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SOCIODEMOGRAPHIC AND CLINICAL PROFILE OF PATIENTS UNDERGOING SURGERY FOR COLORECTAL CANCER IN A TEACHING HOSPITAL

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Abstract: Tracing the sociodemographic and clinical profile of patients undergoing colorectal surgery for cancer in a teaching hospital between 2010 and 2019, and estimating factors related to discharge and readmission. For this purpose, data will be collected, processed and analyzed from medical records of patients undergoing colorectal procedures at Hospital Santa Casa de Misericórdia de Vitória, which serves patients in the public and private network. The survey was approved by the CEP of EMESCAM with an opinion consubstantiated 4,167,383. Data from 350 patients were included. There was a higher proportion of patients aged 45 to 75 years (72.3%), female (53.7%), brown (71.1%), with a partner (53.7%), and attended by the SUS (88.9%). Most procedures were elective (78.3%), with a predominance of tumors in the ascending colon, followed by rectum and sigmoid colon. Most patients did not undergo ostomy. Approximately 46% of the individuals analyzed had metastasis, and 80% of the cases had free surgical margins. Comparing sociodemographic and clinical variables to the reason for discharge and postoperative readmission, it is suggested that unfavorable outcomes are associated with the nature of the surgery ($p < 0.01$) and marital status ($p < 0.01$). **Conclusion:** The present study suggests that there is a higher mortality in patients without a partner and undergoing emergency surgery, as well as a longer hospital stay in the latter group. This result is important in establishing public policies that improve screening and provide early treatment for this health problem, and generate data to improve hospital management.

Keywords: Colorectal cancer. Epidemiological profile. Hospitalization time. Marital status. Surgery.

INTRODUCTION

Colorectal cancer (CRC) is a malignant neoplasm of great clinical relevance, which affects the large intestine, specifically the colon and rectum. In Brazil, its constantly rising incidence makes it the second most common type of cancer, with 41,000 new cases expected for each year of the 2020-2022 triennium. However, this panorama could be improved as CRC has specific characteristics, slow evolution and well-described risk factors for the disease, allowing for very effective planning and prevention actions (ASSIS, 2011).

Within these preventive actions, screening becomes an important tool, and must be performed in adults aged 45 years or older, but there are a variety of options, with no consensus on a screening method. Primary prevention actions, on the other hand, are essentially based on changing lifestyle habits, which can become a challenge for the adherence of individuals and health professionals (JOSEPH et al., 2020).

Once diagnosed, staging is carried out, which involves requesting serum tests, imaging tests and other endoscopic tests, depending on the topography and other characteristics of the neoplastic lesion. After this step, the therapeutic method is proposed to the patient, which can be endoscopic, surgical, radiotherapy, chemotherapy, immunotherapy, among others - and in many circumstances there may be a combination of methods (HASHIGUCHI et al., 2020).

It must be noted that, particularly in cases of CRC, the inability to resolve the main demands at the primary and secondary levels of the health care network generates, as a consequence, an overload in tertiary care, increased length of stay and delay in resolving the case, a fact that can evolve the patient's condition and reduce the possibilities of cure. In view of this reality, it is necessary to

understand the peculiarities of CCR, its profile and presentations at the regional level, in order to generate effective interventions in the control and prevention of this type of cancer (SILVA et al., 2020). In addition, knowing the clinical profile of these cancer patients, the times related to hospitalization, staging, location is of great importance for the best care of this population in the health service (GIRARDON; JACOBI; DE MORAES, 2022).

Based on the assumptions above, the objective of the study was to evaluate the sociodemographic and clinical profile of patients undergoing colorectal surgical procedures for CRC in a hospital from 2010 to 2019.

METHODOLOGY

In order to carry out this study, a search was carried out, from January 1, 2010 to December 31, 2019, in the medical records of patients treated at Hospital Santa Casa de Misericórdia in Vitória/Vitória/ES/Brazil. The medical records were selected based on the procedure codes used in the surgical descriptions, following the procedure code standard in the Unified Health System (SUS) table. We chose to use these codes as the CRC diagnosis is often retroactive (after the procedure), which is why patients were not selected using their International Classification of Diseases (ICD-10) code.

