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Incidence of colorectal cancer in Bucaramanga, Colombia 2008 - 2012

Incidencia de cáncer de colon y recto en Bucaramanga, Colombia 2008 - 2012

Incidência de câncer colorretal em Bucaramanga, Colômbia, no período 2008 a 2012

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ABSTRACT

Introduction. Cancer is the second cause of death in the world, with colorectal cancer being the fourth most frequent neoplasia. Due to a progressive increase, it is important to know the impact of this neoplasia in the Metropolitan Area of Bucaramanga. The objective is to describe the incidence and sociodemographic characteristics of colorectal cancer in the Metropolitan Area of Bucaramanga during 2008 - 2012.

Methodology. A cross-sectional descriptive population study based on incident cases of colorectal cancer from the Metropolitan Area of Bucaramanga was conducted. The information of new cases that occurred during 2008 - 2012 was obtained from the Population Registry of Cancer. The inclusion criteria were: patients with primary

and infiltrating lesions of the colon and rectum, with no age or sex limit. Cases that corresponded to relapse, recurrence or metastasis, and whose morphology included the type of lymphoma were excluded. Subsequently, the crude and standardized rates for age and sex were calculated using the CanReg5 program.

Results. 805 new cases of colorectal cancer were obtained, with an incidence of 14.3 cases in men and 13.5 cases in women per 100,000 inhabitants; the average age of diagnosis was 64 years for both sexes.

Conclusions. The incidence of colorectal cancer has increased compared to previous five-year periods in the Metropolitan Area of Bucaramanga, affecting older adult male population to a greater extent, becoming a public health challenge, which requires more prevention measures and studies of this pathology.

Keywords:

Incidence; Neoplasia; Colon; Rectal; Colorectal Neoplasia; Colombia.

RESUMEN

Introducción. El cáncer es la segunda causa de muerte en el mundo, el cáncer colorrectal la cuarta neoplasia más frecuente. Debido al aumento progresivo, se hace importante conocer el impacto de esta neoplasia en el área metropolitana de Bucaramanga. El objetivo es describir la incidencia y características sociodemográficas del cáncer colorrectal en el Área Metropolitana de Bucaramanga durante el 2008 - 2012.

Metodología. Se realizó un estudio poblacional descriptivo transversal basado en casos incidentes de cáncer colorrectal del Área Metropolitana de Bucaramanga. La información de nuevos casos ocurridos durante 2008 - 2012 se obtuvo del Registro Poblacional de cáncer. Los criterios de inclusión fueron: pacientes con lesión primaria e infiltrante de colon y recto, sin límite de edad o sexo. Se excluyeron los casos que correspondían a recaída, recidiva o metástasis, cuya morfología comprendiera el tipo linfoma. Posteriormente se calcularon las tasas crudas y estandarizadas por edad y sexo mediante el programa CanReg5.

Resultados. Se obtuvieron 805 casos nuevos de cáncer colorrectal, con una incidencia de 14.3 casos en hombres y 13.5 casos en mujeres por 100,000 habitantes; la edad promedio de diagnóstico fue de 64 años para ambos sexos.

Conclusiones. La incidencia de cáncer colorrectal ha ido en aumento con respecto a quinquenios anteriores en el Área metropolitana de Bucaramanga, afectando en mayor proporción a la población adulta mayor masculina y convirtiéndose en un reto de salud pública que demanda mayores medidas de prevención y estudios de esta patología.

Palabras clave:

Incidencia; Neoplasias; Colon; Recto; Neoplasias Colorrectales; Colombia.

RESUMO

Introdução. O câncer é a segunda causa de morte no mundo, sendo o câncer colorretal a quarta neoplasia mais frequente. Devido ao aumento progressivo, é importante conhecer o impacto dessa neoplasia na Região Metropolitana de Bucaramanga. O objetivo deste trabalho é descrever a incidência e as características sociodemográficas do câncer colorretal na Região Metropolitana de Bucaramanga no período de 2008 a 2012.

Métodos. Foi realizado um estudo descritivo e transversal de base populacional baseado em casos incidentes de câncer colorretal na Região Metropolitana de Bucaramanga. A informação sobre os novos casos ocorridos no período de 2008 a 2012 foi obtida no Registro Populacional de câncer. Os critérios de inclusão foram: pacientes com lesão primária e infiltrativa de cólon e reto, sem limite de idade nem distinção de sexo. Foram excluídos os casos de recorrência, recidiva ou metástase, cuja morfologia incluía o tipo de linfoma. Posteriormente as taxas brutas e padronizadas por idade e sexo foram calculadas usando o Software CanReg5.

