

DIET AND LIFESTYLE AND THE RISK OF GASTROESOPHAGEAL REFLUX DISEASE

SUMMARY

The paper entitled "Diet and lifestyle and the risk of gastroesophageal reflux disease" relates to the influence of habitual diet and selected lifestyle variables on the risk of developing gastroesophageal reflux disease (GERD) and the relationship of type A personality to the disease. Gastroesophageal reflux disease is a chronic disease of the gastrointestinal tract, which not only significantly reduces the quality of life of patients due to the nuisance of symptoms, but also in some patients may lead to serious complications, such as esophageal stricture, gastrointestinal bleeding, and esophageal adenocarcinoma. It is estimated that in Poland this disease may affect up to 35.5% of adults reporting abdominal ailments.

Many factors, including environmental ones, can contribute to the development of this disease. More and more studies conducted around the world concern the influence of lifestyle and diet on the symptoms of gastroesophageal reflux disease. Often, however, their results are not clear. In Poland, data on the dependence of the disease on lifestyle, including diet, as well as psychological factors are virtually lacking, therefore it seems justified to assess the situation in this regard.

The aim of the study was therefore to determine the impact of nutrition, including selected eating habits, and other selected lifestyle variables (physical activity, smoking, subjective feeling of being exposed to stress) on the risk of developing gastroesophageal reflux disease, as well as to assess the impact of body weight on the risk of developing this disease and the assessment of the influence of type A personality on the risk of developing gastroesophageal reflux disease.

The case-control study was conducted in the period from November 2005 to October 2011. The study group (GERD) consisted of adults (18–65 years of age) with gastroesophageal reflux disease confirmed by gastroscopy. Control group - adults without symptoms of gastroesophageal reflux disease or reporting their rare occurrence (once a month or less). The study did not include people who did not meet the age criterion, people with active peptic ulcer disease, neoplastic lesions, pregnant women and people who met the eligibility criterion for the study, but did not consent to participate in the study.

A total of 513 people met the criteria and expressed written informed consent to participate in the study, including 282 people in the study group and 231 people in the control group.

The research tool was a proprietary questionnaire consisting of questions about sociodemographic data, health status (including questions about symptoms of the disease, their duration, frequency of their occurrence), about the habitual diet and selected variables related to lifestyle (physical activity, smoking tobacco, subjective feeling of being exposed to stress). The assessment of the diet was made on the basis of the proprietary questionnaire based on selected questions about eating habits and the questionnaire on consumption using the interview method from the last 24 hours preceding the study and the questionnaire on consumption using the record method (data from two working days and one weekend day were collected in total). The first consumption survey in the last 24 hours was conducted with the respondent by a trained interviewer. The remaining two questionnaires were completed by the respondent independently after training by the interviewer, additionally having a written instruction on how to complete the questionnaire. The evaluation of the averaged energy and nutritional value of menus was made with the use of the Dieta 5.0 computer program developed at the National Food and Nutrition Institute.

In both groups the excess body weight was assessed on the basis of data on height and weight, and in some participants their waist circumference according to standard procedures was measured. Based on the obtained data, the body mass index (BMI) was calculated and the distribution of adipose tissue in the body of the respondents was assessed.

Data on the personality type of people participating in the study was obtained from the Self-Discovery Questionnaire of the Behavioral Pattern Study completed by the respondents, allowing to determine the severity index of type A behavior.

The study was conducted with the consent of the Bioethics Committee at the Food and Nutrition Institute in Warsaw.

The strength of individual variables as risk factors for the development of GERD was assessed in the univariate and multivariate logistic regression model.

On the basis of the obtained results, it was found that the consumption of certain food products, especially fatty, fried, sour, spicy, fruit and sweets, affects the occurrence of symptoms in people with gastroesophageal reflux disease. The nutritional value of a diet correlates with the risk of gastro-esophageal reflux disease. Consumption of excess total fat and, to a lesser extent, vitamin E and iron with diet (relationship on the border of statistical significance) can be considered to be conducive to the occurrence of GERD symptoms. Dietary

ingredients such as monounsaturated fatty acids, niacin and vitamin B12 appear to be protective, although this role is insignificant in the case of the last two vitamins.

It has been found that gastroesophageal reflux disease can be favored by certain eating habits. Eating a small number of meals per day (1-2 meals), eating dinner, and a daily mint infusion have been shown to increase the risk of gastroesophageal reflux disease. However, the interpretation of the role of the latter in the above-mentioned factors should be approached with caution, because drinking mint infusion is a common way of coping with digestive ailments and patients could drink it on purpose.

Based on the obtained results, it was found that excess body weight ($BMI \geq 25 \text{ kg / m}^2$) is a factor increasing the risk of gastroesophageal reflux disease, although its importance decreased after taking into account the influence of other variables. In this study, the role of abdominal obesity as a risk factor for the disease was not confirmed.

Selected lifestyle-related variables, i.e. past smoking and long history of smoking (> 10 years), play a role as risk factors for gastroesophageal reflux disease. It has also been found that lifestyle variables such as high leisure time physical activity (defined as cycling, jogging, garden or garden work, and other recreational sports involving physical activity for more than 3 hours a week) may reduce the risk of the disease. However, the power of this variable weakens after taking into account other analyzed lifestyle factors.

Psychological stress not related to work (significance on the borderline of statistical significance, the factor losing statistical power after taking into account other analyzed lifestyle factors) and the need to act in a hurry may also be important as risk factors for gastroesophageal reflux disease. The conclusion regarding the last-mentioned factor is supported by the analysis of the behavior pattern A among the respondents. It is true that there was no difference between the sick and control subjects in the presence of the general pattern of behavior A, however, a more frequent occurrence of selected features of this pattern of behavior, such as aggressiveness and haste, was noted only among women with gastroesophageal reflux disease. This suggests a possible association of this type of behavior with the gender-dependent risk of developing the disease.

The dietary and lifestyle factors associated with gastroesophageal reflux disease determined from this study do not differ significantly from the risk factors for gastroesophageal reflux disease identified in other populations.