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Assessment of colonoscopy screening by elderly people

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Summary

Forecasts indicate that in the next decade cancer will become the most common cause of death in our country. Over 140,000 new cases of malignant neoplasms are reported annually in Poland. Colorectal cancer (CRC) is one of the most frequently detected malignancies: third in men and second in women.

The aim of the study was the assessment of colonoscopy screening for early detection of colorectal cancer by elderly screening subjects.

The study group consisted of 106 elderly people (aged 66 years and older), and the control group consisted of 100 consecutive people aged 40 to 65 years who reported to the Clinic for colonoscopy screening under PBP.

Subjects from the control group expressed much more positive opinion about the usefulness of colonoscopy screening. 99,1% of subjects from this group assessed the examination as "very useful", while in the study group such an opinion was expressed by 76% of subjects ($p<0.0001$). In the study group, 25.0% of subjects considered the preparation for colonoscopy as not bothersome, while in the control group such an opinion was expressed by 44.3% of subjects ($p=0.0040$).

Keywords: colorectal cancer, colonoscopy screening, elderly people

Due to the poor assessment of colonoscopy screening made by elderly people, a comprehensive analysis of the investigated procedure should be conducted, which should lead to improvements at all of its stages.

Introduction

Cancer is the second, after cardiovascular diseases, most common cause of death in Poland. Forecasts indicate that in the next decade cancer will become the most common cause of death in our country. Over 140,000 new cases of malignant neoplasms are reported annually in Poland. Colorectal cancer (CRC) is one of the most frequently detected malignancies: third in men and second in women (1,2). The cause of this cancer is not known, but the current knowledge based on facts about the genetic and environmental background, as well as the carcinogenesis of CRC, is scientifically well documented (3,4). Similarly, we have an extensive knowledge about the clinical course of CRC in humans. Of great importance is the fact that the risk of CRC increases with age and 60–70% of cases in both sexes occur over 60 years of age. According to many researchers, a prophylactic examination, preferably colonoscopy screening, should be conducted every ten years starting from the age of 50 (5). Colonoscopy screening as a tool in CRC prophylaxis offers fundamental benefits, as it allows diagnosing non-advanced CRC, removing adenomas—predominant precancerous structures—and identifying other

abnormalities of the large intestine. Colonoscopy is also an essential examination in oncology surveillance following CRC treatment and removal of particularly advanced adenomas (6,7,8,9). In western countries, colonoscopy screening has been conducted systematically for nearly 30 years, while in Poland since 2000. It is probably due to colonoscopy screening that in the 2010s western countries have seen a decrease in the incidence of CRC, particularly in men (1). In Poland, the national screening program for early detection of colorectal cancer financed by the state budget is dedicated to people aged 50 to 65 years (8,9). The awareness of prophylactic screening, including CRC screening, among Poles is increasing, as evidenced in the last few years by the complete use of state budget funds assigned for: The National Program for Cancer Control: screening program for early detection of colorectal cancer, based on colonoscopy screening (PBP–Program Badań Przesiewowych) (10). After the socio-political transformation of the early 1990s, life expectancy of men and women in Poland increased by a few years. This is associated with a number of factors, including lifestyle, e.g., all-year availability of fruit and vegetables, increased physical activity, access to modern medicine and the aforementioned awareness of preventive diagnostics (2). Colonoscopy screening under the PBP program has been conducted at the Clinic of Gastroenterology and Nutrition Disorders (hereafter referred to as Clinic) continuously since 2000. Among people reporting spontaneously for colonoscopy screening is a large population of people aged 66 years and older, for whom it is great disappointment to learn that they cannot be beneficiaries of PBP (9). Therefore, we decided to conduct colonoscopy screening as described in PBP in approximately 100 elderly people. In accordance with the PBP procedure, after the endoscopic examination the subject was asked to personally fill a survey evaluating the colonoscopy screening procedure.

Aim of the study

The aim of the study was the assessment of colonoscopy screening for early detection of colorectal cancer by elderly screening subjects.