Resultados. Houve 805 novos casos de câncer colorretal, com uma incidência de 14.3 casos em homens e 13.5 casos em mulheres por 100,000 habitantes; A idade média do diagnóstico foi de 64 anos para ambos os sexos.

Conclusão. A incidência de câncer colorretal vem aumentando em relação aos quinquênios anteriores na Região Metropolitana de Bucaramanga, afetando em maior proporção os homens idosos e tornando-se um desafio de saúde pública que demanda maiores medidas de prevenção e mais estudos dessa patologia.

Palavras-chave:

Incidência; Neoplasias; Colo; Reto; Neoplasias Colorretais; Colômbia.

Introduction

Colorectal cancer (CRC) is a neoplasia characterized by uncontrolled cellular proliferation developing malignancy from the ascending colon to the rectal region. It is grouped into three different types of cancer according to the morphological origin; on one hand, adenocarcinoma represent over 95 %, while less frequent tumors include: carcinoid, stromal, sarcoma, lymphoma and connective tissue (1).

Risk factors for the development of this disease include modifiable and non-modifiable risks; in the first we find lifestyle factors: diets with the consumption of 100 gr/day of red meats and 50 gr/day of processed meats increase the risk of CRC by 17 % and 18 %, respectively (2,3); as well as excessive alcohol consumption, tobacco use, little physical activity and obesity. Non-modifiable factors include age, a personal history of adenomatous polyps with or without dysplasia, genetic familial polyposis syndromes (4), history of intestinal inflammatory disease (Crohn's disease or ulcerative colitis) and a first-degree family history; this factor presents the greatest risk for people, as 1 out of every 5 people suffering from CRC have other family members who have been affected by this disease (1).

Cancer is one of the main causes of morbidity and mortality in the world; for example, in 2015 it was the second cause of death according to the World Health Organization (WHO) (5), causing 8.8 million deaths. In 2012, CRC ranked fourth among the most frequent neoplastic lesions in the world for both sexes, and Australia was the country with the highest incidence, with rates of 38.4 per 100,000 inhabitants. It should be noted that it is the fifth deadliest cancer worldwide for both sexes; among men it is surpassed by lung and prostate cancer, and among women by breast cancer (6).

According to Globocan (6), in 2012 CRC ranked fifth in Colombia among the most frequent malignant tumors for both sexes, with an incidence rate of 12.9 cases per 100,000 inhabitants, and it had the same frequency

ranking in mortality, with rates of up to 7.2 cases per 100,000 inhabitants. In a report by the National Cancer Institute (7), for the years 2007 - 2011 CRC showed an incidence rate of 12.2 cases per 100,000 inhabitants for both sexes, and a mortality rate of 6 cases per 100,000 inhabitants. In Cali, according to data obtained from the Population Registry of Cancer, figures for 2008 - 2012 were higher compared to national levels, with incidence rates of 16.2 for men and 13.7 for women per 100,000 inhabitants (8).

In the Metropolitan Area of Bucaramanga (AMB, for the Spanish original) from 2003 - 2007, and according to data obtained from the Population Registry of Cancer of the Metropolitan Area of Bucaramanga (RPC-AMB), CRC ranked third in order of frequency for both sexes; among men it was preceded by prostate and stomach cancer, and among women by breast and cervical cancer, with incidence rates of 13.3 and 12.2 cases per 100,000 inhabitants, respectively (9).

Early CRC stages usually present no symptoms or manifest in an unspecified way such as: rectal bleeding, hematochezia, change of bowel habits or form of the feces, pain in the lower hemiabdomen, and lack of appetite and weight loss, so screening of this pathology is important to detect the cancer in its early stages (10). In Colombia there are not specific studies regarding coverage of CRC screening in the General Social Security System in Health. At this time, the routine screening conducted is the Guaiac Test, which is included in the Mandatory Health Plan. There are no particularly recent studies about the disease burden in terms of years of healthy life lost related to colorectal cancer in Colombia (11).

Due to the ascending trend in the incidence of CRC in the world and in Colombia, it is deemed necessary to continue and expand the descriptive study of this neoplasia in the AMB, as the data will promote and help to guarantee the creation of policies to reduce the disease.

