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Original Article

Therapeutic itinerary of colorectal cancer patients treated in the state of Rio Grande do Sul[☆]**Eliara Fernanda Foletto^a, Sabine Elisa Jackisch^a, Marcelo Luis Dotto^b,
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ABSTRACT

Objectives: The objective of the study was to evaluate the therapeutic itinerary of patients treated in a specialized center, including its trajectory in seeking treatment and their clinical and epidemiological characteristics.

Methods: This is a cross-sectional prospective descriptive study; patients with colorectal cancer aged over 18 years and who signed the consent form were included in the analysis. Tumor characteristics, such as staging and tumor features; epidemiological characteristics such as age, gender, profession and itinerary in the form of the number of clinical visits needed to obtain the diagnosis; the main symptoms; and mean time between diagnosis and onset of treatment were evaluated.

Results: 34% of patients initially sought primary care (first level of care in the public health system) and 50% were diagnosed in secondary care (second level of care in the public health system); the mean number of visits until obtaining a diagnosis was 2.5 times; and 52% of patients received palliative therapy and 40% had a stage IV diagnosis.

Conclusions: The mean time between the diagnosis and the onset of treatment is in line with the recommendations of the Ministry of Health of Brazil. However, it was found that the patients are unaware of the symptoms of the disease, since the mean time between the onset of symptoms until the decision to visit the doctor was 177 days – which may have been a determining factor for a diagnosis in an advanced stage of disease.

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Itinerário terapêutico de pacientes com câncer colorretal tratados no interior do Rio Grande do Sul

R E S U M O

Palavras-chave:

Neoplasias colorretais
Epidemiologia
Estadiamento de neoplasia

Objetivos: O objetivo do estudo foi avaliar o itinerário terapêutico de pacientes tratados em um centro especializado, compreendendo sua trajetória na busca do tratamento e as características clínicas e epidemiológicas.

Métodos: estudo descritivo prospectivo transversal; foram incluídos na análise pacientes portadores de câncer colorretal (CCR) maiores de 18 anos que assinaram o termo de consentimento. Foram avaliadas características tumorais, como estadiamento e características do tumor; características epidemiológicas como idade, sexo e profissão e a trajetória como número de consultas até o diagnóstico, principais sintomas e tempo médio entre o diagnóstico e início do tratamento.

Resultados: 34% dos pacientes procuraram inicialmente a atenção primária (primeiro nível de atenção na saúde pública), 50% receberam o diagnóstico na atenção secundária (segundo nível de atenção na saúde pública), a média de consultas até o diagnóstico foi de 2,5 vezes, 52% dos pacientes fizeram terapia paliativa e 40% fizeram diagnóstico em estágio IV.

Conclusões: o tempo médio entre o diagnóstico e o início do tratamento está de acordo com o recomendado pelo Ministério da Saúde do Brasil; entretanto, identificou-se que os pacientes desconhecem os sintomas da doença, uma vez que a média de tempo entre o início dos sintomas até a tomada de decisão de procurar um médico foi de 177 dias, o que pode ter sido determinante para um diagnóstico na fase avançada da doença.

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Introduction

Colorectal cancer (CRC) is the third most common malignancy in humans. This disease is considered a serious public health problem because of its huge socioeconomic impact on society and by requiring an individualized, long, exhausting and expensive treatment. The low income and lack of health policies to alert the population are crucial for an early diagnosis.¹

As to 2014, the National Cancer Institute (INCA) estimated the occurrence of 32,600 new cases, 15,070 in men and 17,530 in women, accounting for 15.44 new cases per 100,000 men and 17.24 new cases per 100,000 women. In the South region, CRC is the third most common cancer in men (20.43/100,000) and the second most common in women (21.85/100,000). In 2011, 14,016 deaths (6818 men and 7198 women) were recorded in Brazil.²

