

Streszczenie w j. angielskim

The results of numerous studies indicate that autoimmune processes in the course of celiac disease may disturb the functioning of the central nervous system in children. The causes of these disorders and the effects of treatment with a gluten-free diet are not well understood. A few publications concern the qualitative assessment of EEG in children with celiac disease, and the obtained results are inconclusive. To date, no studies using quantitative EEG (QEEG) analysis in patients with celiac disease have been published. Therefore, it was justified to try to assess the impact of gluten intolerance on the bioelectric activity of the brain in developmental-age patients using the above-mentioned methods.

The aim of this study was to evaluate the effect of a gluten-free diet on the neurological state and bioelectrical activity of the brain in children with celiac disease, using the quantitative analysis of EEG.

45 children with celiac disease diagnosed according to ESPGHAN criteria were qualified for the study: 18 patients with newly diagnosed celiac disease (CBD) and 27 patients on a gluten-free diet > 12 months (CND2). The comparative group consisted of 40 children with functional disorders of the gastrointestinal tract, matched for age and sex. In each group, questionnaire forms were completed, laboratory tests, EEG records, qualitative and quantitative QEEG analyzes were performed, and the results were subjected to statistical analyzes. Patients with newly diagnosed celiac disease were examined twice: before introducing the diet (CBD) and after 6 months of following it (CND).

On the basis of the research and the analysis of the results, five conclusions were formulated, which were the answers to the questions posed in the chapter "Objectives of the study".

1. Neurological symptoms occur in 67% of children with newly diagnosed celiac disease, dominate headaches. The elimination of gluten from the diet reduces the incidence and severity of neurological symptoms.

2. Mental functioning disorders occur in half of the children with newly diagnosed celiac disease, dominate attention disorders as well as irritability dominate. The elimination of gluten from the diet reduces the incidence of mental disorders.

3. Patients with newly diagnosed celiac disease are more likely to have abnormal EEG compared to the control group. The elimination of gluten from the diet for 6 months improves the recording and reduces abnormalities in 30% of patients.

4. Patients with newly diagnosed celiac disease are characterized by the increased power of theta and alpha brainwaves in the anterior and mid-temporal bilateral leads and increased power of beta brainwaves for the beta1, beta2, beta3 and high beta sub-ranges in all leads compared to the comparative group.

5. The elimination of gluten from the diet in children with celiac disease causes a significant reduction of the increased activity of beta, beta3 and high beta brainwaves in the anterior- and mid-temporal leads.

In conclusion, it should be emphasized that the results described in this study have not only scientific and cognitive value, but also practical. Compared to EEG, the QEEG analyses provide additional, more detailed information on the bioelectrical activity of the brain in children with celiac disease. In the presence of neurological or psychiatric disorders and non-specific changes in EEG and QEEG, celiac disease should be considered as a possible cause of the observed abnormalities in the differential diagnosis. Our results suggest that by following a gluten-free diet, this group of patients may benefit from a reduction in the severity of symptoms.