Methodology

A cross-sectional descriptive population study based on information of new colorectal cancer cases in the AMB (including Bucaramanga, capital of the department of Santander and three contiguous municipalities: Floridablanca, Piedecuesta and Girón), with a total population of 1,074,918 inhabitants, according to projections by the National Administrative Department of Statistics (DANE, for the Spanish original) in 2010 (12). The information for new CRC cases from January 2008 to December 2012 was collected through an active search in the RPC-AMB. Data for each patient was taken using a questionnaire designed and completed by the RPC-AMB. To that end, sources of government information and pathology laboratories were used, including age, gender, date of birth, date of death, health plan, place of residence of the patient, date of diagnostic, diagnostic method, location of the cancer, its histology and degree of differentiation.

Subsequently, the data was collected and systematized during the development of this study using the CanReg5 program and IARCTools, designed by the International Agency for Research on Cancer (IARC) (13) for the RPC. These tools helped to reduce selection and information bias. Moreover, we complied with guidelines of confidentiality and ethical commitments for research established by the IARC. It should be noted that the intent of this study was to continue the detailed and successive description of incidence by five-year periods in the AMB, whose latest publications were the cases reported up until 2007 (9).

By means of different diagnostic methods, 813 new cases of colorectal cancer were obtained. Inclusion criteria for the analysis were patients with malignant primary infiltrating lesion located in the areas corresponding to the diagnostic code as per the international classification of diseases for oncology (ICD-O) of C18 to C20, which includes neoplastic lesions from the colon to the rectum, respectively, and whose morphology includes adenocarcinomata, carcinomas, leiomyosarcomas, malignant neoplasias, sarcomas, carcinoid tumors, and rhabdoid tumor of the colon and rectum within the specified period. No age or gender limits were applied. Exclusion criteria for the study were patients with lymphoma morphology, as this is different from the CRC's physiopathology, in addition to cases of relapse, recurrence, or metastasis.

In estimating the crude incidence rate (CIR) and standardized incidence rates (SIRs) by age and sex, we took into account the DANE projection (12) of the

AMB population for the study period, and the Segi's world standard population modified by Doll *et al* (14), which were calculated by direct method and CanReg5 for its interpretation.

Results

8 cases with lymphoma morphology were excluded out of the 813 patients registered with infiltrating colorectal cancer during the study period. In total there were 805 cases with a definitive diagnosis of malignant CRC. 56 % of the cases were women, and the average age at diagnosis for both sexes was 64 years of age. A large part of the inhabitants resided in the municipality of Bucaramanga (57 %), followed by Floridablanca (24 %), of those, 50 % were in the medium socioeconomic level and 61 % of that same population were in the contributive system (**Table 1**).

90 % of the cases were obtained through histological verification, followed by death certificates (6 %). The most frequent anatomical locations for both sexes according to ICD-O codes were the rectum (25 %), sigmoid colon (16 %), and ascending colon (12 %) (**Figure 1**) and the most representative morphological type was adenocarcinoma (84 %).

There was a higher number of colon cancer cases (69.4 %) compared to rectum cancer; the first was predominant among women (58.8 %), while rectum cancer had an equal number of cases for men and women.

The crude rate for CRC was higher for women (16.2 cases per 100,000 inhabitants) than for men (13.7 cases per 100,000 inhabitants). There was a noted increase in the number of CRC starting at ages 60 - 64, with maximum incidence rates at ages 70 - 74 and over the age of 80. (**Figure 2**). The SIR for CRC among men was 14.3 cases per 100,000 inhabitants, and for women 13.5 cases per 100,000 inhabitants. Additionally, significantly higher SIR rates were noted after the age of 60 in both sexes (**Table 2**).

Discussion

In our study group we noted SIR for CRC from 2008 - 2012, a time that evidenced an increase in new cases of CRC compared to the previously studied period (2003 - 2007) of the AMB (9), moving from 13.3 cases per 100,000 for men and 12.2 cases per 100,000 for women to SIR of 14.3 and 13.5, respectively. Furthermore, CRC remained at the third highest incidence for both

Table 1. Sociodemographic variables by gender in cases of colorectal cancer in the AMB during 2008 - 2012