The variables considered for this study were:

- Sociodemographic variables: Age at 1st consultation (<45 years; 45-75 years; >75 years); Race (White; Black; Brown; Indigenous; Yellow); Gender (Male or Female); Marital Status (With partner; without partner); Type of service (SUS; Health Plan; Private); year of service; Health region of origin (North; Central; Metropolitan; South; other state); Origin of the metropolitan area (Grande Vitória; other municipalities in the state; Municipalities in other states);
- Clinical variables: Type of surgery (elective or urgent); Tumor site (Cecum; Appendix; Ascending colon; Hepatic angle; Transverse colon; Splenic angle; Descending colon; Sigmoid colon; Not specified; Rectosigmoid transition; Rectum); Ostomy; Type of Ostomy (Loop colostomy; Terminal colostomy; Ileocolostomy; Loop ileostomy; Terminal ileostomy); Lymphadenectomy (>25; 15-25; <15; No information); presence of metastasis; and surgical margin (Free; Compromised or No information);
- Variables related to hospitalization for the study: Length of stay; Discharge type (Improved; Evasion; Transfer; Death); Readmission within 30 days.

The variables were studied separately according to their frequency in the studied period, with a descriptive purpose. With the objective of studying association measures, the data of part of the independent variables were compared with the variables related to hospitalization, using the chi-square test to calculate the p value and significance level of 5%.

As for ethical issues, this study followed the precepts of resolution nº 466/12 of the National Health Council, with the research project submitted and approved by the Research Ethics Committee, with the number of the consubstantiated approval opinion: 4,167,383.

RESULT AND DISCUSSION

Data referring to the sociodemographic profile were grouped in Table 1.

The most prevalent age group was between 45 and 75 years old, corresponding to 72.3% of the sample - a fact in agreement with the

Variables		N	%	Variables		N	%
AGE GROUP	<45 years	31	8,9	SEX	Feminine	188	53,7
	>75 years	66	18,9		Masculine	162	46,3
	45-75 years old	253	72,3	YEAR	2010	20	5,7
BREED	White	92	26,3		2011	38	10,9
	Brown	249	71,1		2012	24	6,9
	Black	7	2,0		2013	45	12,9
	No information	2	0,6		2014	31	8,9
MARRIAGE STATUS	Com companheiro	188	53,7		2015	33	9,4
	no partner	162	46,3		2016	33	9,4
TYPE OF CARE	Private	8	2,3		2017	40	11,4
	Health plan	31	8,9		2018	36	10,3
	SUS	311	88,9		2019	50	14,3

Table 1 - Descriptive statistics of the sociodemographic profile of patients undergoing surgery for CRC.

Source: Own elaboration, 2022.

literature, which shows the incidence of CRC increasing significantly after the 5th decade of life, progressing with advancing age (SILVA et al. al., 2020). On the other hand, there is a significant percentage of the sample below the screening age range. Recent studies indicate that the incidence of CRC in young patients has increased by 2% per year. Such expressiveness can be correlated to several risk factors, such as non-Mediterranean Western diet, obesity, high consumption of red meat and processed foods, low fiber intake and sedentary lifestyle (BRENNER et al., 2014). Furthermore, age did not impact the volume of readmissions, the type of discharge and the time interval from surgery to discharge. However, data from the literature on variables related to outcomes in surgery for rectal cancer point to the age of patients as a predictor of risk for readmission and reoperation, corroborating the idea that the greater the age, the greater the chances of complications or post-surgical outcomes. who need readmission (QUINTANA et al., 2020).

Regarding gender, there was a slight predominance in women, with 53.7%, which is not consistent with the higher prevalence in male patients (SILVA et al., 2020). It is known that this casuistry will depend on specific factors of each tumor. Regarding the association between the gender of the patients and the variables related to hospitalization, there was no significant difference between the groups. However, it is suggested that adequate perioperative care, with the proper choice of surgical technique associated with the best indication for the procedure, contribute more significantly to a better recovery and lower complication rates than the patient's gender alone (VLUG et al., 2012).