Material and methods

The study group consisted of 106 elderly people (aged 66 years and older). Exclusion criteria were: age 65 years and younger, colonoscopy conducted in the preceding 10 years, diagnosed organic disease of the large intestine, pathogenic symptoms characteristic of CRC, poor health status due to identified chronic organic diseases.

The control group consisted of 100 consecutive people aged 40 to 65 years who reported to the Clinic for colonoscopy screening under PBP.

The study method was standard colonoscopy screening conducted in accordance with the PBP guidelines by a specialist in gastroenterology, who had high quality ratings for colonoscopy screening under PBP implemented by the Clinic. The study procedure started with providing the subjects with written information about the study and obtaining their consent for colonoscopy and potential endoscopic removal of polyps. Bowel cleansing before the examination was conducted using a PEG preparation in an alternating manner: using a single dose of 4 liters of water containing the cleansing agent drunk in the evening and early night preceding the examination by one elderly person who reported for colonoscopy screening, and using a split-dose method in another elderly subject, who drank 2 liters of the PEG preparation in the evening before the examination and the other 2 liters in the morning on the examination day. Moreover, subjects selected for the split-dose method were administered orally 10 mg of the laxative bisacodyl before cleansing. In the subjects of colonoscopy screening from the control group, the large intestine was cleansed using the single-dose method. In order to ensure the comfort of preparation for the examination, the elderly subject stayed in a single patient room with a toilet. Before the examination, the subject was equipped with a pulse oximeter on the index finger of the right hand to monitor his/her vital signs, and a venous catheter on an upper limb. During the examination, analgesics and sedatives were administered intravenously to the subjects to reduce the potential pain sensations. Biopsies of the lesions found in the colon and rectum were taken, and polyps were removed to be further assessed by an experienced pathomorphologist. After the examination, once the effect of medications had worn off, the subject received detailed study report and information about further medical care, including the need to come back in 14 days to collect the results of the histopathological examination. If CRC was diagnosed, the subject was referred to a specialized oncology unit, and if another disease of the large intestine was diagnosed, the subject was referred to a gastroenterology outpatient clinic. If, in turn, one or more polyps were removed, the subject was informed about further steps and any potential endoscopic surveillance following polypectomy. Directly after the examination, while waiting for the results of specialist interpretation of the colonoscopy results, members of the control group filled in a survey assessing the entire procedure of colonoscopy screening under PBP. Colonoscopy screening subjects of the study group aged 66 years and older filled in the same survey a few hours after the examination, once the effect of sedatives had worn off, in the patient room with no witnesses.

The survey included the following five questions and possible answers about colonoscopy screening: usefulness of the colonoscopic examination—very useful, rather useful, do not know, not useful; degree of bother of the preparation for the examination—not bothersome, slightly bothersome, bothersome and very bothersome; tolerance of the examination—very good good, satisfactory, poor; general impression of the atmosphere during the examination—very good, good, satisfactory, bad; willingness to undergo re-examination if necessary—Yes, No, Yes but... (in general anesthesia); recommendation of the examination to family and friends—Yes, No, Yes but… (in general anesthesia) (8,11).