Sociodemographic variables of colorectal cancer	n Women (%)	n Men (%)
Total sample n=805	452 (56)	353 (44)
Municipality	n Women (%)	n Men (%)
Bucaramanga	257 (32)	203 (25)
Floridablanca	101 (13)	86 (11)
Girón	48 (6)	34 (4)
Piedecuesta	41 (5)	26 (3)
Unknown	5 (1)	4 (0)
Socioeconomic level	n Women (%)	n Men (%)
Low (1.2)	95 (12)	69 (9)
Medium (3.4)	227 (28)	179 (22)
High (5.6)	40 (5)	36 (4)
Unknown	90 (11)	69 (9)
Health plan	n Women (%)	n Men (%)
Contributive	269 (33)	222 (28)
Subsidized	112 (14)	76 (9)
Exception	47 (6)	34 (4)
Pre-paid	14 (2)	12 (1.7)
Unknown	8 (1)	6 (0.7)
Private	2 (0.2)	3 (0.4)

sexes (15). Moreover, during these consecutive periods there was a higher incidence of CRC among men, as well as higher incidence rates after the age of 65. This trend was also recorded in Cali with regard to age and predominance of CRC among men; however, Cali had a higher number of new CRC cases for the same period compared to the AMB, with an SIR of 15.9 for men and 13.7 cases per 100,000 inhabitants for women (8).

Nationwide, the standardized incidence of CRC for both sexes was 12.9 cases per 100,000 inhabitants, according to Globocan (6). This figure was surpassed by the AMB population in the 2008 - 2012 period, and differs from the worldwide SIR, with the AMB population exhibiting lower incidence rates.

The progressive trend of CRC in the AMB could be associated to the population's economic development, as recent studies have shown that for high-income countries, people display more physical inactivity, obesity, tobacco use, alcoholism, diets high in processed food, fats and red meats. All of these are factors related to a higher risk of CRC (16, 17). The AMB's lifestyle is reflected in the last Colombian nutritional situation survey, as consumption of saturated fats in urban areas doubled the consumption observed in rural areas (30 % vs. 16 %, respectively) (18).

Considering that CRC develops under risk factors that are modifiable, early detection and preventive measures are vitally important in reducing its incidence (3). Because of this, multiple screening schemes have

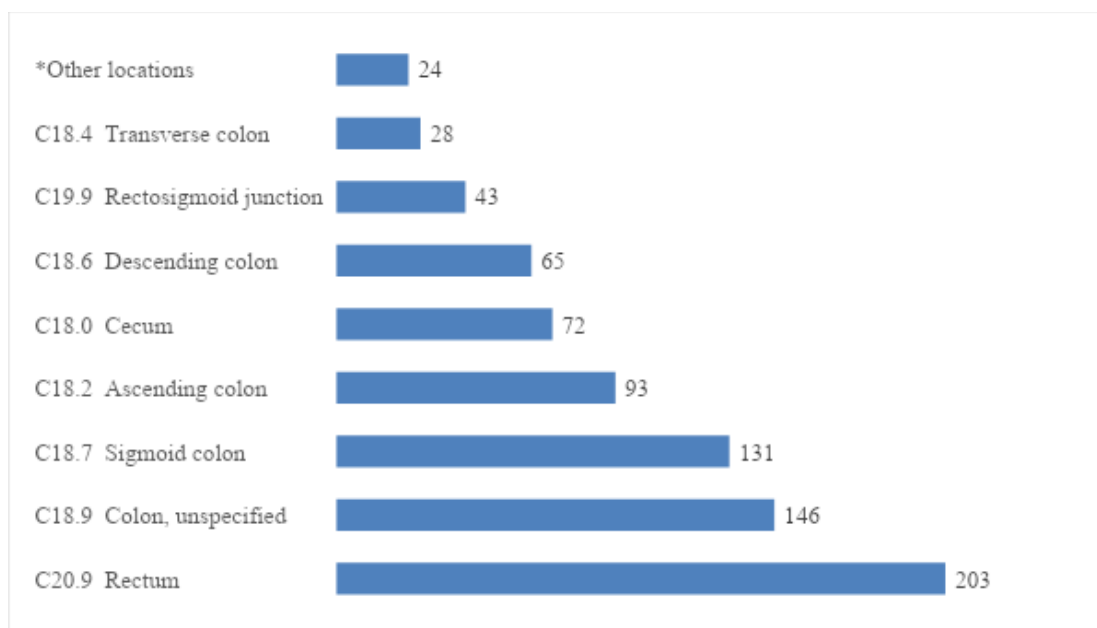


Figure 1. Most frequent locations of CRC per ICD-O in both sexes during 2008-2012 in the AMB. *Other locations include: C18.5 Splenic flexure of colon, C18.8 Overlapping lesion of colon, C18.3 Hepatic flexure of colon.