Regarding the race of the patients seen, the individuals declared themselves to be brown (71.1%). Such information differs from some studies in the literature, where the percentage of white patients diagnosed with CRC was equivalent to 92.5% of the evaluated sample, representing the vast majority (ROHENKOHL et al., 2021). However, there is evidence that the difference in incidence between races has been decreasing over the years (WU et al., 2019). It is noteworthy that, although fewer in number, the group of brown and black patients is associated with higher mortality and diagnosis in more advanced stages, requiring due attention to screening, diagnosis and management of such patients, who represent the majority of consultations in the country. nosocomium studied (WU et al., 2019).

Regarding the marital status of the analyzed patients, 53.7% were, at the time of the consultation, with a steady partner, stable union or married. This fact is consistent with the epidemiology of other studies, with approximately 60% of patients having a partner (ROHENKOHL et al., 2021). In addition, marital status can directly interfere as a protective effect for CRC. For example, married patients usually have an early diagnosis and are more likely to receive surgical treatment, with greater long-term survival (LI et al., 2018). Regarding the type of discharge, there is a significant difference between the groups, with a greater chance of death in the group of patients without a partner. Given this, it is possible that social assistance measures directed at the group without a partner, both in the preoperative and postoperative phases, may have a positive impact on the reduction of the death rate. There are currently no studies evaluating whether this type of intervention can have an impact on mortality.

Between 2010 and 2019, there was relative stability in the number of cases treated, ranging from 20 cases (2010) to 50 cases (2019), with an increase in the last year. There are some hypotheses for this increase, one of which is the increase in the number of emergency cases, very common in situations of underdiagnosis, and the increase in the number of cases seen is the increase in diagnoses in patients under 45 years of age. (FREITAS *et al.*,2020).

Regarding hospital stay, the average length of stay among patients treated at the service was 13.5 days. This scenario is consistent with the profile of the predominant patients in the studied hospital, who present with CRC with generally more advanced staging and often in emergency situations, which tend to have a longer hospital stay. There is evidence that the length of hospital stay is the main point involved in the increase in the cost of CRC treatment, thus being an important focus of public and private policies for the adequate management of resources applied in health (MAR *et al.*,2017).

A longer hospital stay can also be attributed to the type of surgical approach used. In the analyzed service, most surgical procedures performed by RCC were of the resection with anastomosis type, being associated with a longer hospital stay compared to resection surgeries with ostomies (CONSTANTIN *et al.*,2020).

Data referring to the clinical aspects of the analyzed patients were grouped in table 2.

In the present study, among the 350 patients analyzed, most procedures were performed electively, and 18.6% were performed in an emergency setting. It must be noted that the urgent cases treated at the hospital in question are referred to it from emergency services, that is, there is no spontaneous demand for care except through the regulation of other services.

Variables		N	%	Variables		N	%
CHARACTER	Elective	274	78,3	LOCATION OF TUMOR	Cecum	21	6,0
	No information	11	3,1		Appendix	2	0,6
	Urgency	65	18,6		ascending colon	87	24,9
OSTOMY TYPE OF OSTOMY	No	238	68,0		Hepatic angle	19	5,4
	Yes	112	32,0		Transverse colon	16	4,6
	loop colostomy	23	6,6		splenic angle	9	2,6
	terminal colostomy	66	18,9		descending colon	27	7,7
	Ileocolostomy	3	0,9		sigmoid colon	57	16,3
	loop ileostomy	1	0,3		Not specified	9	2,6
	Terminal ileostomy	19	5,4		rectosigmoid transition	39	11,1
	Unrealized	238	68,0		Straight	64	18,3
LYMPHADENECTOMY	>25	109	31,1	SURGICAL MARGIN	committed	52	14,9
	≤14	115	32,9		Free	280	80,0
	15-25	121	34,6		No information	18	5,1
	No information	5	1,4	METASTASIS	Not	188	53,7
					Yes	162	46,3

Table 2 - Clinical aspects of patients undergoing colorectal surgical procedures for CRC.

Source: Own elaboration, 2022.

