

## ABSTRACT

**OBJECTIVE:** The objective of this dissertation was to compare the efficiency of an insulin pump and an intensified insulin regime on atherosclerosis markers – especially the lipid spectrum in patients with diabetes mellitus.

**INTRODUCTION:** Diabetes mellitus is an illness developing in an increasing number of persons. The aim of diabetes mellitus type 1 treatment is to compensate the symptoms of this pathology in an effort to postpone or reduce the complications of the illness. In diabetes patients, complications connected with atherosclerosis are very common. These consequences of diabetes become the most common cause of death of patients.

The insulin pump and the intensified insulin regime are strategies with the help of which doctors attempt to influence the development of complications associated with diabetes. The choice between these two procedures is still under heated discussion.

**METHODS:** At work we compared 50 patients treated with the insulin pump and 50 who had an intensified insulin regime. We compared the lipid spectrum, glycosylated hemoglobin, BMI, number of insulin units per day, and complications in both groups. We also studied the connection between this illness and diseases of the thyroid gland, or smoking. We compared the possible differences based on gender.

**MAIN FINDINGS:** We did not find any statistically significant differences between the individual groups during lipid spectrum comparison. Nor does there exist a significant difference between the glycosylated hemoglobin content. It is possible, nonetheless, to observe a better results tendency (lower cholesterol and LDL values and higher HDL values, lower amounts of glycosylated hemoglobin) in patients treated with the insulin pump in our investigation. A reverse tendency is visible if BMI is compared, where patients with the intensified insulin regime had lower average BMI values than those treated with the insulin pump. The number of insulin units per day is significantly lower in patients treated with the insulin pump than in those with an intensified insulin regime (by 11,41%).

**CONCLUSION:** With regard to the observed trend we can support the known fact that the insulin pump provides many advantages for a patient with DM. It cannot, however, be recommended to every patient suffering from this illness. It is important to keep in mind the individual needs of a patient and the progression of his/her

illness. However, in order to verify our findings, it is necessary to conduct further investigation which would confirm the statistical significance of our observed tendencies on a wider range of patients.

**KEY WORDS:** diabetes mellitus, atherosclerosis