Abstract

Nowadays, all the aspects that can influence the function of the thyroid gland are not known. Since the influence of environment on progression of many diseases is proved, this thesis deals with the influence of environmental parameters on the thyroid function. The purpose of this thesis is to propose a methodology which will describe selected medical data spatially and statistically, reveal regularities in its spatial organization and create the regression model. The special organization of the data is described by the closest neighbour´s methodology and by the Local Moran`s I. Then the methodology of O2PLS, which proposes the regression model, is used. There were identified the cluster organization in the vicinity of towns. In the thesis, the regression model, which takes account of the aspects of the environment (the concentration of As, Cd, Pl, Pb and Se in water), was proposed. The influence of the other environmental parameters on the thyroid function was not proved. The thesis is a benefit mainly for the field of spatial data analysis and also for the endocrinological specialization. Owing to this thesis, the process of the way of working with sensitive medical data, that can be used for inferring important information about its connection to the spatial data, was created.

Key words: Spatial analysis, quantitative methods, O2PLS, the environment, thyroid gland.