field effect in various medicine spheres. But at the same time the prevalence of the empiric approach in development of treatment methods often leads to the discrepant results. In many cases this fact is a consequence of lack of the clear understanding of the mechanisms of the low-level radiation effect on a human organism. More over the experimental data given in the publications often do not let elaborate the general opinion about the efficacy of the treatment. We are going to clarify the prima facie seeming contradictory experimental observations as most of them may be explained by the field model, which treats the registered effects as a field disturbance of human organism in a low level electromagnetic radiation of optic band that is an alteration of its inner structure on cell, sub-cell and organ levels.

It should be mentioned that the existence of experimentally registered bio-stimulation effect could stimulate the tissue refractive index changing, which in own turn may be registered. So it may be used as a perspective method for the non-invasive and operative diagnostics. On the other hand a wide range of the obtained information causes the shortcoming that the general pattern of relationship fails at the background of the individual features. Thus, in spite of significant information accumulated in the measurement of optical parameters for different tissues, blood and its components in vitro, the problem of in vivo investigations of tissue optical parameters is still actual, especially for the dynamics of their variation under the influence of the different factors.

The current investigations show that refraction index and scattering properties of biological liquid and tissue are changing in a low level laser field due to the alteration of their structure state. The field model of the low-level optical radiation effect on a human organism is presented. In vivo and in vitro experimental results confirm this approach. Thus, the field effect mechanism is the main one that is responsible for the alteration of the bioliquid structure and the positive effect of the laser and light therapy treating. This effect has a trigger character and is followed by the intensification of other biophysical, bio-energy and bio-chemical processes. It should be stressed that the mechanism of the bioliquid structure alteration is certainly not a single initial mechanism, for example, the direct photo stimulation at the cell level takes place simultaneously, but this effect is of the local character and depends on the spectrum range. The field model gives us a universal instrument for laser treatment individualization. And the information about the state alteration kinetics may be used for non-invasive and operative diagnostics and the treatment control.