VII Summary

This study aimed to assess the inhibitors of lithogenesis of the urinary tract disease among patients from north-eastern Poland using statistical methods. The material for the research has been taken from people treated for urinary tract disease. The control group was composed of people from the same environment as those from the research group, namely their spouses and cousins. Each group consisted of approximately of 200 people split evenly between women and men. The data were compiled from urine samples, specifically the excretion of magnesium, citrates, and creatinine as well as the individual's BMI, age, and sex. These data were then analyzed statistically using the Statistica program which verified that there is a statistically significant difference in excretion of the chemical substances in the urine of the examined patients compared to the control group, with small or negligible difference for the BMI and age of the patient. It was also shown that there is a substantial difference in excretion of inhibitors of lithogenesis when it comes to the sex of an individual.

In the second part of the work it was attempted to assess the effectiveness of statistical methods as tools for creating an algorithm that would help to identify people that are at the risk of nephrolithiasis. Among the tools used in this work, decision trees were chosen as they best illustrated the results and encapsulated the data. The advantages of that model are: simplicity, clarity, the ease with which new parameters can be added, and high sensitivity and specificity of the results.