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THE ELDERLY PATIENT – CLINICAL-PATHOLOGICAL PARTICULARITIES OF LEFT COLON CANCER

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Abstract: *Almost half of the patients with colorectal cancer are over 70 years old. The aim of the study is to analyse the main clinical and paraclinical characteristics of elderly patients with left colon cancer. 171 patients with left colon cancer were included in a retrospective study, analysing the differences between the patients under and those over 70 years from the point of view of the symptomatology, laboratory investigations, treatment of anemia, postoperative complications. Secondary anemia is seen in a quarter of the patients, and the indication of intraoperative transfusion was most frequent in the elderly (p=0.007). The incidence of intestinal occlusion increases with age, so that one third of the patients over 80 years are admitted with intestinal occlusion. The management of the elderly patient with left colon cancer should benefit from a pluridisciplinary approach, in the context of the numerous associated disorders and the particularities of the geriatric patient.*

INTRODUCTION

Colon cancer registers increasing incidence and prevalence values worldwide, thus becoming an important public health problem. The increase in the incidence of colon cancer is especially determined by the increase in the incidence of left colon cancer, in general, and rectal cancer, in particular.(1) At the same time, the mutual efforts of researchers, physicians and political decision makers regarding the treatment and the prevention of this disease, fail to limit of mortality rates that have become part of a constantly rising trend.(2) Colorectal cancer is the third type of cancer in terms of frequency in both sexes and it is the second leading cause of cancer mortality in the USA.(3) As life expectancy increases, the prevalence of colon cancer in elderly patients (over 70 years) has abruptly increased; thus, almost half of the colorectal patients are over 70 years old.(4) Older age is generally accompanied by numerous comorbidities, which increase the risk of diagnosing the disease in its advanced stages, the risk of intra- and postoperative complication occurrence etc.(5) Moreover, the body's ability to physically and mentally recover is strongly diminished, with important consequences on the life quality of the operated colorectal cancer patient, on the length of the hospital stay and on the necessary medical services.(6)

AIM

The aim of the present research is to analyse the main clinical and paraclinical characteristics of elderly patients with left colon cancer. The objectives of the study are: (1) to identify the associate diseases of geriatric patients: (2) to describe the clinical manifestations of left colon cancer: (3) to analyse the main paraclinical changes of left colon cancer; (4) to compare the postoperative results between under and over 70 years old patients.

MATERIALS AND METHODS

Study design. The current research is based on a retrospective study conducted over a period of 2 years (January 1st, 2015 - December 31th, 2016) which included all the patients with left colon cancer (splenic flexure, descending colon, sigmoid colon and rectosigmoidian junction) admitted to the Surgical Unit of the Emergency Clinical Hospital in Bucharest.

Participants. A number of 171 patients with left colon cancer were included, irrespective if they had undergone surgery or not. The inclusion criteria were: over 18 years, the diagnosis at admission: left colon cancer, confirmed or suspected, with or without surgical intervention. The exclusion criteria: postoperative rejection of the initial diagnosis.

Studied parameters. The data were collected from the observation charts of the patients selected to participate in the study. The following data were recorded: (1) socio-demographic characteristics (age, sex, residence area); (2) personal pathological history (comorbidities, abdominal surgical interventions); (3) clinical manifestations and the duration between the onset of the symptoms and the presentation to the doctor; (4) the change of some paraclinical parameters (leukocytes, erythrocytes, hemoglobin, hematocrit, thrombocytes); (5) the treatment of anemia (iron – pre- and intraoperatively; transfusion – pre- and intraoperatively);(6) postoperative complications and the length of the hospital stay.

Statistical analysis. The obtained results were presented as mean values and standard deviations for the continuous quantitative variables after the prior testing of the distribution normality. The qualitative variables were presented as absolute and percentage values. The comparison between the mean values for the continuous variables was made with the help of the t test, in order to compare the results between the patients under 70 years and the patients over 70 years. The proportional differences between the patients over 70 years and those under 70 years were studied using the chi-square test or the Fisher's test, as appropriate.