Results

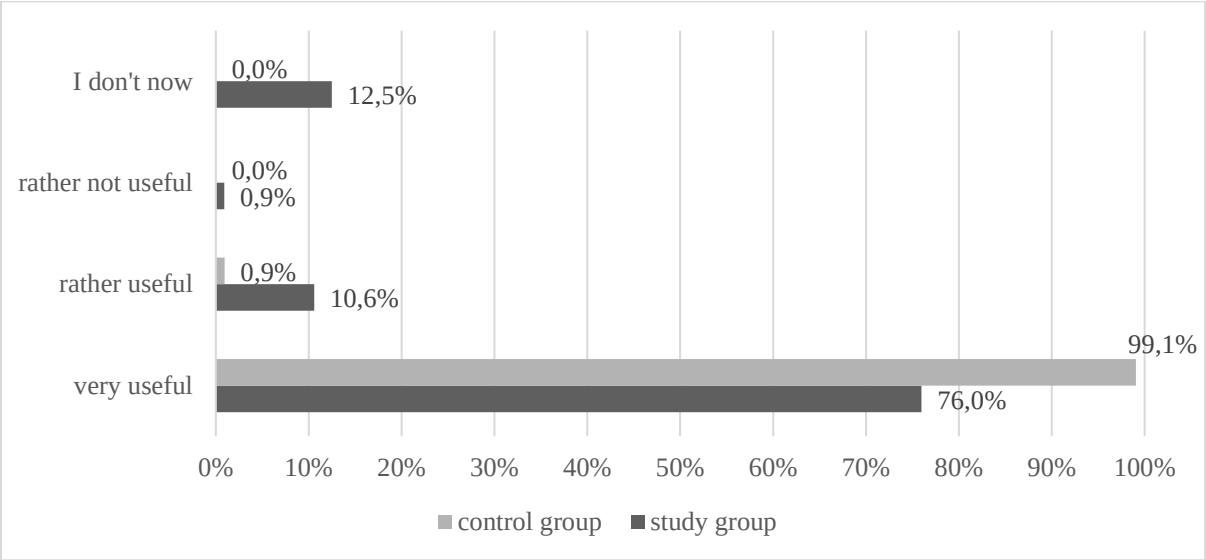

Fig. 1. Usefulness of colonoscopy screening as assessed by the study group and the control group

Subjects from the control group expressed much more positive opinion about the usefulness of colonoscopy screening. 99,1% of subjects from this group assessed the examination as “very useful”, while in the study group such an opinion was expressed by 76% of subjects ($p<0.0001$).

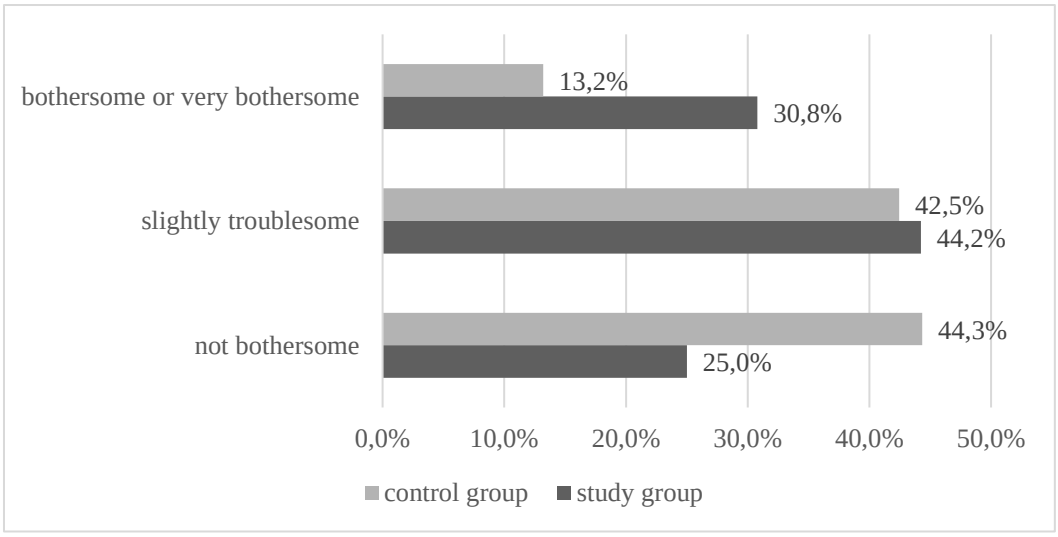

Fig. 2. Degree of bother of the preparation for colonoscopy as assessed by the study group and the control group

In the study group, 25.0% of subjects considered the preparation for colonoscopy as not bothersome, while in the control group such an opinion was expressed by 44.3% of subjects (p=0.0040). Moreover, 30.8% of subjects in the study group considered the preparation for colonoscopy as bothersome or very bothersome, while in the control group such an opinion was expressed by 13.2% of subjects (p=0.0027).