These alarming data can be directly related to a late diagnosis of the disease and mainly related to the difficulty to offer an adequate care. The therapeutic itinerary is a way to know the trajectory of the disease process in seeking medical attention in such a way that the patient and his/her family can understand. In health care services difficulties can arise in the field of organization, which is a barrier to the provision of a more effective care for patients.³

Understanding of the timing and how individuals seek health care is a way to organize and evaluate health systems with a view to conducting a planning of the critical points.⁴ Studies involving knowledge of the therapeutic itinerary of patients with CRC are extremely important, but such papers are still scarce.⁵

Based on data in the literature and in the face of the few studies published on this topic in oncology, the aim of this study was to evaluate the therapeutic itinerary of patients with CRC treated in a specialized center, as a way to understand the trajectory of each patient and his/her clinical and epidemiological characteristics.

Methodology

This is a prospective, descriptive cross-sectional study which was conducted at the Integrated Oncology Center, Hospital Ana Nery, located in Santa Cruz do Sul/RS. This hospital is a reference in cancer treatment by the Unified Health System (Sistema Unificado de Saúde – SUS), and its database is connected to the National Cancer Institute (INCA). The hospital covers about 820,000 people in the regions of Vale do Rio Pardo, Central Serra, and Carbonífera. On average, the Integrated Oncology Center serves 950 chemotherapy patients (94% by SUS). In radiotherapy, the Center serves about 100 patients per month (84.7% SUS). The data collection began in November 2012 and was completed in April 2014. This study was approved by the Research Ethics Committee (CEP) of the Universidade de Santa Cruz do Sul.

Patients with CRC with confirmation of the disease by biopsy, aged over 18 years who and signed a free and informed consent were included in the survey. An interview face-to-face took place and, by this instrument, the participants were asked about epidemiological information such as age, gender (male/female), skin color (white/non-white), family income (number of minimum wages), profession, marital

status (accompanied/unaccompanied), diabetes (yes/no), family history of CRC (yes/no), family history of other types of cancer (yes/no), time between onset of symptoms and the first health service sought (days), type of health care service sought for the first consultation (primary, secondary or tertiary care), number of medical visits to establish the diagnosis, and service where the diagnosis was carried out (primary, secondary or tertiary care). During the interview, the patients were informed that the data would be used for scientific research, without any personal return.

In addition to the interview, a review of medical records was performed. The data from medical records were evaluated and transcribed to a data collection form previously prepared. In the medical records, we evaluated the primary site of disease (colon/rectum), date of onset of treatment and stage of development according to the TNM classification, issued by the International Union for Cancer Control (UICC), where T refers to the extent of the tumor, N to the absence or presence of metastases in regional lymph nodes, and M to the absence or presence of distant metastases. Adding numbers to each of those letters can also indicate the extent of malignancy.⁶

Statistical analysis

All information was encoded and stored anonymously in a database created for this purpose. Clinical and epidemiological data were stored in a database created in the software Statistical Package for Social Sciences (SPSS), version 20.0 (SPSS Inc., Chicago, IL) for statistical analysis. Our results were described using descriptive statistics (absolute numbers, frequencies and means).

Results

In total, 50 subjects participated in this study, with a mean age of 56 (±12.7) years. Table 1 lists the epidemiological characteristics of the patients. It was found that most patients were Caucasian and had a family income of up to 3 minimum wages. Among the professions cited by patients, the most frequent were agriculture (Table 1).

Regarding the tests for the diagnosis of CRC, 38 (76%) participants had never been submitted to, or did not know, colonoscopy. 48% had never been screened for occult blood in the stool.

Table 1 – Epidemiological characteristics of patients with colorectal cancer.

Characteristic	n°	%
Male gender	28	56
White skin color	39	78
Income (up to 3 minimum wages)	48	96
Profession (farmers)	19	38
Marital status (accompanied)	36	72
Family history of CRC	09	18
Family history of other types of cancer	22	44

Table 2 – Symptoms that led our patients to seek health care.

