

Ghrelin and eating disorders in patients with metabolic syndrome, longtime living in the North

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Long-term residence in the North leads to the development of ecologically stress, which is accompanied by decrease of the rate of metabolism [5]. Switching to the "civilized" type of food contributes to obesity and metabolic syndrome (MS) [2,4]. A large number of absorbed food increases the volume of the stomach and produce proghrelina P/D1 cells of the mucosa of the gastric fundus. Synthesis of ghrelin in the hypothalamus stimulates the secretion of growth hormone which increases in blood glucose levels and promoting impaired glucose tolerance and obesity [1,3].

The **purpose** of evaluate the effect of ghrelin on the formation of types of eating disorders (ED) MS patients, long-term residents in the North.

Materials and methods

The study included 185 men and women with MS for 3 years (94 women, average age - $31,23 \pm 0,85$ years, and 91 men, mean age - $35,42 \pm 0,38$ years). A control group - 65 healthy subjects (34 women and 31 men) the same age. To evaluate the use of PP profiles DEBQ. Serum ghrelin level determined morning fasting and 2 hours after the eating. Statistical processing was performed using software Statistica for Windows v.6.0. Differences were considered significant at $p < 0,05$.

Results

The average length of stay in the North of the surveyed was $18,7 \pm 1,5$ years. Among women with MS emotion-dominated (58.4%) and restrictive (26.8%) the types of violations of the ED. In men with MS - externalities type ED (67.2%). Patients who are overweight, I have had the degree of obesity restrictive type of ED. 58% of patients with grade II and III obesity met the emotion-type ED. Externalities style was typical for 31% of patients with obesity, BMI greater than $35 \text{ kg} / \text{m}^2$.

Daily consumption of meat animal origin indicated 87.9% of men and 79.5% women. Fish consumed 1 per week 25.6%, 2 times a week - 13.4%, very rare - 61% of women. In males, respectively, similar results were as follows - 37.6%, 21.4% and 41%. The prevalence in the diet of flour and pastry noted 98.9% of men and 76.4% women. About 3% of patients interviewed daily consume fruits and vegetables. Regular meals noted 64% of all respondents. In 36% of the respondents - 2 meals a day. In 68% of the respondents maximum calorie intake accounted on the evening, in 21% of patients interviewed - on morning. Drinking alcohol every day told 37% men and 9.4% women. Twice a week - 23% and 11.6%, respectively. Drinking alcohol once a week - 38% men and 48% women. Very rarely, and never reported 12% men and 31% women.

Among the 62% women with MS body weight increased annually by $4,9 \pm 0,7$ kg (healthy women $2,5 \pm 0,8$ kg per year). Every third patient man annual weight gain was $6,1 \pm 1,2$ kg. Waist increased by 15.2% in women and 23.3% among men with MS.

In healthy examined ghrelin level in serum was normal. In patients with the metabolic syndrome in overweight, I obesity prevailed low levels of ghrelin values, indicating that the saturation of the ingested food. In patients with obesity II and III ghrelin levels in serum were higher than the reference values of 20.2% among women with MS, of 15.1% in men with MS. Postprandial ghrelin level decreased by 2.3-fold in patients with overweight, 1.7 times in patients with I obesity to 1.1 times in patients with grade II obesity. In patients with grade III obesity ghrelin levels decreased by 12%, but remained abnormally high, indicating that there is no saturation in these patients. During follow-obese patients with II degree has increased by 2.2%, and ghrelin levels exceeded the norm by 24.4%. Patients with grade III obesity increased by 4.8% in excess of the level of ghrelin in the blood serum of 26.4%.

Thus, the need for a balanced diet determines the basic principles of adaptation to northern conditions and protects your health.

References:

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