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EPIDEMIOLOGICAL ANALYSIS AND CORRELATION BETWEEN THE MAIN CLINICAL PRESENTATIONS OF COLORECTAL CANCER AND ITS COLONOSCOPIC FINDINGS

ANÁLISE EPIDEMIOLÓGICA E CORRELAÇÃO ENTRE AS PRINCIPAIS APRESENTAÇÕES CLÍNICAS DO CÂNCER COLORRETAL E SEUS ACHADOS COLONOSCÓPICOS

ANÁLISIS EPIDEMIOLÓGICO Y CORRELACIÓN ENTRE LAS PRINCIPALES PRESENTACIONES CLÍNICAS DEL CÁNCER COLORRECTAL Y SUS HALLAZGOS COLONOSCÓPICOS

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ABSTRACT

Colorectal cancer (CRC) is one of the most prevalent neoplasms in Brazil and in the world and its development is most commonly associated with the progression of adenomatous polyps to adenocarcinomas. These lesions are asymptomatic, detected in screening tests, with fecal occult blood testing and colonoscopy being the most traditionally used. Screening programs are important for early detection, improving morbidity and patient survival, allowing the initiation of treatment even in the early stages of the disease. Through a cross-sectional study with data collection, the objective is to correlate the main clinical manifestations and the histopathological findings of colonoscopies performed at the Instituto do Aparelho Digestivo em Goiânia, Goiás between the years 2019 and 2020.

Keywords: Colorectal Neoplasms. Colonoscopy. Tracking Programs.

RESUMO

O câncer colorretal (CCR) é uma das neoplasias mais prevalentes no Brasil e no mundo e seu desenvolvimento está, mais comumente, associado à progressão de pólipos adenomatosos para adenocarcinomas. Essas lesões se apresentam de forma assintomática, sendo detectadas em exames de rastreio, sendo a pesquisa de sangue oculto nas fezes e a colonoscopia os mais tradicionalmente utilizados. Os programas de rastreamento são importantes para detecção precoce, melhora de morbidade e sobrevida dos pacientes, permitindo início de tratamento ainda em estágios iniciais da doença. Através de um estudo de corte transversal com levantamento de dados, objetiva-se correlacionar as principais manifestações clínicas e os achados histopatológicos de colonoscopias realizadas no Instituto do Aparelho Digestivo em Goiânia-Goiás entre os anos de 2019 e 2020.

Palavras-chave: Neoplasias Colorretais. Colonoscopia. Programas de Rastreamento.

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RESUMEN
El cáncer colorrectal (CCR) es una de las neoplasias más prevalentes en Brasil y a nivel mundial, y su desarrollo se asocia comúnmente con la progresión de pólipos adenomatosos a adenocarcinomas. Estas lesiones son asintomáticas y se detectan mediante pruebas de cribado, siendo la prueba de sangre oculta en heces y la colonoscopia las más utilizadas tradicionalmente. Los programas de cribado son importantes para la detección temprana, la mejora de la morbilidad y la supervivencia del paciente, permitiendo iniciar el tratamiento en las primeras etapas de la enfermedad. Mediante un estudio transversal con recolección de datos, el objetivo es correlacionar las principales manifestaciones clínicas y los hallazgos histopatológicos de las colonoscopias realizadas en el Instituto del Aparato Digestivo de Goiânia-Goiás entre 2019 y 2020.

Palabras clave: Neoplasias Colorrectales. Colonoscopia. Programas de Cribado.

1 INTRODUCTION

Colorectal cancer (CRC) incidence and mortality rates vary markedly around the world. Globally, it is the third most commonly diagnosed cancer in men and the second in women. Incidence and mortality rates are substantially higher in men than in women (MACRAE, 2022).

CRC appears to have higher incidence in Australia and New Zealand, Europe, and North America, and lower rates are found in Africa and south-central Asia (MACRAE, 2022). In Brazil, CRC is the second most common in men and women, excluding non-melanoma skin cancer, with an estimated 21,970 cases in males and 23,660 cases in females, in 2022 (INCA, 2022).

Environmental and genetic factors can increase the likelihood of developing CRC. Most cases are sporadic and non-familial, with known and modifiable risk factors being: obesity, diabetes mellitus and insulin resistance, consumption of red meat and ultra-processed foods, smoking and alcoholism, among others (MACRAE, 2022).

There are three main forms of clinical presentation of CRC: presence of suspicious signs and/or symptoms (abdominal pain, hematochezia or melena, anemia due to unexplained iron deficiency and/or change in bowel habit); asymptomatic tumors discovered by routine screening tests or emergency conditions (intestinal obstruction or perforation, acute and bulky gastrointestinal hemorrhage) (MACRAE; APARNA; RICCIARDI, 2022).

Most cases of CRC (70 to 90%) are diagnosed after the onset of symptoms and usually present in more advanced stages. Typical symptoms include gastrointestinal bleeding (melena or hematochezia), abdominal pain, unexplained iron deficiency anemia, and/or change in bowel habits (MACRAE; APARNA; RICCIARDI, 2022). This data is confirmed in more recent studies that show a majority of patients with symptoms at the diagnosis of CRC and more advanced disease when compared to asymptomatic patients in screening exams (MORENO et al., 2016).

Among the compilation of the most frequent symptoms and findings that led to diagnostic colonoscopy in a study involving 388 patients diagnosed with CRC between 2011 and 2014, gastrointestinal bleeding was observed in 37% of cases, abdominal pain in 34%, and occult anemia in 23% (MACRAE; APARNA; RICCIARDI, 2022).

Asymptomatic patients may present with colonic polyps (protuberances of the intestinal lumen above the surrounding colon mucosa) that may be neoplastic, such as villous

adenomas. These lesions usually do not cause any type of clinical manifestation and are most often detected by colon cancer screening tests (MACRAE, 2022).

There are several screening tests available to detect RCC and adenomatous polyps, such as fecal occult blood testing, colonoscopy, and flexible rectosigmoidoscopy (JATOBÁ et al., 2008). The choice of test should take into account evidence of efficacy, safety, availability, and cost, in addition to the risk stratification for the patient's CRC (DOUBENI, 2022).

Faecal occult blood testing (FOBT) is a non-invasive form of screening, which does not require bowel preparation or sedation and, when positive, has much greater predictive value than any single symptom or combination of symptoms (MACRAE; APARNA; RICCIARDI, 2022). It is a less sensitive method for detecting colonic adenomas and CRC, but screening with FOBT reduces CRC mortality. (DOUBENI, 2022). It is a strategy used as a first suspicion test, which will require, in positive cases, a complementary or confirmatory examination (INCA, 2022).

