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Relationship between precancerous colorectal lesions and body mass

SUMMARY

The incidence of colorectal cancer in many countries worldwide, including Poland, has been increasing over the past few decades. It is estimated that 90% of colorectal cancers develop from polyps, and the latter are considered to be the most common precancerous lesions. Transformation of a polyp into cancer is a multistage process that takes a few to several years. In most people, the presence of polyps in the colon is not associated with any specific clinical manifestations, and as a result, these lesions are often diagnosed at advanced stages. The likelihood of detecting polyps in the large intestine increases with age, and therefore, people over 50 years of age are recommended to undergo a screening colonoscopy, a procedure during which the polyps can be detected and removed before they develop into cancer. While the link between lifestyle factors and colorectal cancer is well-established, less is known about the risk factors for the development of precancerous colorectal lesions.

The aim of this study was to analyze the relationship between the occurrence of precancerous colorectal lesions and clinical stage, body weight, height, waist circumference and body mass index (BMI). An attempt was also made to determine whether the precancerous colorectal lesions might be related to other lifestyle factors, such as smoking, alcohol consumption, physical activity and diet.

The study included adults of both sexes referred for lower gastrointestinal examination at the Mazovian Bródnowski Hospital in Warsaw. Based on the result of colonoscopy and histological examination of the specimens, 237 subjects were classified into the group with colorectal polyps and 223 into the control group. Anthropometric measurements, such as height, weight and waist circumference, were taken in all study participants. Information on the health status, smoking, alcohol consumption, physical activity and diet of the study participants has also been collected. Anthropometric measurements constituted the basis for calculating BMI and assessing the prevalence of abdominal obesity. Physical activity data were cross-referenced with the World Health Organization (WHO) recommendations. The results were entered into a database and subjected to statistical analysis. The effects of individual

factors on the occurrence of precancerous lesions and the clinical stage thereof were estimated based on the odds ratios obtained from logistic regression models.

Individuals with polyps were significantly more likely to present with excess body weight. A BMI ≥ 25.0 kg/m² was found in 75.5% of subjects from the polyp group and 58.3% of the controls. Abdominal obesity was also significantly more common in those with colorectal polyps. Waist circumference ≥ 80 cm in women and ≥ 94 cm in men was found in 74.3% of subjects with polyps and 58.3% of the controls. In addition, subjects with more precancerous lesions in the intestine turned out to have a higher waist circumference. While proportions of active tobacco smokers were similar in both groups, more subjects with polyps admitted to smoke in the past. The study groups did not differ significantly in the proportions of participants who declared alcohol consumption. The percentage of subjects from the polyp group who were not involved in any form of leisure-time physical activity was shown to be more than twice as high as in the controls. The study groups differed in terms of only a few dietary factors; specifically, fewer subjects with polyps declared eating cheese every day and consuming legumes several times a week.

Risk factor analysis confirmed significant associations between the presence of precancerous colorectal lesions and excess body weight, abdominal obesity, physical inactivity and smoking. Additionally, abdominal obesity, smoking and drinking alcohol were associated with higher odds of having a larger number of colorectal polyps. Meanwhile, regular physical activity was shown to exert a beneficial effect, being associated with a lower incidence of large precancerous lesions and a lower number of colorectal polyps.

The present study identified factors influencing the incidence of precancerous colorectal lesions and their clinical stage. The results of this study provide a rationale for implementing lifestyle modifications among the principles of primary prevention of these lesions. Given the high recurrence rate of colorectal polyps, patients after polypectomy should be advised to reduce excess body weight, maintain a normal waist circumference, increase the level of physical activity, refrain from smoking and drinking alcohol. Spreading the knowledge about the influence of the abovementioned factors on the development of precancerous lesions may eventually contribute to a lower incidence of colorectal cancer in Poland.