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Original Article

Colorectal adenocarcinoma staging of patients in a public tertiary hospital in the state of Grande do Sul

Elias de Mattos Berg, Juliana Vasconcelos de Abreu Ruszczyk, Laura Moschetti, Luciano Pinto de Carvalho, Ruy Takashi Koshimizu, Daniela Cerqueira Koppe*

Hospital Nossa Senhora da Conceição, Serviço de Coloproctologia, Tubarão, RS, Brazil

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ABSTRACT

Introduction: Colorectal cancer has the second highest prevalence and the third highest incidence in the world. Mortality is directly related to the stage of the disease.
Objective: To evaluate the staging of patients with colorectal adenocarcinoma treated at the Coloproctology Department of the Hospital Nossa Senhora da Conceição between 2010 and 2015.
Method: Prevalence study. Data collection was performed retrospectively through a survey in the electronic system of the Hospital Group Conceição, seeking all patients with ICD 10 C18, C19 and C20 who were attended at the Coloproctology Department between 2010 and 2015.
Results: Four hundred and twenty patients were eligible for the study. The mean age was 65.6 years (±12.8). Regarding staging, we observed the following distribution: 7.9%, stage I; 23.6%, stage II; 37.6%, stage III; and 30.2%, stage IV. The percentage of patients with advanced colorectal adenocarcinoma (stage III + stage IV) is 67.8%. Regarding the origin, 51% of the patients were attended at the emergency department.
Conclusion: Most patients treated at this hospital have advanced disease (67%) and come from the emergency department (51%).

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Estadiamento dos pacientes com adenocarcinoma colorretal em hospital público terciário do Rio Grande do Sul

Palavras-chave:
Câncer colorretal
Diagnóstico precoce
Estadiamento

RESUMO

Introdução: O câncer colorretal tem a segunda maior prevalência e a terceira maior incidência no mundo. A mortalidade está diretamente relacionada ao estágio da doença.
Objetivo: Avaliar o estadiamento de pacientes com adenocarcinoma colorretal atendidos pelo Serviço de Coloproctologia do Hospital Nossa Senhora da Conceição (HNSC) entre os anos de 2010 e 2015.

* *Corresponding author.*
E-mail: eliasberg@hotmail.com (E.M. Berg).
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Método: Estudo de prevalência. A coleta de dados foi realizada de forma retrospectiva através de pesquisa no sistema eletrônico do Grupo Hospitalar Conceição buscando todos os pacientes com CID 10 C18, C19 e C20 atendidos pelo serviço de Coloproctologia entre os anos de 2010 e 2015.

Resultados: Foram elegíveis para o estudo 420 pacientes. A média de idade foi de 65,6 anos (±12,8). Quanto ao estadiamento, observamos a seguinte distribuição: 7,9% estágio I; 23,6% estágio II; 37,6% estágio III e 30,2% estágio IV. O percentual de pacientes com adenocarcinoma colorretal avançado (estágio III + estágio IV) é de 67,8%. Em relação à origem, 51% dos pacientes foram atendidos através da emergência.

Conclusão: A maioria dos pacientes atendidos neste hospital apresenta doença avançada (67%) e são oriundos do serviço de emergência (51%).

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Introduction

Colorectal cancer (CRC) is a common disease, with the second highest prevalence and the third highest incidence in the world.[1] In Brazil, according to the National Cancer Institute (INCA), the prediction of new cases for the year 2016 was 16,660 for men (third in incidence) and 17,620 for women (second in incidence).[1]

CRC mortality is directly related to the stage of the disease. The 5-year survival is 90% for patients with localized disease (confined to the primary site), 71.2% for patients with regional disease (with spread to regional lymph nodes), and 13% for patients with distant metastases.[2]

According to data from the U.S. National Cancer Institute Surveillance, Epidemiology and End Results Program (SEER) in 2017, the American incidence of CRC is 39% for localized disease, 35% for regional disease, and 21% for metastatic disease.[2]

Screening for colorectal neoplasia is associated with a reduction of more than 50% in CRC-related mortality.[3,4] Theoretically, in patients undergoing polypectomy, it is possible to reduce the incidence of CRC by up to 90% interrupting the adenoma-carcinoma sequence.[5] According to an Ordinance of the Ministry of Health of 2014, population screening programs for colorectal cancer in Brazil are not feasible nor cost-effective. This ordinance recommends the implementation of the early diagnosis strategy, including the dissemination of warning signs to the population and health professionals, immediate access to diagnostic procedures for suspected cases, and access to appropriate and timely treatment.[6]

The objective of this study was to determine the prevalence of advanced colorectal disease in a public tertiary hospital of the Unified Health System (SUS). A secondary objective is to determine the prevalence of patients arriving at the hospital through elective referral through the regulation of the Department of Health, and the prevalence of patients arriving at the hospital from the emergency service.