Therefore, colonoscopy is the most widespread CRC screening test. Despite the need for bowel preparation, sedation, and imminent risks to the procedure (such as infection and perforation), it has high sensitivity and specificity for detecting precancerous adenomas and CRC (DOUBENI, 2022). Endoscopic exams (colonoscopy and rectosigmoidoscopy) allow the visualization and excision of lesions, with the advantage of being simultaneously diagnostic and therapeutic (BARBALHO et al., 2019).

Current efforts are focused on reducing the incidence and mortality of CRC, especially in young adults. In the U.S. and many other Western countries, death rates have progressively declined since the mid-1980s. This data can be attributed, at least in part, to the detection of early-stage CRC, the detection and removal of colonic polyps, and more effective treatments (MACRAE, 2022).

Therefore, screening for CRC in early stages, in the absence of clinical symptoms, allows for better therapeutic options and lower mortality when compared to symptomatic patients at diagnosis (DOUBENI, 2019).

2 BACKGROUND

In Brazil, there are two main forms of screening for colorectal cancer (CRC), with scientific evidence, for the early detection of precancerous lesions and, consequently, CRC: fecal occult blood testing and endoscopic examinations (colonoscopy and rectosigmoidoscopy).

The two tests can be indicated as initial in CRC screening and the choice depends on the clinical situation of each individual (lower or higher risk of the disease), availability of the test and cost-effectiveness. Positive fecal occult blood testing usually requires a confirmatory endoscopic test.

CRC screening programs, regardless of the method chosen, have a direct impact on reducing the mortality rate and improving the prognosis of patients with the disease, since colonic polyps (precancerous lesions) do not present clinical manifestations.

Therefore, an epidemiological analysis of the asymptomatic patients identified by the screening tests and of the patients with suspicious clinical manifestations (gastrointestinal hemorrhage or anemia) of CRC and the correlation between clinical presentations and colonoscopic findings is necessary to understand the impact of symptoms on the diagnosis of the disease.

3 OBJECTIVES

1- To describe the epidemiological characteristics of patients who underwent colonoscopy exams between the years 2019 and 2020.
2- To study the main findings in colonoscopy exams according to the main clinical presentations of colorectal cancer (CRC).
3- To understand the impact of symptomatology versus positive fecal occult blood testing on the diagnosis of CRC.

4 MATERIALS AND METHODS

The present study is of the cross-sectional type, in which 10,233 medical records of patients who underwent colonoscopy exams at the Digestive System Institute of Goiânia during the period from January 2019 to July 2020 were evaluated. Data were collected regarding identification (name, gender and age), year of colonoscopy, indication for the examination and the presence of lesion (polyp and/or tumor), and in cases of polyps, histological type, presence and degree of dysplasia were added. Of the 10,233 patients, 1,062 were selected for the development of this study. The inclusion criteria were: patients over 18 years of age who underwent colonoscopies in 2019 and 2020 due to anemia, gastrointestinal bleeding (hematochezia, melena, or enterorrhagia), or with positivity in the fecal occult blood test. One patient was excluded from the study because he had hemorrhage

associated with changes in bowel habits, which was not part of our study. The data were simplified in the form of an Excel spreadsheet to write the present work.

5 DISCUSSION

The final spreadsheet resulted in 1,062 exams performed. Table 1 shows the demoFigureic characteristics of the patients. The study population was composed mostly of women and patients over 50 years of age.

Table 1

DemoFigureic characteristics of patients undergoing diagnostic colonoscopy

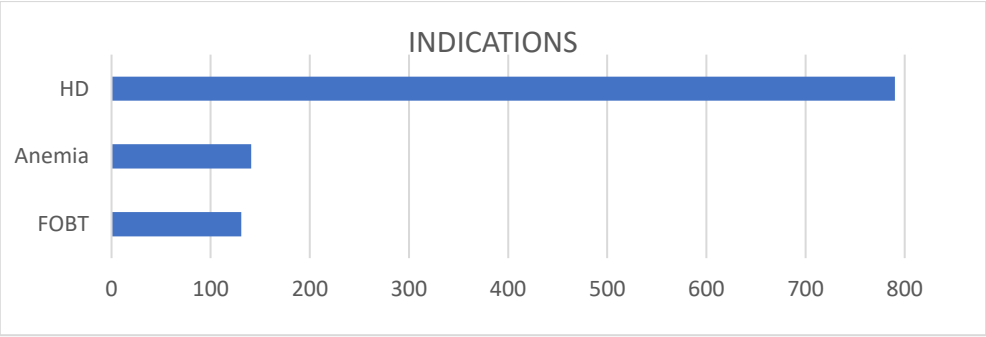
Gender	638 women (60%)	424 men (39,9%)	
Age	18 to 30 years old 155 patients (14,59%)	31 to 49 years old 396 patients (37,28%)	Over 50 years old 511 patients (48,13%)

Source: Prepared by the authors

Among the clinical presentations, digestive hemorrhage (hematochezia, melena, or enterorrhagia) was the most common, accounting for the indication of 790 tests, followed by anemia (141 tests) and, finally, asymptomatic patients with positive fecal occult blood tests (131 tests). Figure 1 summarizes the main presentations that led to colonoscopy.

Figure 1

Main indications for performing diagnostic colonoscopy



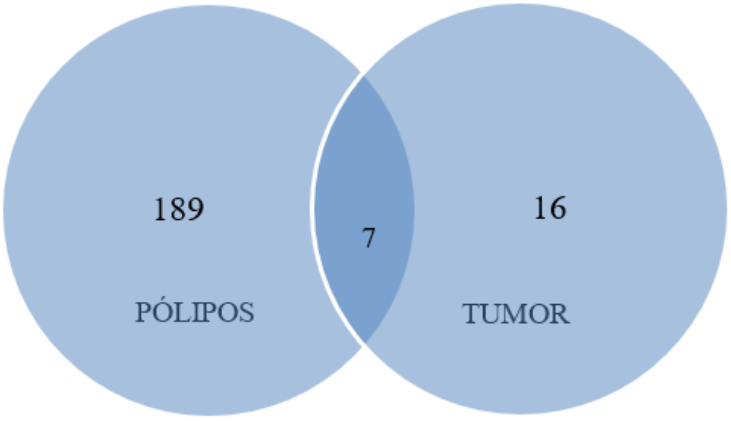
HD: gastrointestinal bleeding FOBT: positive fecal occult blood test
Source: Prepared by the authors

Of the 1,062 tests performed, 212 patients had some colonoscopic finding between polyp and/or tumor. The most common colonoscopic finding was polyp, affecting 189 patients,

followed by tumor (16 patients). 7 patients had the polyp and tumor combination. Figure 2 summarizes the main colonoscopic findings of the patients.