Symptom	n°	%
Abdominal pain	30	60
Emaciation	33	66
Blood in the stool	23	46
Diarrhea	19	38
Cold	23	46
Vomit	10	20
Fatigue	12	24
Lack of appetite	23	46
Pallor	25	50
Pain when defecating	16	32
Rectal pain	20	40
Palpable abdominal tumor	16	32
Stools with red blood	17	34
Mucus in the stool	13	26
Melena	21	42
Fever	10	20

Among the symptoms causing the visit of patients to the health service, abdominal pain, and weight loss were the most frequently cited (Table 2).

The mean time between the onset of symptoms and the decision to seek a health service was 177 ± 336.88 days, ranging from 2 to 2160 days and with a median of 60 days. On average, each patient visited the doctor at least 2.5 (±0.6) times between the initial consultation and the establishment of the diagnosis. The mean time between the first consultation with the chemotherapy service and the onset of treatment was 32 (±33.0) days. Among the patients studied, 13 (26%) were being medicated simultaneously with radiotherapy and chemotherapy.

In Fig. 1, one can see the first type of service sought by patients after making the decision to seek a doctor. Regarding the service responsible for the diagnosis of cancer, it was found that in 50% of cases this diagnosis was confirmed in a secondary care service. Fig. 2 shows the trajectory of each patient.

In Table 3, the characteristics related to the tumor and the type of treatment. 52% of patients received palliative therapy and 40% were diagnosed with a stage IV cancer.

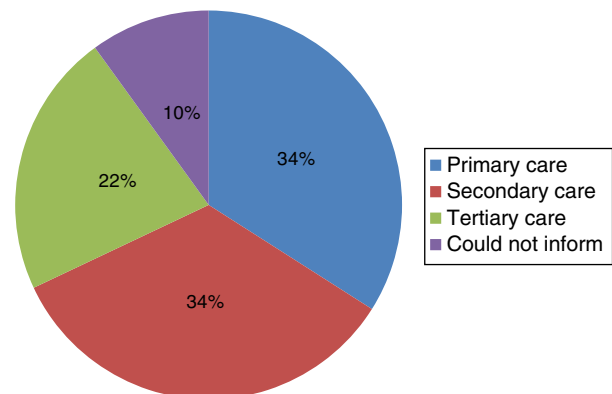


Fig. 1 – Type of service sought for a first visit by patients with CRC after the decision to seek medical attention.

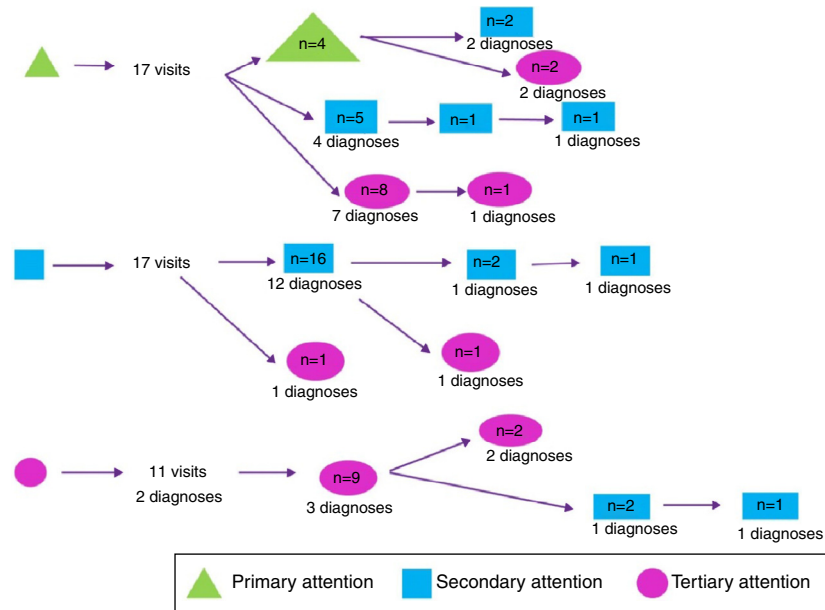


Fig. 2 – Type of service sought in a first visit by patients with CRC after the decision to seek medical attention.

