Whole blood cell cytokine production in vitro in patients with community-acquired pneumonia and its modification with low-intensity microwave radiation

I.V. Terekhov¹, K.A. Solodukhin¹, V.O. Itskovich², V.S. Nikiforov¹

¹Saratov Military Medical Institute; ²Saratov State Medical University; ³I.I. Mechnikov North-West State Medical University, St. Petersburg

The aim was to study the effect of low-intensity microwave radiation on spontaneous and mitogen-stimulated cytokine production by whole blood cells in patients with community-acquired pneumonia. It is shown that in the acute phase of the disease, a single 20-minute microwave irradiation of the patients’ blood in vitro increased the spontaneous production of IL-1Ra by 38.7 % (p = 0.03), reduced the stimulated production of IL-1β by 26.3 % (p = 0.037) and IL-8 by 56.2 % (p = 0.022), and increased the stimulated production of IL-10 by 27.8 % (p = 0.041). In convalescents, microwave irradiation of blood led to an increase in stimulated production of IL-10 by 51.5 % (p = 0.039), INFγ by 12.7 %, and IL-1Ra by 20.6 %, which is bringing the production of these mediators to the levels of healthy individuals. (Cytokines and Inflammation. 2012. Vol. 11. № 4. P. 67–72.)

Key words: pneumonia, cytokine profile, microwave radiation.