Figure 2

Distribution of patients according to colonoscopic lesions found



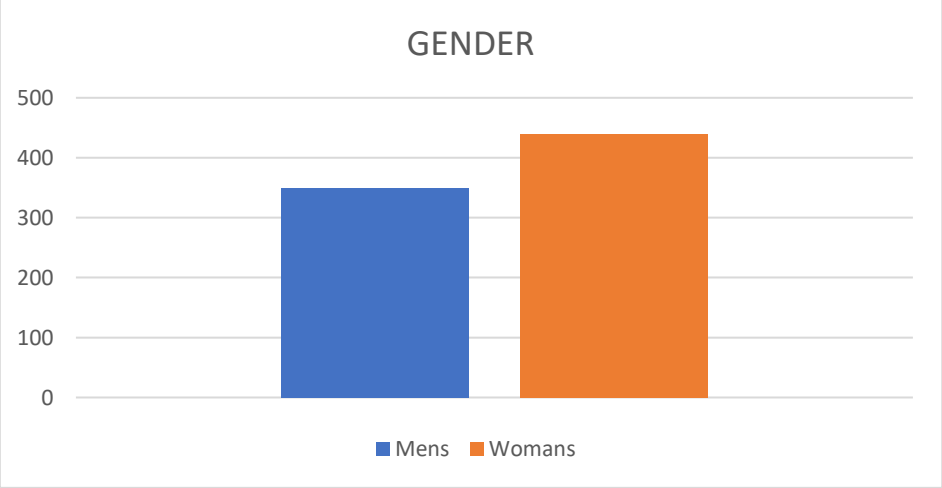
Source: Prepared by the authors

5.1 DIGESTIVE HEMORRHAGE

Among the 1,062 exams, digestive hemorrhage (melena, enterorrhagia or hematochezia) led 790 patients to undergo diagnostic colonoscopy. Therefore, about 74.38% of the patients had some type of bleeding, which was the main symptomatology in the patients submitted to the test. Of the 790 patients, most were women (440 patients) and patients over 50 years of age (646 patients). The data are summarized in Figures 3 and 4, respectively.

Figure 3

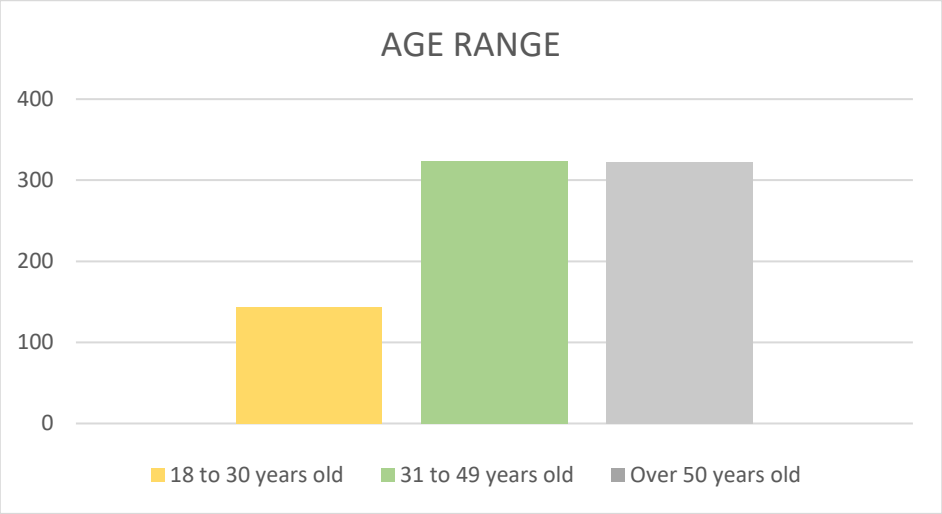
Distribution of patients with gastrointestinal bleeding according to gender



Source: Prepared by the authors

Figure 4

Distribution of patients with gastrointestinal hemorrhage according to age group

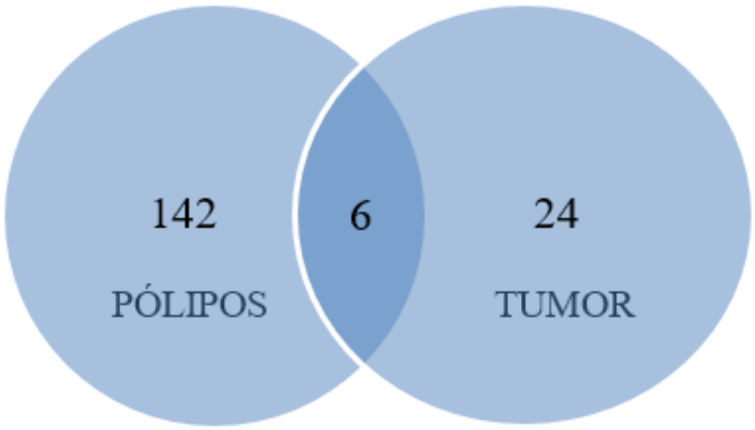


Source: Prepared by the authors

In all, 166 patients had some lesion pointed out in the colonoscopy. 142 patients had polyps and 24 patients had tumors. Of the remaining patients, 6 had a polyp and tumor association. Figure 5 illustrates the data.

Figure 5

Distribution of patients with gastrointestinal hemorrhage according to colonoscopic lesions found

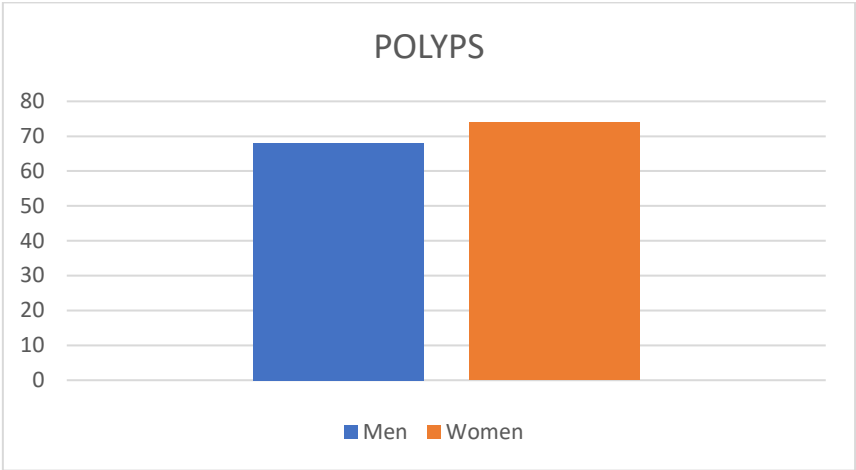


Source: Prepared by the authors

Among the 142 patients with polyps, the majority were women (74 patients) compared to the group of men (68 patients) and, regardless of gender, the lesion was more common in the group over 50 years of age. Figures 6 and 7 summarize the information, respectively.

