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Carbohydrase activity of duodenum mucosa in adult celiac disease patients

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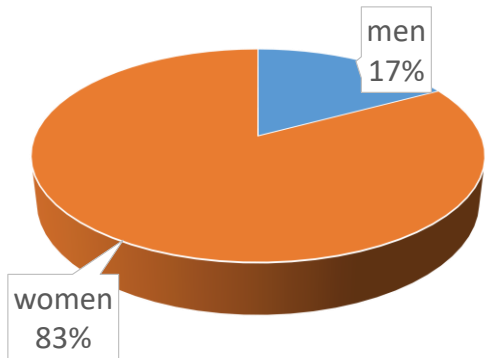
Background.

Some celiac disease (CD) patients, provided they have a normal histological structure of the small intestine mucosa and follow a gluten-free diet, may complain of symptoms of rumbling, bloating, diarrhoea. Impaired activity of small intestine nzymes may be the cause of these symptoms

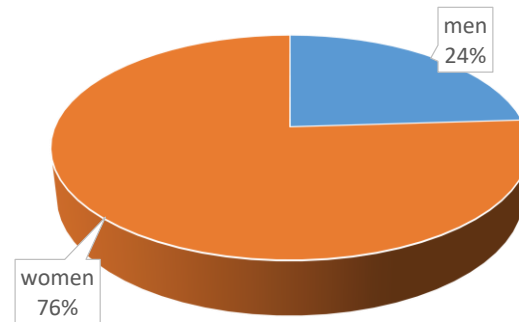
Aim.

To determine the activity of carbohydrases (glucoamylase, maltase, sucrase and lactase) in patients with celiac disease.

Newly diagnosed celiac disease



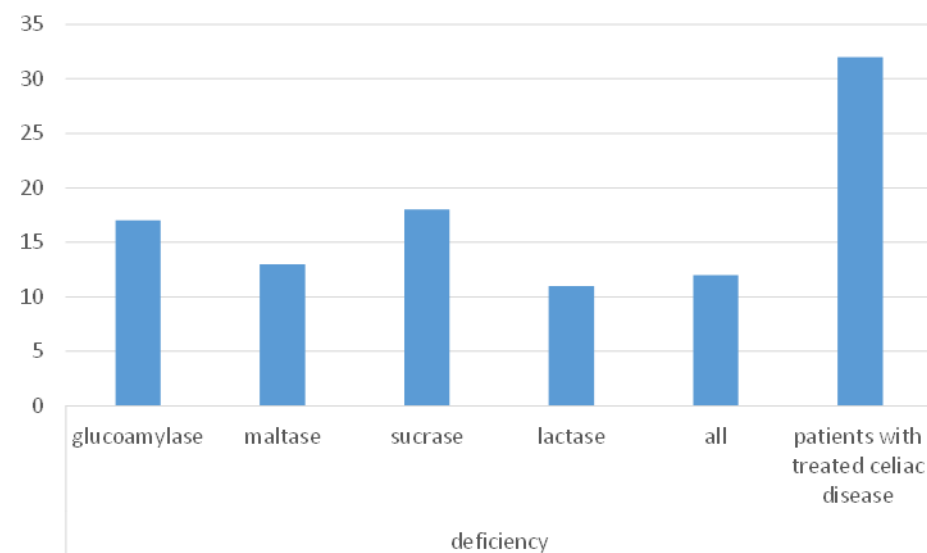
Patients with previously diagnosed celiac disease



Results

In patients with newly diagnosed celiac disease, the activity of all the investigated carbohydrates was reduced by 91.6%, in the group of patients followed gluten-free diet - by 35% ($p < 0.05$). It was found that total atrophy (Marsh IIIc) was associated with a decrease in the activity of all small intestine carbohydrases in patients. The recovery of the histological structure of the small intestine mucosa showed an improvement in the activity of all the studied carbohydrases. However, in the group of patients with normal small intestine mucosa, a decrease in glucoamylase activity was observed by 53.1%, a decrease in maltase activity – by 40.6%, sucrase activity decreased by 56.2%, and lactase activity - by 34.3%. A decrease in the activity of all carbohydrases was detected in 37.5% of patients with normal structure of the small intestine mucosa. A weak correlation was found between the degree of atrophy and the activity of sucrase and maltase.

Enzyme activity in group of patients with normal small intestine mucosa



Conclusion

Approximately one-third (37.5%) of adult patients with celiac disease who follow a gluten-free diet and have a normal morphological structure of the small intestine mucosa may experience a decrease in the activity of intestinal carbohydrates, which may be one of the reasons for the persistence of symptoms of fermentation dyspepsia.