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Doctoral dissertation entitled “Inflammation in Hashimoto's disease related to diet and level of physical activity”

SUMMARY

Aim: The aim of this study was to analyze selected indicators of oxidative stress and inflammation in people with autoimmune Hashimoto's thyroiditis compared to healthy people. As well as the answer to the question of how physical activity affects the level of thyroid hormones and what type of activity is especially recommended in hypothyroidism. In addition, the aim of the study was also to assess the frequency of using a lactose-free diet and the most common complaints among patients with Hashimoto's.

Methods: People with diagnosed Hashimoto's disease and a control group of healthy people participated in the study. Concentrations of interleukin 1 (IL-1β), interleukin 6 (IL-6) and tumor necrosis factor alpha (TNF) -α were measured by an enzyme immunoassay ELISA method. The concentration of zinc (Cu) and copper (Zn) in the serum was determined by atomic absorption spectrometry. The calorimetric method (ability to lower plasma iron concentration, FRAP), concentration of thiobarbituric acid-reactive substances (TBARS) and total phenolic compounds were used to determine the concentrations of total antioxidant capacity of the plasma. A short proprietary questionnaire was used to assess the frequency of using a lactose-free diet and the frequency of comorbidities and the most common ailments among patients with Hashimoto's disease. The impact of physical activity was assessed on the basis of a literature review.

Results: Compared to the control group, women with Hashimoto's thyroiditis were characterized by a significantly higher concentration of IL-1β and IL-6 in the blood and a significantly higher concentration of TNF-α. The comparative analysis of the level of biochemical indicators determined in blood at rest between the two groups showed a significant difference in TBARS concentration ($p < 0.0001$), without significant differences in the concentration of Zn, Cu, FRAP and the total content of polyphenols. Only 22% of respondents routinely follow a lactose-free diet. The most commonly reported among Hashimoto's patients are skin diseases. Physical activity can affect how the thyroid gland works.

Conclusions: Hashimoto's disease is associated with an increased inflammatory response. Patients must be diagnosed for other diseases, including dermatoses or lactose intolerance.