Figure 6

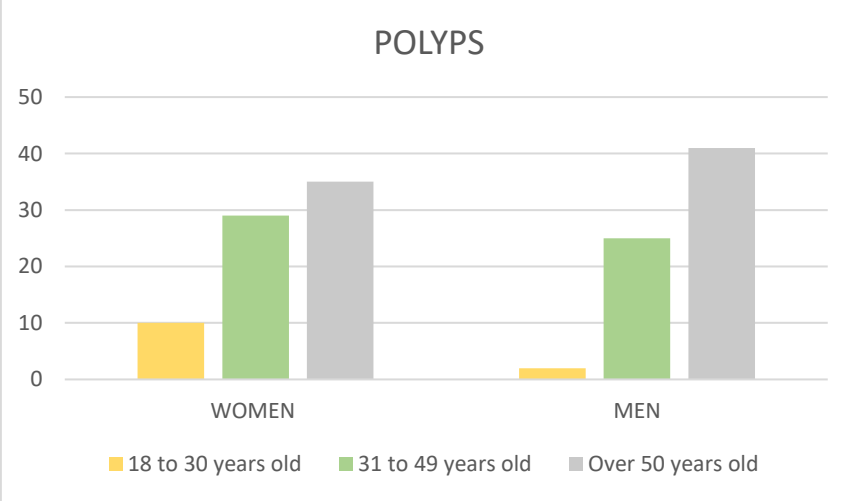
Distribution of patients with polyps manifested by gastrointestinal hemorrhage according to gender



Source: Prepared by the authors

Figure 7

Distribution of patients with polyps manifested by gastrointestinal hemorrhage according to age group

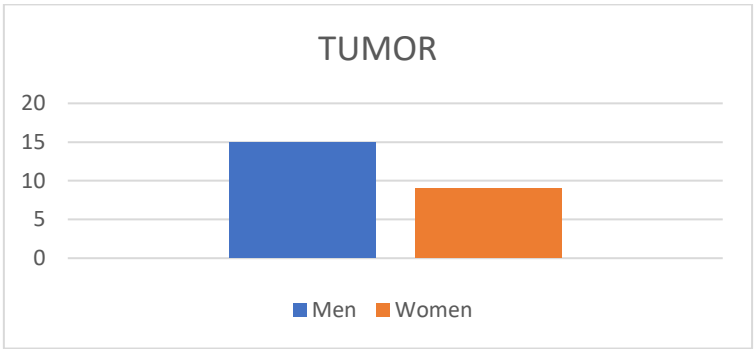


Source: Prepared by the authors

Figures 8 and 9 show the distribution of patients with tumors, manifested by digestive hemorrhage, according to gender and age group, respectively. The colonoscopic finding of tumor was more common in men and, regardless of gender, in the group over 50 years of age.

Figure 8

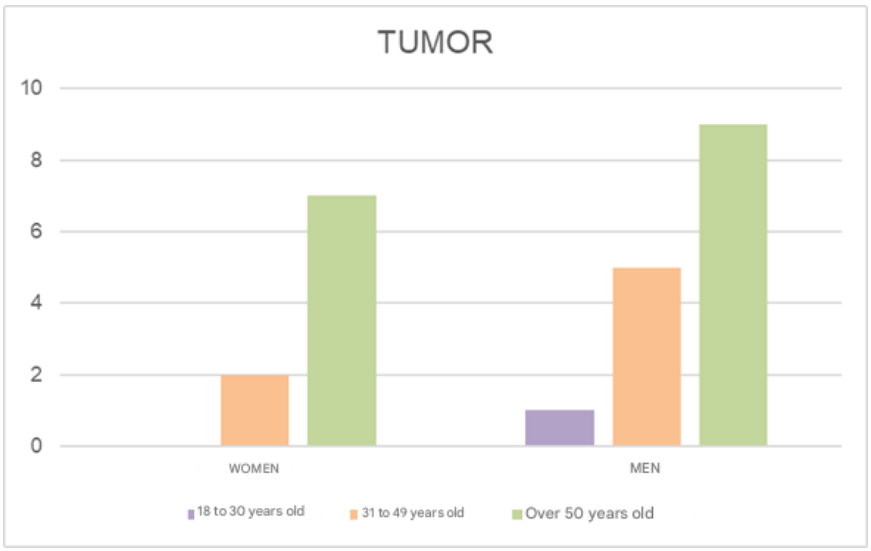
Distribution of patients with tumors manifested by gastrointestinal hemorrhage according to gender



Source: Prepared by the authors

Figure 9

Distribution of patients with tumors manifested by gastrointestinal hemorrhage according to age group



Source: Prepared by the authors

Table 2 summarizes the distribution of patients who underwent colonoscopy due to gastrointestinal hemorrhage according to epidemiological characteristics and colonoscopic findings.

Table 2

Summary of the distribution of patients with gastrointestinal bleeding

HEMORRAGIA								TOTAL
			SEXO		FAIXA ETÁRIA (ANOS)			
			FEMININO	MASCULINO	18 A 30	31 A 49	ACIMA DE 50	
ACHADOS	PÓLIPOS	ADENOMATOSO	49	51	6	43	51	100
		HIPERPLÁSICO	25	17	9	20	13	42
		TOTAL	74	68	15	63	64	**142**
	TUMOR	RETO	4	11	1	6	8	15
		SIGMOIDE, DESCENDENTE	5	1	-	2	4	6
		CECO, ASCENDENTE OU TRANSVERSO	-	3	-	-	3	3
		TOTAL	9	15	1	8	15	**24**
TOTAL	-	-	83	83	16	71	79	166