Methodology

The work was submitted and approved by the Ethics Committee of the Hospital Group Conceição. This is a prevalence, retrospective study, conducted through a survey in electronic medical records of Hospital Nossa Senhora da Conceição, in the city of Porto Alegre, Brazil. All patients with colorectal cancer (ICD10 C18, C19 and C20) attended at the Coloproctology Department between 2010 and 2015 were included.

The following variables were analyzed: age; gender; tumor staging – TNM classification was used (in patients with primary surgical treatment, the pathological staging was considered, and in patients undergoing neoadjuvance or non-surgical palliative treatment, the clinical staging by computed tomography – CT and/or nuclear magnetic resonance [NMR]); tumor site; site of metastasis; and patient origin (referral from outpatient's or emergency department). The patients classified as stage III and IV were considered as advanced tumors.

During the statistical analysis, the quantitative variables were described by mean and standard deviation, and the categorical variables by absolute and relative frequencies. To compare means, Student's *t*-test for independent samples, or Analysis of Variance (ANOVA) were applied. In the comparison of proportions, the Pearson Chi-square test, along with the adjusted residual analysis or the Fisher exact test were applied. The significance level adopted was 5% ($p < 0.05$), and the analyses were performed using the SPSS software, version 21.0.

Results

A total of 420 patients were included in the study. The mean age, gender, primary tumor site, staging, and origin of care are described in Table 1.

Regarding staging, most patients had a T3 (65.7%) or T4 tumor (19.8%). Of the total, 63.3% patients had metastatic lymph nodes, and 30.2% had distant metastases. The percentage of patients with advanced colorectal adenocarcinoma (stage III + stage IV) is 67.8% (Table 1).

Regarding the origin of care, 203 patients (48.3%) were referred from the Outpatient's Department, while 214 (51.0%) were referred from the Emergency Department (Table 1).

Sample distribution according to the location of the tumor is described in Fig. 1 and the location of metastases, described in Fig. 2.

Table 1 – Sample data.

Variables	$n = 420$
Age (years) – mean ± SD	65.6 ± 12.8
Gender – n (%)	
Male	200 (47.6)
Female	220 (52.4)
Year – n (%)	
2010	44 (10.5)
2011	77 (18.3)
2012	71 (16.9)
2013	69 (16.4)
2014	79 (18.8)
2015	80 (19.0)
Primary site – n (%)	
Colon	230 (54.8)
Rectum	182 (43.3)
Colon + rectum synchronically	8 (1.9)
T – n (%)	
T1	13 (3.1)
T2	41 (9.8)
T3	276 (65.7)
T4	83 (19.8)
Not classified	7 (1.7)
N – n (%)	
N0	144 (34.3)
N1	266 (63.3)
Not classified	10 (2.4)
M – n (%)	
No metastasis	293 (69.8)
With metastasis	127 (30.2)
State – n (%)	
I	33 (7.9)
II	99 (23.6)
III	158 (37.6)
IV	127 (30.2)
Not classified	3 (0.7)
Origin – n (%)	
Outpatient's	203 (48.3)
Emergence	214 (51.0)
Not identified	3 (0.7)

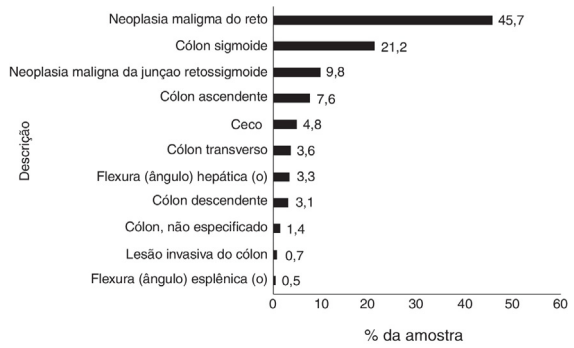

Fig. 1 – Distribution of sample according to the site of tumor ($n = 420$).