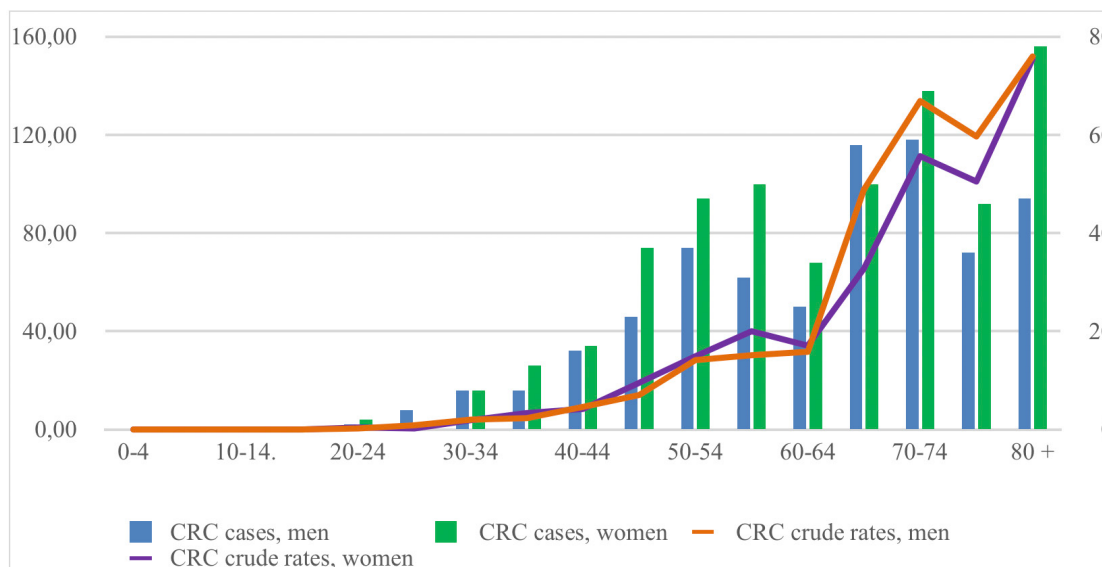


Figure 2. Crude rates and number of colorectal cancer (CRC) cases among men and women in the AMB during 2008 - 2012.

Table 2. Crude and standardized incidence rates of colorectal cancer under and over the age of 60 in the AMB during 2008 - 2012.

Colorectal cancer				
Men	N	%	CIR	SIR
< 50 years	60	7.1	2.6	2.1
> 50 years	293	34.5	120.4	12.2
Total	353	41.5	13.7	14.3
Women	N	%	CIR	SIR
< 50 years	78	9.2	3.6	2.4
> 50 years	374	44.0	60.6	11.2
Total	452	53.2	16.2	13.5

been proposed, such as the 2018 American Cancer Association Guide, which suggests beginning screening at age 45 in patients with average risk of CRC (19). Colombian medical associations have proposed similar measures, but have still to reach a consensus that can be reproduced for our population (11). The clinical practice guide prepared in 2015 by the Colombian Gastroenterologist Association (20) recommends annual screening of patients with average risk of CRC starting at age 50 using the Guaiac Test, as it is included in the Mandatory Health Plan and has a reasonable cost. This is proposed with the recommendation of individualizing and identifying patients with high risk factors and who, regardless of age, must be studied with invasive screening methods such as a colonoscopy, which is the gold standard for CRC detection (16). Nevertheless, colonoscopy is not the best screening tool to be used for the general population, given its poor adherence, high risk of complications and cost. The latter is evidenced, according to the classification for affiliation to the General Social Security System, when patients that belong to the contributive system have greater access to medical services and screening compared to those who are part of the subsidized or member system (16).

Conclusions

This study shows that CRC is a disease of interest for public health because it exhibits an ascending incidence in the AMB, with a greater impact on older adults. It should be noted that there are few studies and up-to-date clinical guides that measure the impact at the social, economic and morbimortality level, thus the need to

implement real strategies aimed at improving healthy lifestyles and having unified early detection measures that are within reach of the entire population.

Conflicts of Interest

We hereby attest that during the preparation of this manuscript there were no conflicts of interest.

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