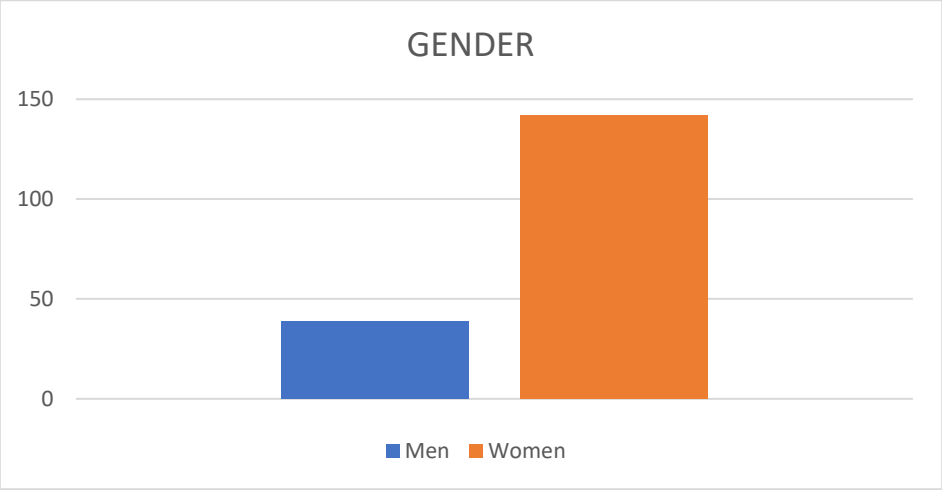
Source: Prepared by the authors.

5.2 ANEMIA

Occult anemia was the second leading clinical presentation, accounting for 141 of the 1,062 tests performed. This group was composed mostly of women (102 patients) compared to men (39 patients). Regarding age, 8 patients were between 18 and 30 years old, 43 patients were between 31 and 49 years old, and 90 patients were over 50 years old. The data are observed in Figures 10 and 11, respectively.

Figure 10

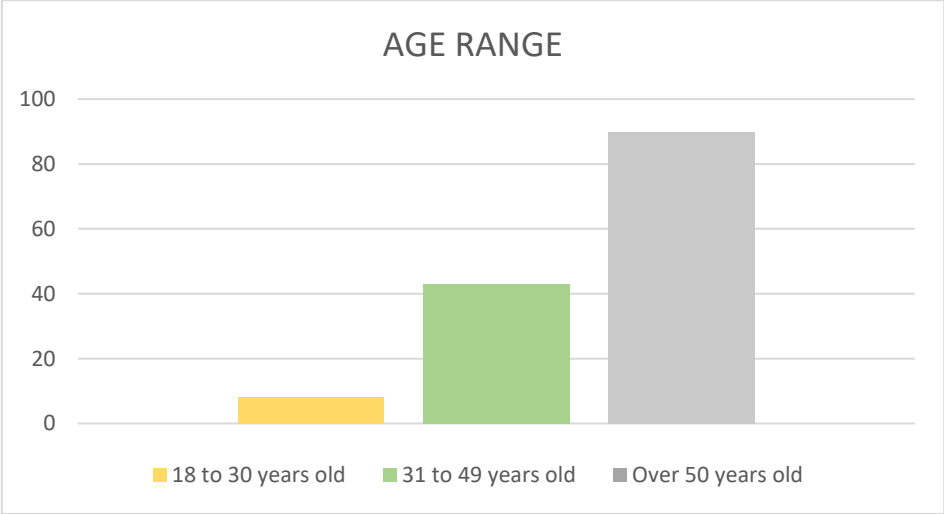
Distribution of patients with anemia according to gender



Source: Prepared by the authors

Figure 11

Distribution of patients with anemia according to age group

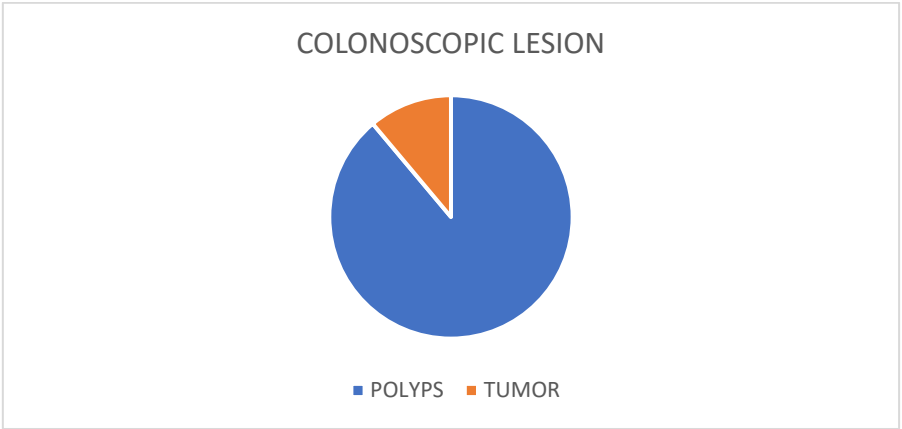


Source: Prepared by the authors

Of the total number of tests performed in patients with anemia, 45 showed some type of lesion (polyp and/or tumor), and in 40 the presence of a polyp was observed and, in 5 exams, a tumor. In this group, there was no joint presentation of the two colonoscopic lesions. Figure 12 shows the distribution of colonoscopic lesions in patients with anemia.

Figure 12

Distribution of patients with anemia according to colonoscopic lesions found

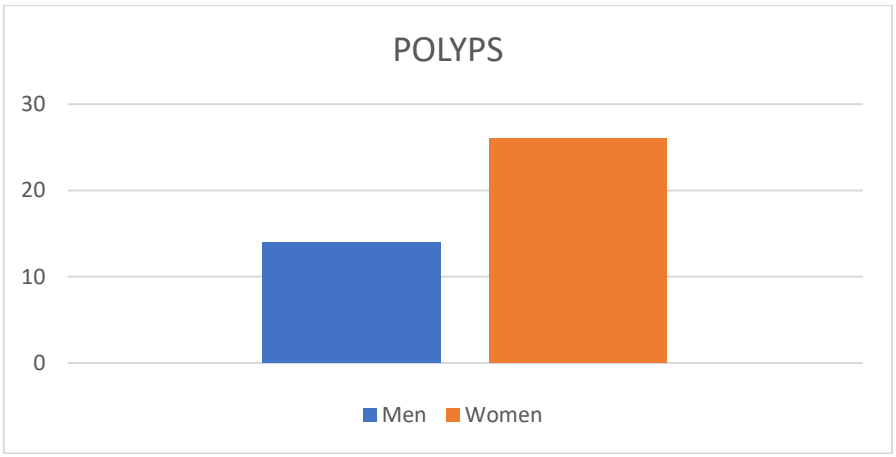


Source: Prepared by the authors

Of the 40 patients with polyps found at colonoscopy, 26 were women and 14 were men. Regardless of gender, polyps were more common in the age group over 50 years. These data are illustrated in Figures 13 and 14, respectively.