The Pearson correlation coefficient was used to study the relationship between the age of the patients and the number

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of the hospitalization days. The level of statistical significance was set at a threshold value of p=0.05. The statistical analysis of the data was performed using the SPSS 23.0. The 171 patients included in the study had a mean age of 67.24±10.95 years, 76 of them (44.4%) being 70 or over 70 years old. 59.6% of the patients included in the study are known with high blood pressure, and 14% with diabetes mellitus. Some comorbidities are more significantly prevalent in patients over 70 years (high blood pressure – p=0.037; CVA – p=0.001) (table no. 1)

The most frequent symptoms of left colon cancer patients are abdominal pain (57.9%), intestinal transit disorders (55.6%) and weight loss (35.7%). Secondary anemia is seen in 25.1% of the patients included in the research, its incidence being significantly higher (p=0.002) in elderly patients (36.8%) than in those under 70 years (15.8%). A number of 27.5% of the patients present with sub occlusive syndrome, and 11.1% with intestinal occlusion. Although there is no different frequency of the sub occlusive syndrome (p=0.702) and of intestinal occlusion (p=0.211) in patients aged 70 years or over 70 years, however an increased incidence of intestinal occlusion is seen in patients over 80 years, this reaching 30.4%.

Moreover, weight loss is significantly more frequent (p=0.011) in patients over 70 years (46.1%) compared to patients under 70 years (27.4%). The time between the onset of the symptoms and the presentation of the patient to the doctor had an average duration of 69.6±111.4 days (table no. 2).

The laboratory investigations done on admission reveal that the elderly patients have a lower frequency of leukocytosis (32.9% compared to 48.4%; p=0.041). The low values of hemoglobin and hematocrit are seen in 55.3% and 53.9% respectively in elderly patients versus 29.5% and 23.2% respectively in patients under 70 years (p=0.001 and p<0.001, respectively) (table no. 3).

The frequency of the treatment of anemia according to the postoperative evolution is not statistically significant if we take into consideration the treatment with iron, pre- and postoperatively, and on transfusion, pre- and postoperatively. The postoperative transfusion was done in 2.5% of the patients with favourable evolution, in 14.6% of those who presented complications and in 50% of those who died (p=p.001) (table no. 4).

Table no. 1. Patients' characteristics on admission

The patient's characteristic	All patients N (%)	Age <70 years N (%)	70 years and over 70 years N (%)	p value
Sex				0.425
Male	100 (58.5)	53 (55.8)	47 (61.8)	
Female	71 (41.5)	42 (44.2)	29 (38.2)	
Residence area				0.969
Urban	124 (72.5)	69 (72.6)	55 (72.4)	
Rural	47 (27.5)	26 (27.4)	21 (27.6)	
Comorbidities				
Depressive syndrome	8 (4.7)	2 (2.1)	6 (7.9)	0.141
High blood pressure	102 (59.6)	50 (52.6)	52 (68.4)	0.037
Diabetes mellitus	24 (14.0)	14 (14.7)	10 (13.2)	0.768
CVA	9 (5.3)	0 (0.0)	9 (11.8)	0.001
Colon cancer	11 (6.4)	7 (7.4)	4 (5.3)	0.757
Surgical interventions				
Cholecystectomy	19 (11.1)	8 (8.4)	11 (14.5)	0.211
Appendectomy	37 (21.6)	20 (21.1)	17 (22.4)	0.836
Hysterectomy	14 (8.2)	12 (12.6)	2 (2.6)	0.023

Table no. 2. Clinical manifestations of left colon cancer

Clinical manifestation	All patients N (%)	Age <70 years N (%)	70 years and over N (%)	p value
Secondary anemia	43 (25.1)	15 (15.8)	28 (36.8)	0.002
Sub occlusive syndrome	47 (27.5)	25 (26.3)	22 (28.9)	0.702
Intestinal occlusion	19 (11.1)	8 (8.4)	11 (14.5)	0.211
Abdominal pain	99 (57.9)	55 (57.9)	44 (57.9)	1.000
Weight loss	61 (35.7)	26 (27.4)	35 (46.1)	0.011
Rectalgia/lower GI hemorrhage (LGIB)	54 (31.6)	34 (35.8)	20 (26.3)	0.185
Intestinal transit disorders	95 (55.6)	49 (51.6)	46 (60.5)	0.242
Vomiting, nausea	19 (11.1)	10 (10.5)	9 (11.8)	0.786
Duration between the onset of symptoms – the presentation to the doctor (days) (mean±SD)	69.6±111.4	61.3±91.8	78.6±130.4	0.525