Table 3 – Clinical characteristics of patients.

Characteristic	n°	%
Site of the primary tumor – colon	32	64
Staging		
II	16	32
III	13	26
IV	20	40
Purpose of treatment		
Previous	02	04
Adjuvant	21	42
Palliative	26	52
Without information	01	02
Pathology		
Well differentiated	05	10
Moderately differentiated	31	62
Poorly differentiated	02	04
Invasive	06	12
No information	06	12

Discussion

CRC is a prevalent malignancy worldwide, affecting mostly rich countries. In Brazil, there is a high incidence in the South and Southeast regions, especially in older individuals and in males.⁷

In this study, the mean age was 56 years, which is in line with the literature findings.^{8,9} The exact cause of CRC is unknown, but there is strong involvement of genetic and environmental characteristics.¹⁰ Currently, clinical and biological factors have been studied in order to better understand the progression of the disease.¹¹

Malignancies have been associated with the use of pesticides. The chronic effect of these diseases occurs through the respiratory, dermal and digestive tract. Pesticides which present organochlorinated compounds in their formulation

are retained in tissues, and some studies have shown that such agents are associated with malignancies.¹² In this study, a high prevalence of farmers (38%) diagnosed with CRC was observed. The regions where this study was conducted have an economy based on tobacco and rice farming, which explains the high frequency of individuals who report farming as a professional activity. As described in a study conducted in São Paulo, the second largest related professional activity was also agriculture.¹³

In this study, 18% of patients reported a family history of CRC. These figures are close to those found in the literature, suggesting that in 20–25% of cases one can observe a family component to CRC.¹⁴

We observed in this study that patients are not aware of preventive tests such as colonoscopy and fecal occult blood, since 76% of patients had never been submitted to colonoscopy and 48% never had a fecal occult blood test. These figures are worrying because that mortality from CRC decrease and that the survival of individuals affected by this disease increase, conducting screening tests are the most effective methods.^{14–16}

In our study the most frequent symptoms were abdominal pain (60%) weight loss (66%) and blood in the stool (46%), which is in line with the findings described by El-Halabi et al. (2014).¹⁷ These authors report that weight loss, obstruction, occult blood in the stool, abdominal pain and palpable abdominal mass are common in all patients.

These data are worrying, given that the most effective method for reducing mortality from CRC and increasing survival of individuals affected by this disease is to perform screening tests.¹⁴ In addition to these tests, genetic tests have been developed and used as predictive and prognostic biomarkers for CRC.^{15,16}

Knowing the therapeutic itinerary is to understand the perception of each patient and how each one behaves in the face of a certain situation.⁵ We noted that, on average, the time

elapsed since the onset of symptoms to the decision to seek a health service was 177 (± 336.88) days. This extended time is not only due to a lack of knowledge of patients, but during their questioning it was possible to identify the private fears and anxieties, such as lack of time, overwork, the fear of a diagnosis without healing chances and even the simple fact that they feel that certain symptoms would be considered normal. Therefore, the cultural and social factors, life experiences and beliefs make these individuals opt for different ways to try to solve their health problems; thus, they may resort to a specialized support or to self-treatment, resulting in a delay in their demand for medical help and, as a consequence, with a late diagnosis.¹⁸ Some studies have shown that some people consult the doctor as soon as the first signs and symptoms of the disease appear; on the other hand, other people with similar symptoms do not proceed in this manner, because of financial difficulties to get professional help.¹⁹ The time elapsed since the onset of symptoms until the first consultation is critical, because the tumors already are in an advanced T stage.²⁰ The result of a late diagnosis is the palliative chemotherapy, with the tumor already in stage IV.

In this study, 34% of patients had their first consultation in primary care and 50% were diagnosed in secondary care, after two to three visits on average. These data show that the health system is not a fragmented body, and can intercommunicate to pass along the information of its users, which facilitates the diagnosis after the patient made the decision to seek medical advice, as opposed to the findings described in other studies, i.e. Mendel et al. (2010)²¹ in which the authors report the precariousness of public health services and the lack of communication of health networks.