Figure 13

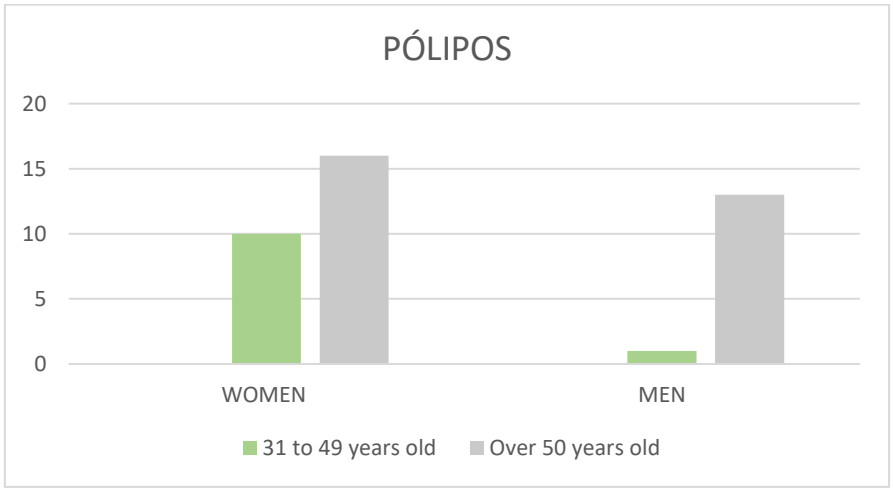
Distribution of patients with polyps manifested by anemia according to gender



Source: Prepared by the authors

Figure 14

Distribution of patients with polyps manifested by anemia according to age group

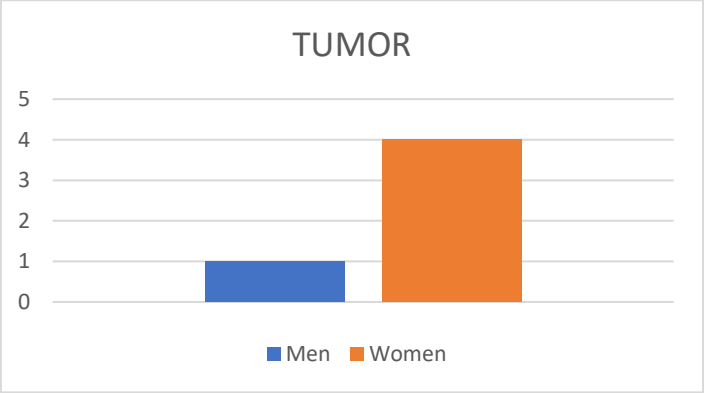


Source: Prepared by the authors

In the group of patients with colonoscopy showing the presence of tumors, 4 patients were women and 1 was a man, and all patients were over 50 years of age, as shown in Figures 15 and 16, respectively.

Figure 15

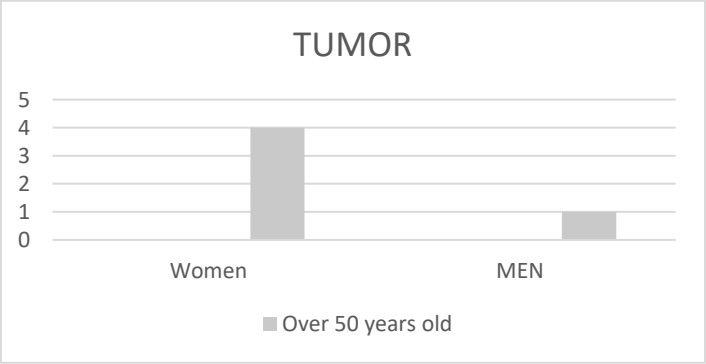
Distribution of patients with tumors manifested by anemia according to gender



Source: Prepared by the authors

Figure 16

Distribution of patients with tumors manifested by anemia according to age group



Source: Prepared by the authors

Table 3 summarizes the distribution of patients who underwent colonoscopy due to anemia according to epidemiological characteristics and colonoscopic findings.

Table 3

Summary of the distribution of patients with anemia

ANEMIA								TOTAL
				SEXO		FAIXA ETÁRIA (ANOS)		
				FEMININO	MASCULINO	18 A 30	31 A 49	ACIMA DE 50	
ACHADOS	PÓLIPOS	ADENOMATOSO		20	10	-	6	24	30
		HIPERPLÁSICO		6	4	-	5	5	10
		TOTAL		26	14	-	11	29	40
	TUMOR	RETO		-	-	-	-	-	-
		SIGMOIDE, DESCENDENTE		1	1	-	-	2	2
		CECO, ASCENDENTE OU TRANSVERSO		3	-	-	-	3	3
		TOTAL		4	1	-	-	5	5
TOTAL	-	-		30	15	0	11	34	45

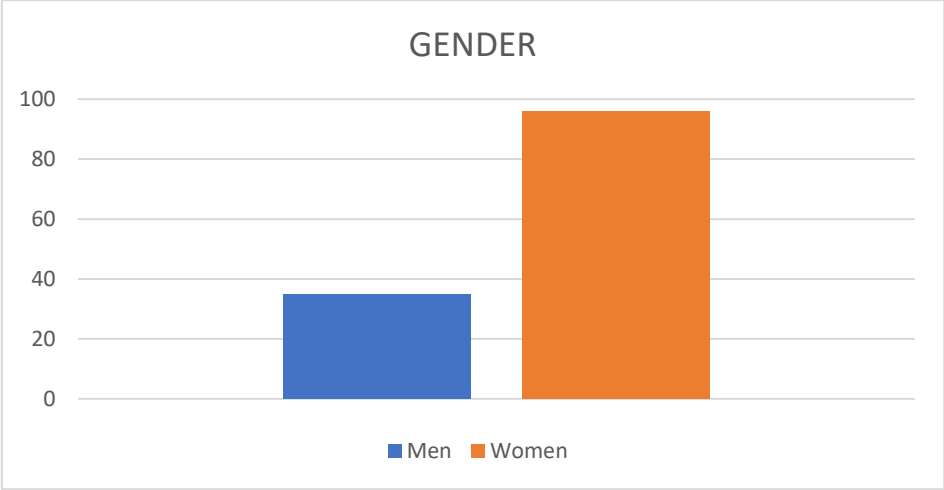
Source: Prepared by the authors

5.3 POSITIVE FECAL OCCULT BLOOD TEST

The positive fecal occult blood test of asymptomatic patients was responsible for the indication of 131 colonoscopy tests for diagnostic confirmation. Of the patients, 96 were women and 35 men, 3 aged 18 to 30 years, 29 aged 31 to 49 years and 99 patients aged over 50 years. This information can be seen in Figures 17 and 18, respectively.