Table no. 3. Changes in the paraclinical investigations of left colon cancer patients

Paraclinical investigations	All patients N (%)	Age <70 years N (%)	70 years and over N (%)	p value
Leukocytosis				
Admission	71 (41.5)	46 (48.4)	25 (32.9)	0.041
Postoperatively	43 (25.1)	24 (25.3)	19 (25.0)	0.969
Discharge	20 (11.7)	11 (11.6)	9 (11.8)	0.958
Low count of erythrocytes				
Admission	45 (26.3)	22 (23.2)	23 (30.3)	0.294
Postoperatively	31 (18.1)	17 (17.9)	14 (18.4)	0.929
Discharge	34 (19.9)	11 (11.6)	23 (30.3)	0.002
Low hemoglobin				
Admission	70 (40.9)	28 (29.5)	42 (55.3)	0.001
Postoperatively	45 (26.3)	25 (26.3)	20 (26.3)	1.000
Discharge	44 (25.7)	15 (15.8)	29 (38.2)	0.001
Low hematocrit				
Admission	63 (36.8)	22 (23.2)	41 (53.9)	<0.001
Postoperatively	42 (24.6)	23 (24.2)	19 (25.0)	0.905
Discharge	44 (25.7)	16 (16.8)	28 (36.8)	0.003
Thrombocytosis				
Admission	44 (25.7)	22 (23.2)	22 (28.9)	0.389
Postoperatively	14 (8.2)	9 (9.5)	5 (6.6)	0.493
Discharge	14 (8.2)	4 (4.2)	10 (13.2)	0.048

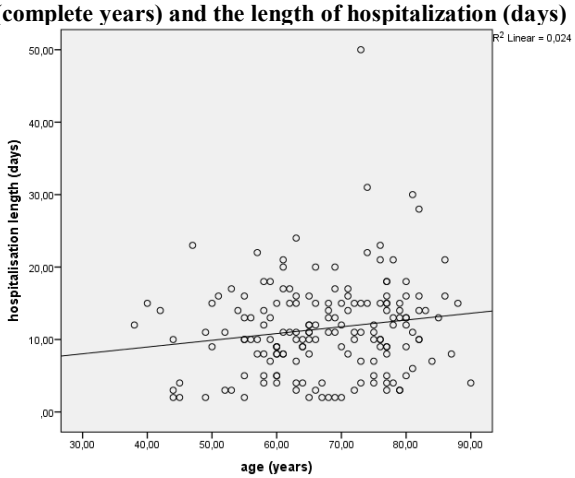
Table no. 4. The treatment of secondary anemia and the postoperative results in left colon cancer patients

	All patients N (%)	Age <70 years N (%)	70 years and over N (%)	p value
Iron treatment				
Preoperatively	8 (4.7)	2 (2.1)	6 (7.9)	0.141
Postoperatively	9 (5.3)	2 (2.1)	7 (9.2)	0.039
Transfusion				
Preoperatively	10 (5.8)	3 (3.2)	7 (9.2)	0.094
Intraoperatively	30 (17.5)	10 (10.5)	20 (26.3)	0.007
Postoperatively	12 (7.0)	4 (4.2)	8 (10.5)	0.108
Postoperative results				0.972
Favourable evolution	118 (72.4)	66 (72.5)	52 (72.2)	
Complications	41 (25.2)	23 (25.3)	18 (25.0)	
Death	4 (2.5)	2 (2.2)	2 (2.8)	

Most of the patients had a favourable postoperative evolution (72.4%), 25.2% presented various complications (the most frequent postoperative complications are the E. Coli and Clostridium difficile infections, followed by hypochromic anemia, postoperative evisceration, hypo thalassemia, anastomotic fistula and wound suppuration), while 2.5% died. The frequency of postoperative complications and hospitalized mortality due to colorectal cancer in the group of patients included in the research is not different in the elderly patients (table no. 4).

The length of the hospital stay is positively correlated (rho=0.156; p=0.041) with the age of the patient, i.e. the older the patient, the more the number of hospitalization days and vice-versa (figure no. 1).