The mean time since the first consultation at the health service until the beginning of treatment was 32 days, which is in accordance with a Brazilian law approved in 2012 for patients with proven malignancy. This law establishes that every cancer patient should receive the first treatment within 60 days after the diagnosis confirmed by a medical report.²²

In their study, Arribas et al. (2014)²³ found that in 78% of the patients studied the primary tumor site was the colon, and that 32.92% of patients had a pathology report of a well-differentiated tumor. The tumor stage at diagnosis is crucial to determine the purpose of the treatment.²⁴ Is very important that the doctor is aware of the pathology report (tumor characteristics), because the tumor acts as a prognostic marker, or indicates a worst (or better) result, regardless of treatment. Thus, one can evaluate each individual and choose an individualized therapy, according to the pathological features. The biological behavior of the tumor, as well as factors that induce angiogenesis, may be considered decisive in the choice of treatment and in predicting the individual's response.²⁵

Conclusion

We conclude that health systems are not fragmented because, on average each patient had two visits, a number that is considered appropriate. This shows that the services where the study was carried out were able to communicate so that the patient has a rapid diagnosis. Patients are not knowledgeable about screening tests; therefore, it is clear the lack of

campaigns warning on the need for an early diagnosis of CRC, since the mean time between the onset of symptoms and the decision to visit a doctor was of 177 days – and this may have been decisive for a low perspective of cure, considering that 40% of subjects were in stage IV and 52% were referred to palliative chemotherapy.

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Conflicts of interest

The authors declare no conflicts of interest.

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REFERENCES

1. Brambilla E, Ponte MD, Ruschel LG, Bosi HR, Braga GLD, Silva PGD. Staging of colorectal cancer in the private service versus Brazilian National Public Health System: what has changed after five years. *J Coloproctol*. 2012;32:144–7.
2. Instituto Nacional do Câncer (INCA). Available at: <http://www2.inca.gov.br/wps/wcm/connect/tiposdecancer/site/home/colorretal/definicao> [accessed 20.10.14].
3. Mufato LF, Araújo LFSD, Bellato R, Nepomuceno MAS. Mediação nas redes para o cuidado de pessoa e família que vivencia o câncer colorretal. *Texto Contexto – Enferm*. 2013;22:407–15.
4. Cabral ALLV, Martinez-Hemáez A, Andrade EIG, Cherchiglia ML. Itinerários terapêuticos: o estado da arte da produção científica no Brasil. *Ciênc Saúde Colet*. 2011;16:4433–42.
5. Neves RDF, Nunes MDO. Da legitimação a (res)significação: o itinerário terapêutico de trabalhadores com LER/DORT. *Ciênc Saúde Colet*. 2010;15:211–20.
6. Instituto Nacional do Câncer. UICC. Available at: <http://www1.inca.gov.br/tratamento/tnm/> [accessed 05.04.15].
7. Eisenhardt MF, Huwe F, Dotto ML, Severo C, Fontella JJ, Valim ARDM, et al. Clinical and epidemiological evaluation of patients with colorectal cancer from Rio Grande do Sul. *J Coloproctol (Rio J)*. 2012;32:136–43.
8. Guimaraes RM, Rocha PGM, Muzi CD, Ramos RDS. Increase income and mortality of colorectal cancer in Brazil, 2001–2009. *Arq Gastroenterol*. 2013;50:64–9.
9. Magaji BA, Moy FM, Roslani AC, Law CW. Descriptive epidemiology of colorectal cancer in University Malaya Medical Centre, 2001 to 2010. *APJCP*. 2014;15:6059–64.
10. Isidro RA, Cruz ML, Isidro AA, Baez A, Arroyo A, Gonzalez-Marques WA, et al. Immunohistochemical expression of SP-NK-1R-EGFR pathway and VDR in colonic inflammation and neoplasia. *WJG*. 2015;21:1749–58.
11. Ansolin PA, Alexandre COP, Damin DC. Analysis of the polymorphic genes GSTM1, GSTT1 and GSTP1 in a sample of colorectal cancer patients from the South of Brazil. *Rev Bras Oncol Clín*. 2010;7:12–7.
12. Jobim PFC, Nunes LN, Giugliani R, Cruz IBMD. Existe uma associação entre mortalidade por câncer e uso de

