lek. wet. Jan Matczuk

Temat: „*Profil lipidów w gruczołach ślinowych szczura w przebiegu insulinooporności indukowanej dietą bogatotłuszczową i cukrzycą typu 1”*

SUMMARY

In today’s world wrong nutritional habits together with a low level of physical activity have given rise to the development of obesity and its comorbidity, insulin resistance. More specifically, many researches indicate that lipids are vitally involved in the onset of a peripheral tissue (e.g., skeletal muscle, heart, and liver) insulin resistance. Moreover, it seems that diabetes can also induce changes in respect of lipid composition of both the salivary glands and saliva. The salivary glands lipid profile in the course of obesity and insulin resistance as well as diabetes type 1 still has not been sufficiently explored.

In the current study I aim to assess the changes in the main lipid fractions, namely, triacylglycerols, phospholipids, free fatty acids, and diacylglycerols, in the parotid and the submandibular salivary glands of: rats exposed to a 5-week high fat diet regimen and rats with streptozotocin induced diabetes.

In both experiments male Wistar rats were divided into two groups: control and high fat diet induced insulin resistant (HFD) and control and STZ-induced diabetes. After five (HFD) or two weeks (STZ diabetes) all animals were sacrificed and samples of the parotid and submandibular salivary glands were excised. Major lipid fractions concentrations were determined by means of chromatography (TLC and GC).

It was observed that the high caloric fat diet caused a significant change in the salivary glands lipid composition, we observed a significant decrease in the concentration of PH and a significant increase in the concentration of TG in the submandibular gland, as well as a significant reduction in the concentrations of FFA and DG in both salivary glands. There was a significant increase in the concentration of TG in both parotid and submandibular glands of rats with type 1 diabetes mellitus. These changes were accompanied by a substantial, although less pronounced decrease in the concentration of FFA and DG in both salivary glands, in the case of the submandibular glands, the decrease in the concentration of PH compared to control group was also observed.

The observed reduction in PH concentration is an interesting phenomenon frequently signifying the malfunctions in the saliva secreting organs. On the other hand, the increased accumulation of TG in the glands may be an important clinical manifestation of metabolic syndrome and type 1 diabetes mellitus.