Figure no. 1. The correlation between the age of the patients (complete years) and the length of hospitalization (days)



DISCUSSIONS

The mean age of the patients in the study group was 67.24±10.95 years, almost half of them being 70 years or over 70 years. 58.5% of the patients included in the study are men, their percentage being higher in the ages over 70 years (61.8%), but with no significant differences in terms of age (p=0.425). The patient's age is of utmost importance in the postoperative prognosis of colon cancer, as well as the sex of the patients. Age over 70 years and male sex are risk factors for a severe prognosis of colon cancer.(7,8)

The influence of comorbidities on the prognosis of colon cancer is already known, especially in elderly patients, where the severity of the associated disorders limits the chances of a favourable evolution and survival in colon cancer patients. More than half of the patients are on record with high blood pressure, and 14% of them suffer from diabetes mellitus. The patients over 70 years included in the research have a significantly higher prevalence of high blood pressure and cerebral-vascular accident (CVA). Cardiac problems, diabetes mellitus (type I or type II) negatively influence the postoperative evolution. Moreover, abdominal surgical interventions in the surgical history of the patient are seen in 40.9% of the patients in the study group (cholecystectomies, appendectomies, hysterectomies etc.) and determine a high risk of postoperative complication occurrence. Moreover, the favourable evolution is strongly influenced by the presence of the depressive syndrome (4.7% in the entire group, but the prevalence reaches 7.9% in patients over 70 years). The prevalence of obesity could not be analysed, although numerous studies reveal its importance in the evolution of the health state of the colon cancer patient) because the data in the observation charts were not complete.(9-13)

Abdominal pain, intestinal transit disorders and weight loss are the most frequent symptoms of left colon cancer patients. Weight loss is significantly more frequent (p=0.011) in patients aged over 70 years (46.1%) than in patients under 70 years (27.4%). However, the patient presents to the doctor 60 days after the onset of the symptoms (69.6±111.4 days), which indicates a low level of health literacy and poor health education of the colorectal cancer patient. 11.1% of the patients are admitted with intestinal occlusion, its incidence reaching 30.5% in patients over 80 years. The risk of occurrence of intestinal occlusion increases with age, thus leading to an unfavourable prognosis of the subsequent evolution of colon cancer.

Secondary anemia is seen in 25.1% of the patients included in the study group, its incidence in elderly patients being 36.8%, significantly higher than in those under the age of 70 years (15.8%). Severe postoperative anemia increases the risk of postoperative complication occurrence, while moderate anemia can be a protective factor in developing postoperative complications.(14) Elderly patients have a significantly higher frequency of low hemoglobin and low hematocrit, both preoperatively and postoperatively. The occurrence of perioperative anemia is associated with the advanced age of the patient and it significantly increases the transfusion rate, similar to the results presented in other studies.(15,16)

For the patients with anemia, the preoperative transfusion was indicated in 5.8% of the cases, the intraoperative one in 17.5% of the cases and the postoperative one in 7% of the cases. The intraoperative transfusion was more frequently (p=0.007) recommended in the elderly patients (26.3%). The need for blood transfusion in certain circumstances is unquestionable, but there are numerous situations in which it should be avoided, knowing that it triggers a series of adverse reactions, such as the increased length of the hospital stay in relation with the occurrence of sepsis, multiple organ failure and increased mortality.(17,18,19)

Patient Blood Management is also important in order to reduce anemia and prevent blood transfusions. In Romania, the Initiative Group for the Patient Blood Management has published and implemented a guide to accomplish all these wishes.(20)

CONCLUSIONS

The incidence and the prevalence of colorectal cancer are continuously increasing, colon cancer having a strong impact

on this trend. Almost half of the patients with colorectal cancer are over than 70 years old, which suggests an unfavourable prognosis because of other associated disorders and the limits in the capacity of physical and mental recovery.

The multidisciplinary management of the elderly patient with left colon cancer is recommended by the higher prevalence of chronic diseases (diabetes mellitus, cerebrovascular diseases etc.), corroborated with the different symptoms (higher frequency of secondary anemia, weight loss, intestinal occlusion). Also, the treatment plan should be adapted to the particularities of the geriatric patient (limited ability to recover, declining life quality, increased risk of postoperative complication occurrence).

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