INFLUENCE OF AIR QUALITY ON NEWBORN HEALTH

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The analysis of the related literature does not cast any doubt that the occurrence of some diseases is directly or at least indirectly associated with the pathogenic exposure to air pollution, especially in urban agglomerations. The relationship between the air pollutants and their impact on the health of inhabitants of urban agglomerations, especially metropolitan cities, concerns not only the morbidity of respiratory and immune system diseases or neurological symptoms, but also the prevalence of prematurity, spontaneous abortion, low birth weight and birth defects of newborns that lower their intellectual and immunological potential in subsequent developmental stages.

Low emission of suspended particulate matter from the sources of municipal and household sector as well as from the so-called secondary emission related to the negligence of city cleanliness and the growing intensity of car transport is a real problem in many cities. Suspended particulate matter has its toxic impact on significant areas due to its cross-border nature caused by meteorological factors that may stimulate the spread of pollutants by air or restrict air ventilation in rural and urbanized areas. Primary particulate matter emission comes from natural and anthropogenic sources, while the particulate matter generated as a result of chemical reactions becomes a secondary toxicant in the atmospheric air.

The number of research projects in which confirmation or exclusion of dependence between high concentrations of suspended particulate matter and the higher number diagnoses of specific diseases in people susceptible to short or long-term exposure to these toxicants is increasing. Among the effects of short-term exposure to the absorption of higher concentrations of suspended particulate matter by the body, acute responses of the respiratory system were found in individual age categories. Long-term exposure, even to relatively low concentrations of particulate matter, over many years leads to the development of chronic diseases, including cancer, especially lung cancer.

The prenatal and perinatal exposure to toxic effects of suspended particulate matter may lead to fetal development disorders and cause perinatal complications; it also poses a higher risk of developing allergies, diabetes, asthma, nervous system diseases, etc. in a child's adult life. The risk of recurrent pneumonia is even three times higher in the children whose mothers were exposed to high levels of $PM_{2.5}$ during pregnancy. In etiopathogenesis of diseases, both the finest particulate matter fractions and the concentration of its individual constituent substances can be critical. It is believed that it is the content of hydrocarbons or transition metals exert more influence on the development of asthma than the total concentration of particulate matter. Physical activity, which intensifies lung ventilation, exposes the people doing sport under the conditions of higher particulate matter concentration to the inhalation of higher content of the toxicant. There is no safe level of concentration below which there are no adverse health effects of exposure to this toxicant.