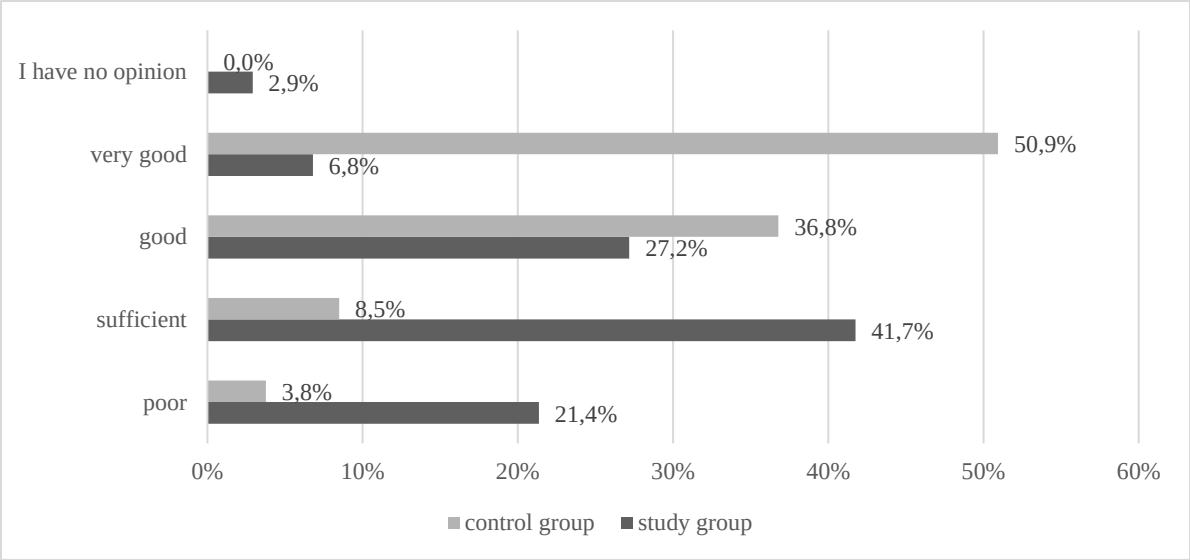

Fig. 3. Tolerance of colonoscopy screening as assessed by the study group and the control group

In the study group, only 6.8% of subjects declared a very good tolerance of the examination, as compared with 50.9% in the control group ($p<0.0001$). Very good and good tolerance of colonoscopy was declared by 34.0% of the study group subjects and 87.7% of the control group subjects ($p<0.0001$). In turn, poor tolerance of colonoscopy was declared by 21.4% of the study group subjects and 3.8% of the control group subjects ($p<0.0001$).