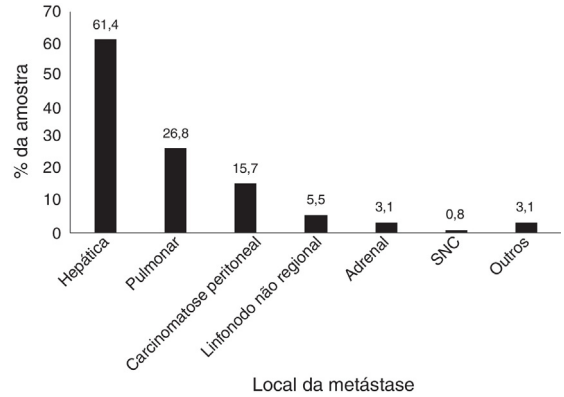

Fig. 2 – Distribution of sample according to the distant metastasis site ($n = 127$).

When patients with colon tumor and rectum tumor were analyzed, a higher rate of lymph node metastasis in rectal tumors (74.3% vs. 56.1%), and a higher rate of patients in stage III (48.6% vs. 28.1%) were observed (Table 2).

Patients from the emergency department, compared with patients from the outpatient clinic, had a higher rate of lymph node metastases (71.6% vs. 58.3%), a higher rate of distant metastases (37.9% vs. 22.2%), and a higher rate of patients in stage IV (37.9% vs. 22.5%) (Table 3).

Discussion

The results of our study showed that most patients attended at the Coloproctology Department of Hospital Nossa Senhora da Conceição present with advanced colorectal cancer. Sixty-seven percent of the patients had stage III (37.6%) or stage IV (30.2%) at the time of diagnosis. A study published in 2010 shows the reality of a public tertiary hospital in Rio de Janeiro, where 27.3% of patients had stage III, and 43% had stage IV cancer.[7] In the aforementioned study, 70% of patients presented advanced colorectal tumor, a reality similar to that found in our study. When we compared our data with the Surveillance, Epidemiology and End Results Program (SEER) records,[2] the United States epidemiological surveillance program, it was evidenced that our patients had a lower rate of localized disease (31.7% vs. 39%), and higher rate of advanced disease (67.8% vs. 56%).

The results described in our study refer to the care provided only by the Hospital Nossa Senhora da Conceição (HNSC) coloproctology team. Considering that there is an emergency surgery clinic at the institution, we believe that the number of patients seeking the emergency department with advanced disease is even greater.

The literature has shown the impact of screening for colorectal neoplasia through colonoscopy and resection of pre-malignant lesions, early diagnosis, reduction of treatment costs, or improvement of healing rates.[3,5,8] In Brazil, the recommendation of the Ministry of Health is to implement the early diagnosis strategy, with immediate access to diagnostic procedures for suspected cases, and access to appropriate treatment. In the United States, 21% of patients have distant

Table 2 – Sample data according to the primary site.

Variables	Primary site		p
	Colon ($n = 230$)	Rectum ($n = 182$)	
Age (years) – mean ± SD	66.7 ± 12.3	64.2 ± 13.3	0.050
Gender – n (%)			0.003
Male	95 (41.3)	103 (56.6)	
Female	135 (58.7)	79 (43.4)	
T – n (%)			0.227
T1	7 (3.1)	6 (3.4)	
T2	23 (10.1)	18 (10.1)	
T3	144 (63.4)	127 (71.3)	
T4	53 (23.3)	27 (15.2)	
N – n (%)			<0.001
N0	98 (43.9)	46 (25.7)	
N1	125 (56.1)	133 (74.3)	
M – n (%)			0.309
No metastasis	155 (67.4)	132 (72.5)	
With metastasis	75 (32.6)	50 (27.5)	
Stage – n (%)			<0.001
I	18 (7.9)	15 (8.3)	
II	71 (31.1)[a]	28 (15.5)	
III	64 (28.1)	88 (48.6)[a]	
IV	75 (32.9)	50 (27.6)	
Origin – n (%)			0.126
Outpatient's	118 (51.8)	79 (43.6)	
Emergence	110 (48.2)	102 (56.4)	
Site of metastasis – n (%)			
Liver	45 (60.0)	32 (64.0)	0.793
Lung	15 (20.0)	18 (36.0)	0.075
Peritoneal carcinomatosis	15 (20.0)	5 (10.0)	0.213
Nonregional lymph node	3 (4.0)	4 (8.0)	0.436
Adrenal	3 (4.0)	1 (2.0)	0.649
CNS	0 (0.0)	1 (2.0)	0.400
Others	3 (4.0)	1 (2.0)	0.649