Figure 17

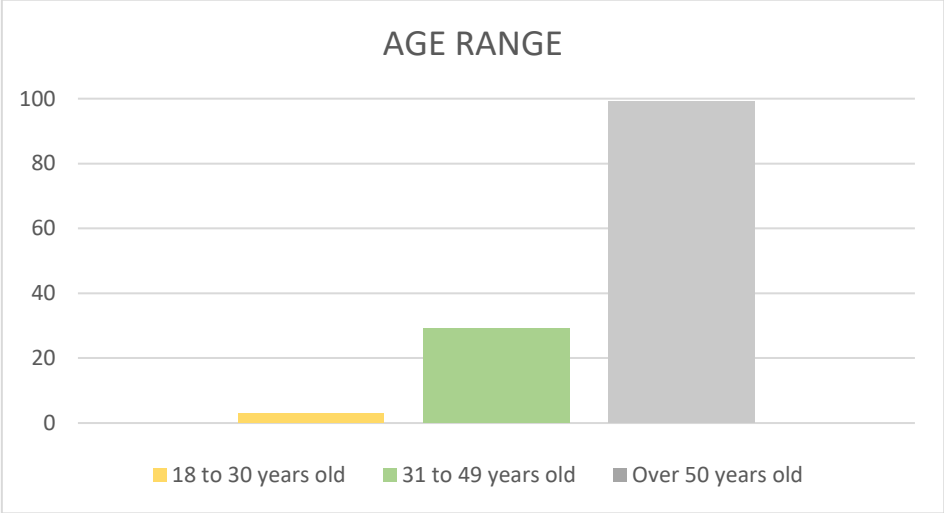
Distribution of patients with positive fecal occult blood test according to gender



Source: Prepared by the authors

Figure 18

Distribution of patients with positive fecal occult blood test according to age group

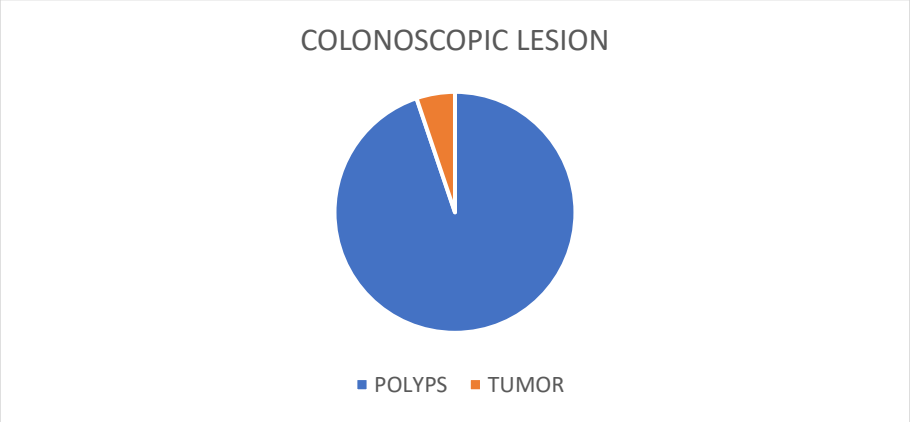


Source: Prepared by the authors

Among the 131 patients who underwent colonoscopy, 58 patients had polypoid or tumor lesions in the exam. Polyps were identified in 55 patients and tumors in only 3. As with anemia, the presence of tumor and polyps simultaneously was not observed. The colonoscopic lesions found in patients with positive occult blood in the feces are summarized in Figure 19.

Figure 19

Distribution of patients with positive fecal occult blood test according to colonoscopic lesions found

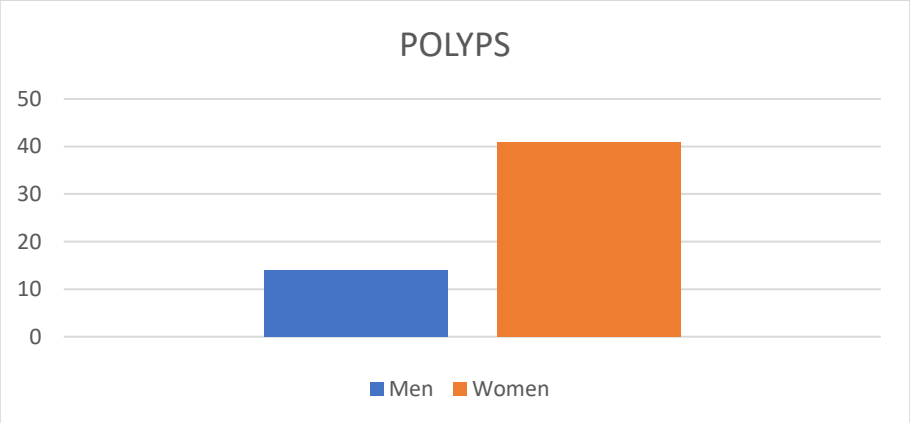


Source: Prepared by the authors

Among the 55 patients with colonoscopic polyp findings, 41 were women and 14 were men. Only 4 patients are between 31 and 49 years of age, and the other 51 patients are over 50 years of age. The epidemiological characteristics of the group are illustrated in Figures 20 and 21, respectively.

Figure 20

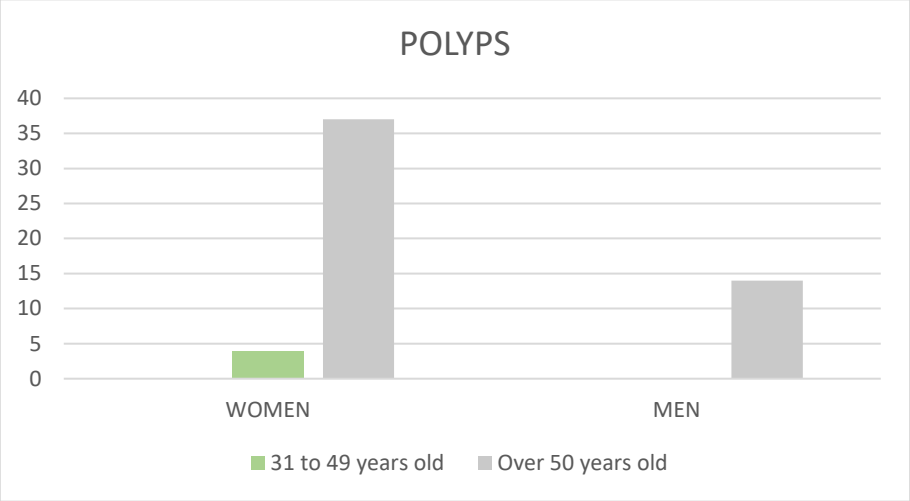
Distribution of patients with positive fecal occult blood and polyps according to gender