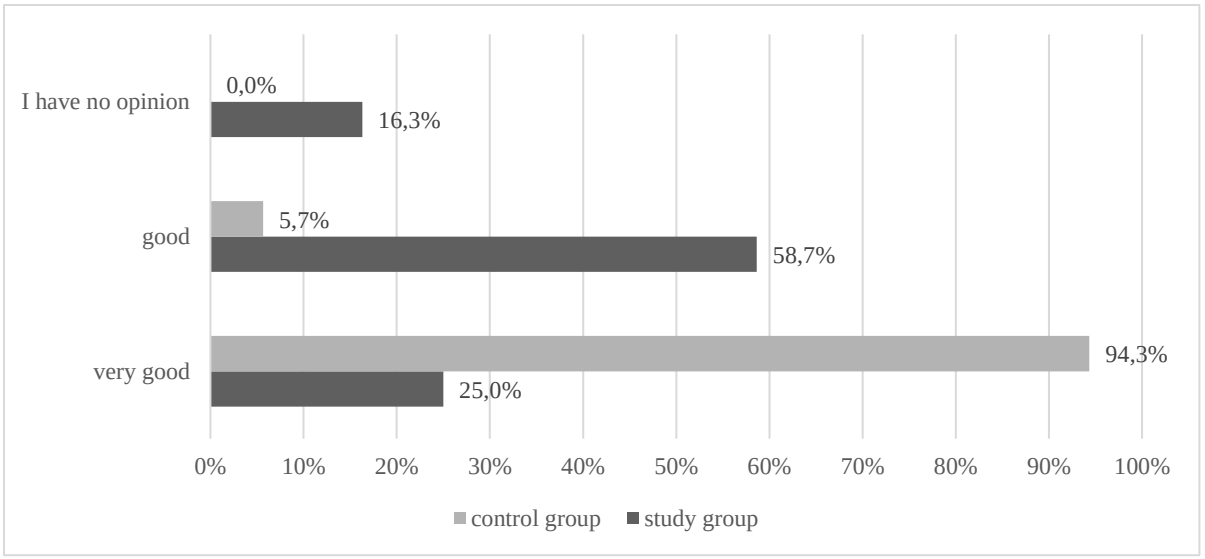

Fig. 4. General impression of colonoscopy screening as assessed by the study group and the control group

The general impression of colonoscopy screening was described as very good by 94.3% of the control group subjects and only 25.0% of the study group subjects ($p<0.0001$). There were no subjects declaring a bad general impression.

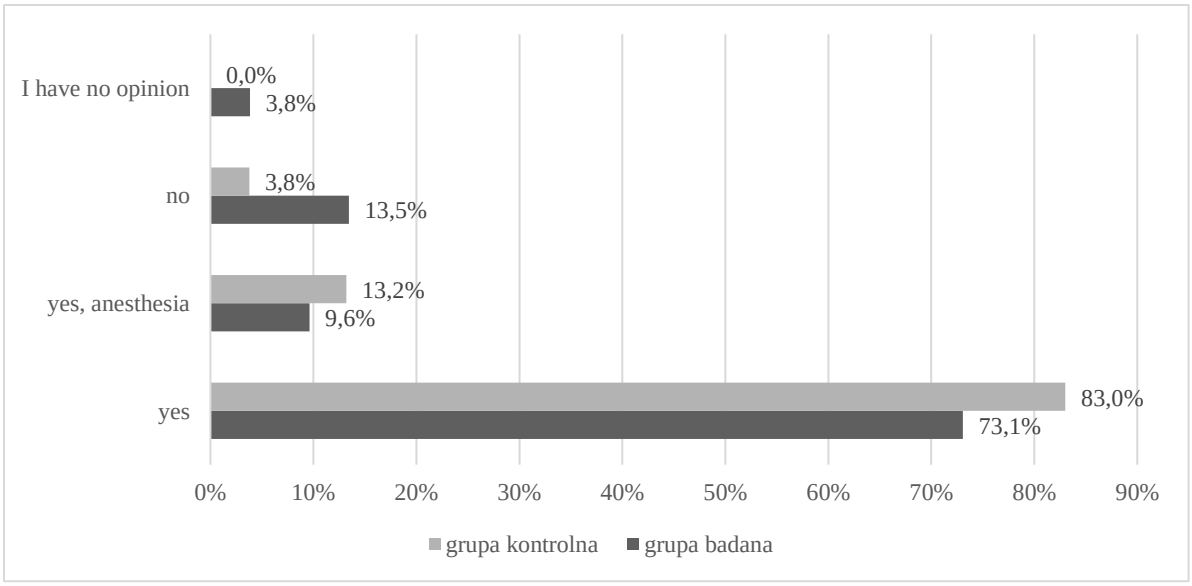

Fig. 5. Willingness to undergo colonoscopy re-examination as assessed by the study group and the control group

A non-significantly higher percentage of subjects from the control group stated willingness to undergo a colonoscopy re-examination (83.0%) compared to the study group (73.1%), p=0.0689. A strong and unconditional opposition to re-examination was declared by 3.8% of the control group subjects and 13.5% of the study group subjects (p=0.0265)

