



The influence of regional urbanization and abnormal weather conditions on the processes of human climatic adaptation on mountain resorts

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This work is a further development in the study of weather pathogenic index (WPI) and negative influence of urbanization processes on the state of people's health with adaptation disorder. This problem is socially significant. According to the data of the WHO, in the world there are from 20 to 45% of healthy people and from 40 to 80% of people with chronic diseases who suffer from the raised meteosensitivity.

As a result of our researches of meteosensitivity of people during their short-duration on mountain resorts there were used negative adaptive reactions (NAR) under 26 routine tests, stress-reactions under L.H. Garkavi's hemogram, vegetative indices, tests of neuro-vascular reactivity, signs of imbalance of vegetative and neurohumoral regulation according to the data of biorhythm fractal analysis and sudden aggravations of diseases (SAD) as an indicator of negative climatic and urbanization influence. In 2010-2011 the Caucasian mountain resorts were having long periods of climatic anomalies, strengthening of anthropogenic emissions and forest fires when record-breaking high waves of NAR and SAD were noticed.

There have also been specified indices ranks of weather pathogenicity from results of comparison of health characteristics with indicators of synoptico-dynamic processes according to Weather Research and Forecasting model (WRF); air ionization N^+ , N^- , N^+/N^- spectra of aerosol particles (the size from 500 to 20000 nanometers) and concentrations of chemically active gases (O_3 , NO , NO_2 ,), volatile phytoorganic substances in the surface atmosphere, bactericidal characteristics of vegetation by criterion χ^2 (not above 0,05). It has allowed us to develop new physiological optimum borders, norm and pessimum, to classify emergency ecologo-weather situations, to develop a new techniques of their forecasting and prevention of meteopathic reactions with meteosensitive patients (Method of treatment and the early (emergency) and planned prevention meteopathic reactions in patients with coronary heart disease, hypertension stage I-II syndrome disadaptative using the transcranial mezo diencephalic modulation / L.I.Zherlitsina, N.V. Efimenko, N.P. Povolotskaya, I.I. Velikanov. the Patent for the invention №2422128, RU (11) 2 422 128 (13) C1 from 6/27/2011; Bull.13).

We have observed that such anthropogenic characteristics as accumulation of aerosol with the size of particles 500-5000 nanometers in the lower atmosphere in the quantity more than 60 particles/sm³ (getting to alveoli); decrease in quantity of negative ions (N^-) lower than 200 ions/sm³, high coefficient of ions unipolarity (N^+/N^-) – more than 4-6; mass concentration of aerosol more than 150 mkg/m³ and other modules of the environment can act as limited markers for the forecast of dangerous NAR, SAD and taking of urgent radical preventive measures. These techniques of medical weather forecast and meteo prevention can be used in other mountain regions of the world.

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