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Non-invasive polysystemic analysis of ecological factors influence on children

Mikhail Karganov, Irina Alchinova, Elena Arkhipova and Julia Medvedeva
Moscow Institute of Open Education, Russia
Institute of General Pathology and Pathophysiology, Russian Academy of Medical Sciences, Russia

Technical progress necessitates continuous control over the quality of life and health of citizens, especially, children as the most susceptible part of the population. Ecological factors modulate metabolic processes in the organism. Our aim was to evaluate the peculiarities of metabolic shifts and buccal nuclei abnormalities depending on the place of residence. We examined 168 schoolchildren aged 14-16 years living in Moscow, Novgorod region, Maikop and rural area of Adygei Republic. Results of cardio-vascular system testing evidenced the incomplete status of functional development of heart rate and peripheral blood pressure vegetative regulating systems in those volunteers. In samples of buccal epithelium incidence of cells with nucleus abnormalities was evaluated. Method of laser correlation spectroscopy (LCS) allows evaluation of the dispersion composition of the examined fluid by the relative contribution of particles into light scatter. Size distribution of particles characterizes the dispersion composition of the examined biological fluid and allows classification of the distribution according to specified informative zones of the spectrum of, for example, oropharyngeal washout fluid (OPWF). In children living in rural areas LCS of OPWF usually revealed normological pattern of metabolic process; the incidence of nucleus abnormalities was lower in this group. The greater part of the examined schoolchildren living in urban regions had primarily catabolic type of metabolism (up to 50%). The incidence of cells with karyorrhexis and karyolysis was significantly higher in this group. We have found a correlation between the pattern of metabolic shifts and the incidence of some nucleus abnormalities in buccal epitheliocytes.

Biography

Mikhail Karganov has completed his PhD at the age of 28 years from Institute of General Pathology and Pathophysiology, postdoctoral studies D.Sci. Degree from the same Institute. He is the Head of Laboratory of Polysystemic Investigations. He has published more than 100 papers in reputed journals and serving as an editorial board member of repute.

mkarganov@mail.ru