[a] Statistically significant association through test of adjusted residuals with 5% significance.

metastases at the time of diagnosis, and in Europe, according to data from the European Society for Medical Oncology (ESMO), approximately 25% of the patients have it.[9] Currently, population-based epidemiological data show that there is a trend toward a reduction in the incidence of colorectal cancer in the United States, partly due to efficient screening.[3] Meanwhile, CRC-related mortality has increased in the last 30 years in Brazil.[10]

CRC screening is essentially performed through colonoscopy, a low-risk examination that does not necessarily require a tertiary hospital, and can be performed at clinics and services providing digestive endoscopy. The gradual increase in CRC-related mortality and the greater number of patients with advanced disease confirm that the public policy of early diagnosis in Brazil is not being effective. SUS's assistance model, through the National Basic Attention Policy (PNAB), implemented in 2011, provides for the preferential contact of its users through Primary Care, maintaining the availability of services of medium and high complexity, interconnected by a referral and counter-referral system, maintaining the principle of integrality of care.[11–13] In order to evaluate this system of referral and counter-referral, we requested a consultation to the Nucleus of Telehealth of the Federal University of Rio Grande do Sul, which consulted the Central Regulation system of the State of Rio Grande do Sul (AGHOS System) from January 5, 2015 to January 6, 2016. A waiting list for consultation at the Coloproctology Department ranging from 4382 to 7223 patients was shown, with the monthly number of appointments scheduled at the Coloproctology Department ranging from 44 to 106 visits. The monthly number of consultations for Proctology–Oncology in the region of Porto Alegre ranged from 5 to 29 visits, with a waiting time of 18–34 days. It is public knowledge that the waiting time for diagnostic exams in SUS can be very long. An alternative in the primary care service, for diagnostic investigation of patients with warning signs, is the referral of these patients to reference services. These significant numbers of patients awaiting consultation with a coloproctologist may indirectly reinforce the need to extend the colonoscopy exam offer to SUS patients. Only after diagnosis of malignant neoplasm can patients be referred to the oncology–proctology service. The waiting time of up to 34 days for consultation with a proctologist is adequate, but the number of consultations seems small, considering

Table 3 – Sample data according to the origin of care.

Variables	Origin		p
	Outpatient's ($n = 203$)	Emergence ($n = 214$)	
Age (years) – mean ± SD	67.4 ± 12.6	63.8 ± 12.6	0.004
Gender – n (%)			0.012
Male	84 (41.4)	116 (54.2)	
Female	119 (58.6)	98 (45.8)	
T – n (%)			0.030
T1	9 (4.4)	4 (1.9)	
T2	27 (13.3)[a]	14 (6.8)	
T3	134 (66.0)	141 (68.1)	
T4	33 (16.3)	48 (23.2)	
N – n (%)			0.007
N0	83 (41.7)	59 (28.4)	
N1	116 (58.3)	149 (71.6)	
M – n (%)			0.001
No metastasis	158 (77.8)	133 (62.1)	
With metastasis	45 (22.2)	81 (37.9)	
Stage – n (%)			0.001
I	23 (11.5)[a]	10 (4.7)	
II	54 (27.0)	43 (20.1)	
III	78 (39.0)	80 (37.4)	
IV	45 (22.5)	81 (37.9)[a]	
Site of metastasis – n (%)			
Liver	30 (66.7)	48 (59.3)	0.529
Lung	11 (24.4)	23 (28.4)	0.788
Peritoneal carcinomatosis	8 (17.8)	11 (13.6)	0.711
Nonregional lymph node	4 (8.9)	3 (3.7)	0.247
Adrenal	0 (0.0)	4 (4.9)	0.296
CNS	0 (0.0)	1 (1.2)	1.000
Others	1 (2.2)	3 (3.7)	1.000

[a] Statistically significant association through test of adjusted residuals with 5% significance.

the population base of the metropolitan region of Porto Alegre, with more than four million inhabitants.[14] These data demonstrate the limitations and lack of infrastructure in SUS regarding the early CRC screening and diagnosis, and may justify the higher prevalence of patients from the emergency department.

Conclusion

Most patients treated at the Coloproctology Department at our institution have advanced colorectal cancer and have their care through the emergency room. These data corroborate the need to implement public policies for the screening of colorectal cancer in Brazil or, at least, to increase the number of colonoscopies offered to the population in the public health service.

Conflicts of interest

The authors declare no conflicts of interest.

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