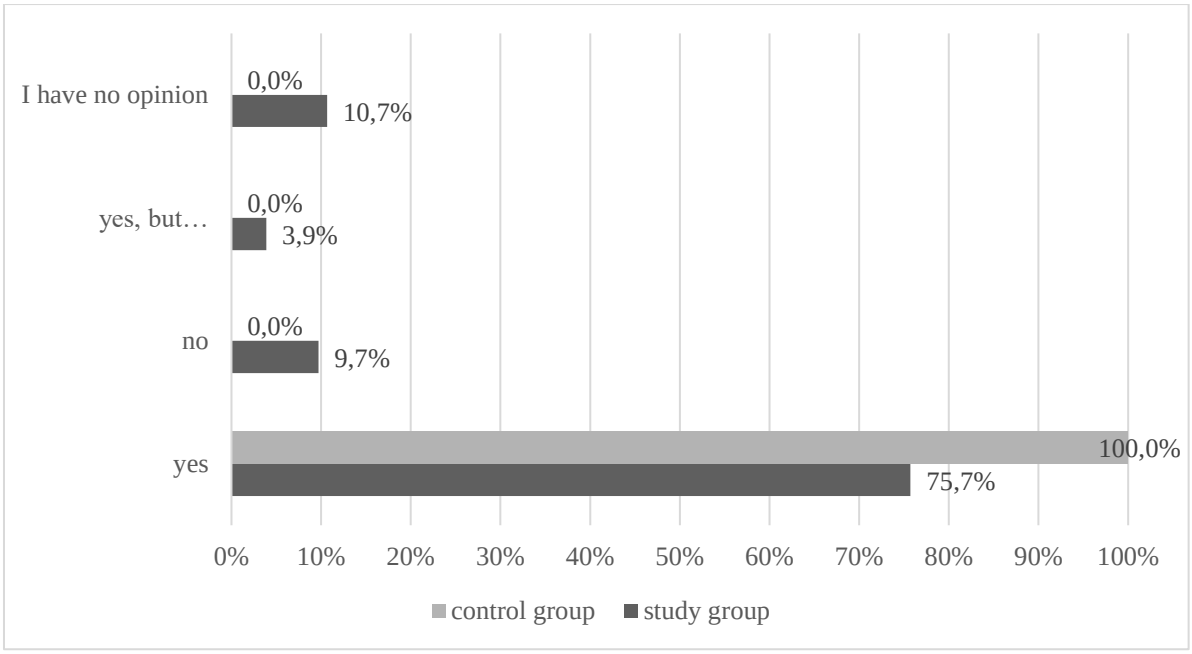

Fig. 6. Recommendation of colonoscopy to family and friends as assessed by the study group and the control group

75.7% of the study group subjects would recommend colonoscopy screening to their family and friends, 9.7% would not recommend the examination, while 3.9% would recommend it, but only conducted in general anesthesia. In turn, 100% of the control group subjects would recommend colonoscopy screening to their family and friends ($p<0.0001$).

Discussion

Colorectal cancer (CRC) is the third most common malignancy in the world as regards incidence. CRC occurs most frequently in people aged 65–74, and later in people aged 90 and older. Based on well-documented scientific research, we have learned about genetic and environmental factors that favor the onset of this cancer. The most common precancerous state for sporadic CRC is adenoma, and particularly advanced adenoma. Two paths of CRC carcinogenesis have been identified in humans. Currently, studies of CRC are also focused on health promotion starting from childhood by changing diet and the quality of consumed food, as well as promoting physical activity, since there is scientific evidence that CRC is a nutrition-dependent malignancy (12,13,14,15). In CRC prophylaxis, according to the principle commonly accepted in western countries, colonoscopy screening is conducted once in 10 years from the age of 50. In turn, there is no upper age limit for preventive colonoscopy. Under the PBP program implemented in Poland, the upper age limit for colonoscopy screening is set at 65 years (10). In both the study group and the control group, a subgroup most frequently reporting for colonoscopy screening were women living in a large city, while the least frequently reporting group were men living in rural areas (9,16). The elderly subjects were on average ten years older compared to the control group. People aged 66 and older were characterized by multimorbidity. The presence of four or more organic diseases was only found in elderly subjects from the study group (17,18). People aged 66 and older had also undergone surgeries of the abdominal cavity more frequently than younger subjects from the control group (19). The study demonstrated that 7 CRC cases were detected in the group of 106 elderly subjects, and only one CRC case was detected in the control group. In the study group, 8 histologically advanced adenomas were identified, compared to 2 such adenomas in the control group (20). A very good and good effectiveness of large intestine cleansing for colonoscopy identified in the study was significantly less frequent in the study group compared to the control group. In the study group of elderly subjects, cleansing effectiveness in subjects using a single dose of the cleansing agent was better compared to that observed in those using split-dose PEG solution with additional bisacodyl (21,22,23). The surveys filled in by the subjects after the examination were valuable material for the analysis of colonoscopy screening, also from the

