OMICS Group Conferences
Accelerating Scientific Discovery

3rd World Congress on
Cancer Science & Therapy

October 21-23, 2013 DoubleTree by Hilton Hotel San Francisco Airport, USA

Physical activity changes the reaction of circulating phagocytes to antineoplastic drug NSC631570

Skivka L., Fedorchuk O., Malanchuk O., Prokopchuk O., Nowicky W

Taras Shevchenko National University of Kyiv, Ukraine

Abstract

Modulation of phagocytes functions is an important component of the therapeutic effect of NSC631570 – antineoplastic drug with an ability to be selectively accumulated in tumor tissue and activate apoptosis only in malignant cells but not in normal cells. NSC631570 can cause influx of macrophages into the site of it's injection and into the tumor growth area after intravenous administration. The preparation can restore pro-inflammatory functions of macrophages, alternatively polarized by hypoxia. Treatment with NSC631570 is provided both in the outpatient setting (associated with moderate physical activity of patients) and in the inpatient setting (associated with limited excursion). This study is aimed to investigate the effect of physical activity on the reaction of circulating phagocytes to NSC631570. Six healthy volunteers were recruited; blood samples were obtained before and after standartized moderate physical activity, and were treated with NSC632570. ROS generation and phagocytosis were estimated by flow cytometry. Treatment with NSC631570 caused an increase of ROS generation (a marker of "classical" activation) and did not influence phagocytic activity (characteristic for "alternative" activation) in monocytes before physical activity. Phagocytosis and oxidative metabolism of neutrophils from these blood samples were increased after exposure to the preparation. Treatment of blood samples obtained right after physical activity with the drug resulted in slight decrease of monocyte phagocytosis. Neutrophils from these samples were unresponsive to NSC631570. 4 h after physical activity cells had an inverted reaction to the drug: increased phagocytosis and decreased oxidative metabolism. Phagocytes reaction to the drug returned to basal pattern within 16 h.

Biography

Larysa M.Skivka has completed her PhD at the age of 28 years from R.E. Kavetsky Institute of Experimental Pathology, Oncology and Radiobiology, NAS of Ukraine and postdoctoral studies from Taras Shevchenko National University of Kyiv. She presently is the head of the Department of Microbiology and General Immunology of SEC "Institute of Biology" of Taras Shevchenko National University of Kyiv. She has published more than 12 papers in reputed journals and more than 40 abstracts in scientific congresses