- agrotóxicos? Uma contribuição ao debate. *Ciênc Saúde Colet*. 2010;15:277-88.
13. Fernandes GMDM, Leme CVD, Ruiz-Cintra MT, Pavarino EC, Netinho JG, Goloni-Bertollo EM. Clinical and epidemiological evaluation of patients with sporadic colorectal cancer. *J Coloproctol*. 2014;34:216-23.
 14. Mirpuri-Mirpuri PG, Alvarez-Cordoves MM, Perez-Monje A. Screening program for the early diagnosis of colorectal cancer in the Canary Islands: presentation of a case. *Semer*. 2013;39:71-4.
 15. Castells A. The usefulness of fecal tests in colorectal cancer screening. *Gastroenterol Hepatol*. 2014;37:71-6.
 16. Cubiella J, Castro I, Hernandez V, Gonzalez-Mao C, Rivera C, Iglesias F, et al. Characteristics of adenomas detected by fecal immunochemical test in colorectal cancer screening. *Cancer Epidemiol Biomark*. 2014;23:1884-92.
 17. El-Halabi MM, Chaaban SA, Meouchy J, Page S, Salyers WJ Jr. Colon cancer metastasis to mediastinal lymph nodes without liver or lung involvement: a case report. *Oncol Lett*. 2014;8:2221-4.
 18. Fundato CT, Petrilli AS, Dias CG, Gutiérrez MGR. Itinerário terapêutico de adolescentes e adultos jovens com osteossarcoma. *Bras Cancerol*. 2012;58:197-208.
 19. Visentin A, Lenardt MH. O itinerário terapêutico: história oral de idosos com câncer. *Acta Paul Enferm*. 2010;23:486-92.
 20. Oliveira RG, Faria FF, Lima Junior ACB, Rodrigues FG, Andrade MMA, Gomes DMBM, et al. Cirurgia no câncer colorretal: abordagem cirúrgica de 74 pacientes do SUS portadores de câncer colorretal em programa de pós-graduação lato sensu em coloproctologia. *Rev Bras Coloproctol*. 2011;31:44-57.
 21. Mendes EV. As redes de atenção à saúde. *Ciênc Saúde Colet*. 2010;15:2297-305.
 22. Presidência da Republica, Casa Civil, Subchefia para assuntos jurídicos. Lei nº 12.732, de 22 de novembro de 2012. Dispõe sobre o primeiro tratamento de paciente com neoplasia maligna comprovada e estabelece prazo para seu início. Available at: http://www.planalto.gov.br/ccivil_03/_Ato2011-2014/2012/Lei/L12732.htm [accessed 05.04.15].
 23. Arribas-Martin A, Diaz-Pizarro-Graf JI, Munoz-Hinojosa JD, Valdes-Castaneda A, Cruz-Ramirez O, Bertrand MM. Laparoscopic versus open surgery for colorectal cancer. A comparative study. *Cir Cir*. 2014;82:274-81.
 24. Hashim SM, Fah TS, Omar K, Rashid MR, Shah SA, Sagap I. Knowledge of colorectal cancer among patients presenting with rectal bleeding and its association with delay in seeking medical advice. *APJCP*. 2011;12:2007-11.
 25. Volpato MG, Koch KDS. Fatores de mau prognóstico nas peças operatórias de pacientes submetidos ao tratamento cirúrgico do câncer colorretal. *Rev Bras Colo-proctol (Rio J)*. 2008;28:414-24.