perspective of improving the quality of the examination (8,16,24). The control group subjects expressed a significantly better opinion about the usefulness of colonoscopy screening compared to the study group subjects. The subjects aged 66 and older, in comparison with the PBP participants, more often assessed the preparation steps for the examination as bothersome or very bothersome, and this difference was statistically significant. Poor tolerance of colonoscopy screening was much more frequently reported by the elderly subjects compared to the younger subjects. There were no subjects reporting bad general impression of the examination, however, good and very good impression was reported more frequently by the PBP subjects in a statistically significant manner. A non-significantly higher percentage of subjects from the control group stated willingness to undergo a colonoscopy re-examination compared to the study group. All subjects from the control group would recommend colonoscopy screening to their family and friends, with only 75.7% of subjects from the study group declaring the same. The majority of PBP subjects from the control group believed that the examination was useful, well tolerated, not burdensome to prepare for and conducted in a very good atmosphere. They would also agree on re-examination and recommend colonoscopy to other people. The results of our study of colonoscopy screening assessment by the PBP subjects are similar to observations made by other authors (8,16,24). Elderly subjects were less enthusiastic about all investigated aspects of colonoscopy screening in a statistically significant manner. The project was intended to extend the age of subjects of colonoscopy screening for the early detection of CRC in Poland to over 65 years. Although the study group subjects aged 65 years and older were offered a separate path of qualification for the examination, better conditions of hospital stay, as well as very competent medical and nursing care, the results of the survey in comparison with those for the control group were not satisfactory. It can be presumed that the results are affected by the average age of the subjects. "Young-old" subjects (aged 65–74 years), compared to younger people, are often less physically fit, diagnosed with two or more, often significant, chronic organic diseases, and above all characterized by a reduced physical and mental activity, and deterioration of cognitive functions used to create and modify knowledge about the environment, which is precisely what shapes their behavior (17,20,25,26). In our view, methodological imperfections of PBP regarding the survey should be stressed, as the subjects fill in the survey immediately after the examination while awaiting interpretation of the examination results, and usually in the presence of the personnel conducting colonoscopy screening. More than 90% of subjects after completion of the examination receive information from the interpreting physician, such as "no abnormalities in the intestine", "one polyp of less than 1 cm in diameter has been removed", or "next

colonoscopy screening can be conducted in ten years." Such optimistic information can be the reason for positive answers in the survey (8,16,24). In the case of the study group subjects, the procedure was different: after the endoscopic examination and resolution of the analgesic effect, the subject was requested to personally, without participation of other people, fill in the survey in peace and without undue hurry. The study cannot fully explain the problem concerned based on facts, therefore a separate study in a larger group of subjects should be conducted, considering the above remarks.

Conclusions

In conclusion, the results obtained in the study allow us to draw the following conclusion: Due to the poor assessment of colonoscopy screening made by elderly people, a comprehensive analysis of the investigated procedure should be conducted, which should lead to improvements at all of its stages. At the same time, it should remembered that elderly people require personalized procedures that take into account their health status, degree of physical fitness and cognitive functions, as well as good room conditions and professional medical surveillance.

*In the control group, PBP subjects could be aged 40 or older if a 1st degree relative had had CRC.

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