Source: Prepared by the authors

Figure 21

Distribution of patients with positive fecal occult blood tests and polyps according to age group

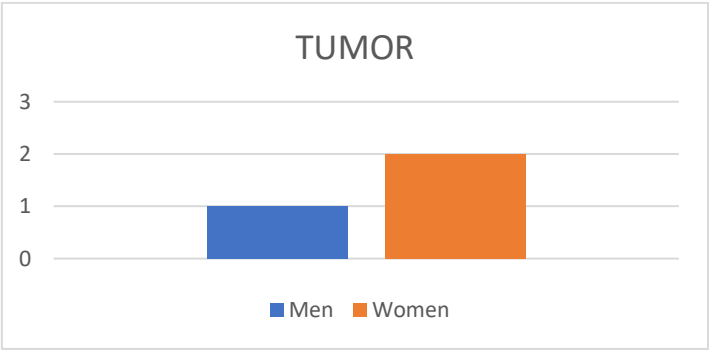


Source: Prepared by the authors

On the other hand, among the 3 patients with positive fecal occult blood test and colonoscopic tumor findings, 2 are women and only 1 is a man. Regardless of gender, all are over 50 years old. This distribution is seen in Figures 22 and 23, respectively.

Figure 22

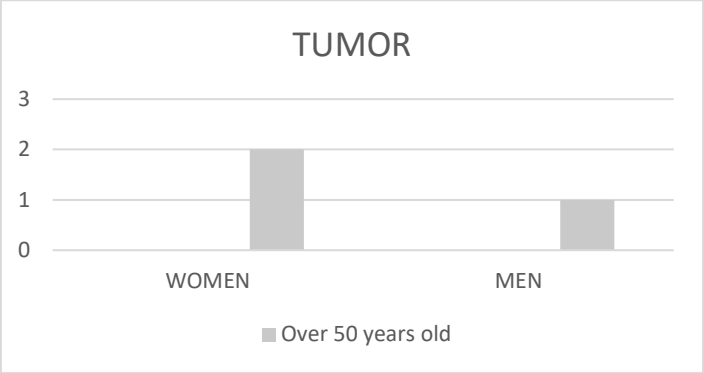
Distribution of patients with positive fecal occult blood and tumor tests according to gender



Source: Prepared by the authors

Figure 23

Distribution of patients with positive fecal occult blood and tumor tests according to age group



Source: Prepared by the authors

Table 4 summarizes the distribution of patients who underwent colonoscopy due to positive fecal occult blood testing according to epidemiological characteristics and colonoscopic findings.

Table 4

Summary of the distribution of patients with positive fecal occult blood test

SANGUE OCULTO								TOTAL
			SEXO		FAIXA ETÁRIA (ANOS)			
			FEMININO	MASCULINO	18 A 30	31 A 49	ACIMA DE 50	
ACHADOS	PÓLIPOS	ADENOMATOSO	28	11	-	4	35	39
		HIPERPLÁSICO	13	3	-	-	16	16
		TOTAL	41	14	-	4	51	**55**
	TUMOR	RETO	1	-	-	-	1	1
		SIGMOIDE, DESCENDENTE	1	1	-	-	2	2
		CECO, ASCENDENTE OU TRANSVERSO	-	-	-	-	-	-
		TOTAL	2	1	-	-	3	**3**
TOTAL	-	-	43	15	-	4	54	**58**

Source: Prepared by the authors

6 CONCLUSIONS

At the end of the data presentation, it can be seen that diagnostic colonoscopy was more commonly indicated for symptomatic patients with occult anemia or some type of digestive bleeding (931 patients) when compared to the group submitted to confirmatory colonoscopy after positive fecal occult blood test (131 patients).

Regarding the epidemiological characteristics, it can be perceived, therefore, a higher prevalence, in this study, of clinical manifestations in women and in patients over 50 years of age. Similarly, colonoscopic findings (precancerous or tumor lesions) were more prevalent in this population. The exception was in the group of men with gastrointestinal hemorrhage, in which the colonoscopic finding of tumor was more prevalent when compared to the group of women.

This pattern can be explained by the greater performance of the exam by women due to greater concern with health and, therefore, greater demand for doctors' offices. However, other factors should be studied in order to better evaluate this data, since in recent years it has been possible to observe a higher incidence of the disease in females. The age group over 50 years coincides with the age recommended by the Ministry of Health for the start of CRC screening in the general population. In addition, the aging of the population leads to a greater number of diagnoses, the development of clinical manifestations and disease at a more advanced stage.

Correlating the clinical presentation with colonoscopic findings, 211 patients of the 931 with digestive bleeding or anemia had precancerous polypoid lesions or tumor lesion on colonoscopy. Of the 131 patients who underwent diagnostic colonoscopy due to positive fecal occult blood testing, 58 had precancerous polypoid lesions or tumor lesions on endoscopic examination.

Polypoid lesions were found in 182 symptomatic patients (85.25%), with adenomatous polyps being the most common, while tumor lesions were found in 29 patients (13.75%). In the group of asymptomatic patients, 55 polyps (94.28%) were diagnosed and in 3 patients (0.51%) it was possible to identify the presence of tumor lesions.

Thus, the clinical manifestations (anemia or digestive hemorrhage) led to greater colonoscopy and, in these patients, there was a greater detection of precancerous lesions (85.25%) when compared to the number of tumor lesions (13.75%). The presence of clinical manifestations justifies the greater number of tests performed by this group and, when compared to the group of asymptomatic patients (0.51%), there was a higher detection of tumor lesions. Despite the considerable difference between the number of patients in each group, this discrepancy of 13.75% versus 0.51% may mean a higher diagnostic sensitivity of colorectal cancer (CRC) in symptomatic patients, however, with colonoscopic findings of disease at a more advanced stage.

When analyzing the data of asymptomatic patients who underwent colonoscopy after screening with positive fecal occult blood testing, there was a higher number of precancerous lesions (94.28%) detected at endoscopic examination compared to the number of tumor lesions (0.51%). Therefore, screening programs with fecal occult blood testing may be superior in detecting earlier disease and at a less advanced stage.

It was not the object of this study to evaluate and follow up patients after diagnosis, the extent and prognosis of the disease. Longitudinal studies can be proposed to elucidate the data obtained in this study with greater clarity. However, it is important to observe the importance of screening programs for the detection of precancerous lesions, with a greater possibility of effective treatment to achieve a progressive reduction in morbidity and mortality in patients with colorectal cancer.

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