Probably for this reason and also because of the low volume of urgent care referred, the proportion of patients in need of urgent intervention was lower. In addition, the patients operated on by CRC included in the present study necessarily had to have some intestinal segment resected at the end of the procedure, which did not always materialize in the midst of urgent care.

The most common tumor location was in the ascending colon, followed by rectal tumors, in line with the findings of other prevalence studies (SIEGEL et al., 2014). Tumors of the right/ascending colon are related to a higher occurrence of postoperative complications, such as wound infection, formation of intra-abdominal abscess and paralytic ileus, as well as increased length of hospital stay, when compared to lesions in the left colon (MIRON FERNANDEZ et al., 2021). Complication and morbidity rates are also higher after rectal procedures, possibly due to anatomical differences and the technical difficulty of surgical procedures in this region (LEIJSSEN et al., 2019).

As for performing an ostomy, this procedure was performed in 32% of the patients, following the trend of other studies, such as a descriptive study that included 156 patients who underwent surgery for RCC, 30.2% of whom underwent ostomy (SUN & LEE, 2018). The most common type of ostomy was an end colostomy, followed by a loop colostomy and an end ileostomy.

In an analysis of 496 ostomy patients, totaling 504 ostomies, colostomies accounted for 67.5% of cases, with a predominance of permanent, terminal, and left stomas. In the same analysis, ileostomies corresponded to 23.2% of the sample, most of them being temporary, made in a loop and on the right. In both types, ostomies were mostly motivated by malignancy of the rectum and colon, in that order (SIRIMARCO *et al.,* 2021).

Ileostomies, which totaled 6.6% of the cases included in this study, although they are performed in order to reduce or prevent anastomotic leakage, are associated with high morbidity and management difficulties (GIANNAKOPOULOS et al., 2009), bringing a great burden of complications for their carriers (MALIK et al., 2018), mainly related to irritation of the peristomal skin region, and hydroelectrolytic disorders (BAFFORD & IRANI, 2013).

The mean number of lymph nodes excised in the present study was 20, with most patients distributed in the range of 15 to 25 lymph nodes removed. Data from previous studies show an average excision of 22 lymph nodes (TONINI et al., 2020). The presence of lymph node metastasis is an important marker, especially in patients in whom there is no evidence of distant metastases, as in these cases it defines the stage of the disease. (STOCCHI *et al.,*2011).

Regarding the existence of metastatic disease among the analyzed patients, 46.3% had some metastasis on the day of surgery, more than double the number found in previous studies (RIIHIMÄKI et al., 2016). The large volume of patients with advanced staging, with already metastatic disease at the time of diagnosis, may be related to failure in early diagnosis, due to poor access by the population to screening tests and the provision of quality health services, in addition to delays in the waiting time to start CRC treatment (LIMA & VILLELA, 2021).

As for compromised surgical margins, the present study found 14.9% of compromised margins. Comparing data from the literature, a relevant difference is observed regarding the percentage of patients with compromised margins. This higher prevalence of cases with compromised margins finds possible explanations in several aspects, such as the patient's profile, which in most approaches has

an advanced stage of the disease, or even an emergency condition, which limits the ability to to ensure total resection of the tumor block (ARCHAMPONG *et al.,* 2012).

It is noticed that the origin of the patients submitted to CRC resection procedures in the service in question is not restricted only to the municipalities that make up the metropolitan region of the state, with a significant number of patients coming from other regions (21%). This fact was not a predictor of perioperative outcomes related to the period of hospitalization. However, it must be noted that cancer care offered in Brazil is based on the National Cancer Prevention and Control Policy (PNPCC), which determines the provision of comprehensive care to users in a regionalized and decentralized format (BRASIL, 2013). In addition, there is evidence that the distance between the patient and the place where they receive care leads to worse adherence to oncological treatments and, consequently, to worse prognoses. (ROCQUE *et al*., 2019).

CONCLUSION

According to the results, there was a higher prevalence of discharge due to death and longer hospital stay in patients who underwent emergency surgery compared to those who underwent elective procedures. Marital status was also associated with unfavorable outcomes in the studied population, with a higher prevalence of discharge due to death in patients without a partner, suggesting that the presence of a marital partner has repercussions on the prognosis of patients.

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