



EPIDEMIOLOGIA DO CÂNCER DE ESÔFAGO NO NORTE DE MINAS GERAIS-MG

Epidemiology of esophagus cancer in north of Minas Gerais – MG

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Abstract: Esophageal cancer is one of the most common neoplasms and the fourth most common in the male population. **Objective:** To analyze the epidemiological and hospital profile of esophageal cancer in the North of Minas Gerais, in order to identify changes that may subsidize actions to promote the reduction of this disease. **Methodology:** This is a cross-sectional descriptive study, whose data source was the Hospital Information System of the Unified Health System (SIH/SUS). The target population was composed of patients with esophageal cancer, registered in the north of Minas Gerais, from 2008 to 2017. **Results:** A total of 4395 hospitalizations were registered during the study period, with a significant increase between the years 2008 and 2016. The male sex was responsible for 81.52% of hospitalizations. On the other hand, the mortality rate was higher in females, but the number of deaths was predominant in males (78.98%). The most affected age group was 50-59 years old, with a predominance of brown breed. Montes Claros and Bocaiúva were the most affected regions. In addition, there was a private service domain, with 67.40%. **Conclusion:** These data allowed to characterize the epidemiological and hospital profile of esophageal cancer in the North of Minas Gerais. It seems that brown men have a high rate of hospitalization due to the disease. Due to the progressive increase in the number of hospitalizations due to esophageal cancer and the great socioeconomic impact of this disease in our country, there is a need for improvement in public policies to prevent this disease.

Keywords: Epidemiological profile; Esophagus; Neoplasia. North of Minas Gerais.

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Resumo: O câncer de esôfago é uma das neoplasias mais frequentes e o quarto mais comum na população masculina. **Objetivo:** Analisar o perfil epidemiológico e hospitalar do câncer de esôfago, no Norte de Minas Gerais, a fim de identificar mudanças que possam subsidiar ações para promover a redução dessa enfermidade. **Metodologia:** Trata-se de um estudo descritivo de corte transversal, cuja fonte de dados foi o *Sistema de Informação Hospitalar* do Sistema Único de Saúde (SIH/SUS). A população alvo foi composta por pacientes portadores do câncer de esôfago, registrados no norte de Minas Gerais, entre os anos de 2008 a 2017. **Resultados:** Foram registradas 4395 internações no período estudado, com aumento significativo entre os anos de 2008 a 2016. O sexo masculino foi responsável por 81,52% das internações. Em contrapartida, a taxa de mortalidade foi maior no sexo feminino, apesar do número de óbitos ser predominante no sexo masculino (78,98%). A faixa etária mais acometida foi dos 50-59 anos, com predomínio da raça parda. Montes Claros e Bocaiúva foram as regiões mais acometidas. Além disso, houve um domínio do serviço privado, com 67,40%. **Conclusão:** Esses dados permitiram caracterizar o perfil epidemiológico e hospitalar do câncer de esôfago no Norte de Minas. Verifica-se que homens pardos apresentam uma alta taxa de internação em virtude da doença. Em virtude do progressivo aumento do número de internações por câncer de esôfago e o grande impacto socioeconômico dessa enfermidade em nosso meio, observa-se uma necessidade de melhoria nas políticas públicas de prevenção dessa enfermidade.

Palavras-chave: Perfil epidemiológico; Neoplasia de esôfago; Morbimortalidade.

INTRODUCTION

Cancer is a public health problem in all regions and countries of the world, having a large impact on causes of morbidity and mortality in the world population. This great problem has growing epidemiology and the most affected countries are in Africa, Asia, Central America and South America, covering 70% of the cases of cancer death¹.

In women, the most frequent neoplasms are the breast, colorectal, lung and the cervix of the uterus, while in men, it is more frequent cancer of lung, prostate, colorectal and esophagus. It is expected that by the year 2025, more than 20 million individuals be affected by some type of cancer¹.

The esophagus cancer is a malignant neoplasm, with severe evolution and varied incidence². It is the sixth most common in males and the thirteenth in females and only in the year 2013, there were 7,930 deaths as a result of this cancer and of these, 75% were men³.

Worldwide, the esophagus cancer is the eighth most common, being that 49% of the cases occur in

China. This neoplasm is present, especially in African and Asian countries, commonly related to low or medium human development index. It is interesting to note that the rates of impairment and mortality in males are 2-4 times greater when compared to females¹.

In Brazil, the most affected regions by this neoplasm is the southern region of the country, in particular the state of Rio Grande do Sul and the Southeastern region⁴. In addition, the esophagus cancer affects more adult population, over 50 years, with higher incidence at the age of sixty-five years and is associated with a lower socioeconomic level².

The esophagus cancer is divided histologically in adenocarcinoma and squamous cell carcinoma. In 96% of the presentations we found the squamous type, however, it has been showing a significant decline, while adenocarcinoma is showing a slight increase in its frequency⁵.

The squamous cell carcinoma presents a strong correlation with the use of tobacco and alcohol, affecting more often, middle and lower thirds of the esophagus. Whereas the

adenocarcinoma, which is more common in individuals who have Barrett's esophagus, i.e., that have a gastric metaplasia of the epithelium, and with patients who have chronic gastric reflux. In addition, the adenocarcinoma, affects more often the distal part of the esophagus².

It is of utmost importance, be aware regarding the symptoms of the individual to fit it as bearer of the

METHODOLOGY

The present study was conducted in the state of Minas Gerais, which has a territorial extension of 586,521.235 km², divided into 853 municipalities and an estimated population, in the year 2016, of 20,997,560 inhabitants⁷.

Aiming to achieve an approach of the epidemiological profile updated about the esophagus cancer in Northern Minas Gerais, it was opted for an observational and retrospective study, based on computerized system of Population-based cancer Record, supplied by INCA and arranged by DATASUS, between the period from 2008 to 2017. By means of this data bank, all cases referenced in the public and the private spheres were evaluated

esophagus cancer, having in view that the manifestations of the disease are late and comprehensive. Symptoms are usually pain, dysphagia, fatigue, weight loss and lack of appetite⁶.

To analyze the epidemiological and hospital profile of esophageal cancer in the North of Minas Gerais, in order to identify changes that may subsidize actions to promote the reduction of this disease.

of the confirmed cases of esophageal cancer in the studied city.

The study variables were divided into: number of hospitalizations (related to gender; age; race; the regime - public/private -); rate of mortality and deaths by gender; rate of mortality and deaths by age range. Through this approach, it was possible to summarize papers already established and conclusions were drawn from the topic of interest.

All the confirmed cases were included with a diagnosis of esophageal cancer which were referred to treatment in Montes Claros. All cases were excluded from the analysis which, although notified, had no diagnostic confirmation.

Exploratory analyzes were performed (descriptive) of the data from the calculation of absolute

Perfil clínico, epidemiológico e sociodemográfico dos pacientes oncológicos atendidos em uma instituição filantrópica

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simple frequencies and percentages, being that they were reorganized in graphs and tables. All the evaluated data were reported as confirmed, so the inference abstains from cases without confirmation of the diagnosis or which contained inconsistencies.

The data were analyzed using the *software Microsoft Excel 2007* and

RESULTS

In the period from 2008 to 2017, a total of 4395 hospitalizations were registered due to malignant neoplasms of the esophagus in the northern region of Minas Gerais, corresponding to 12.8% of the total number of cases in the state.

The number of hospitalizations ranged from 322 to 593 cases, with an average of 439.5 hospitalizations per

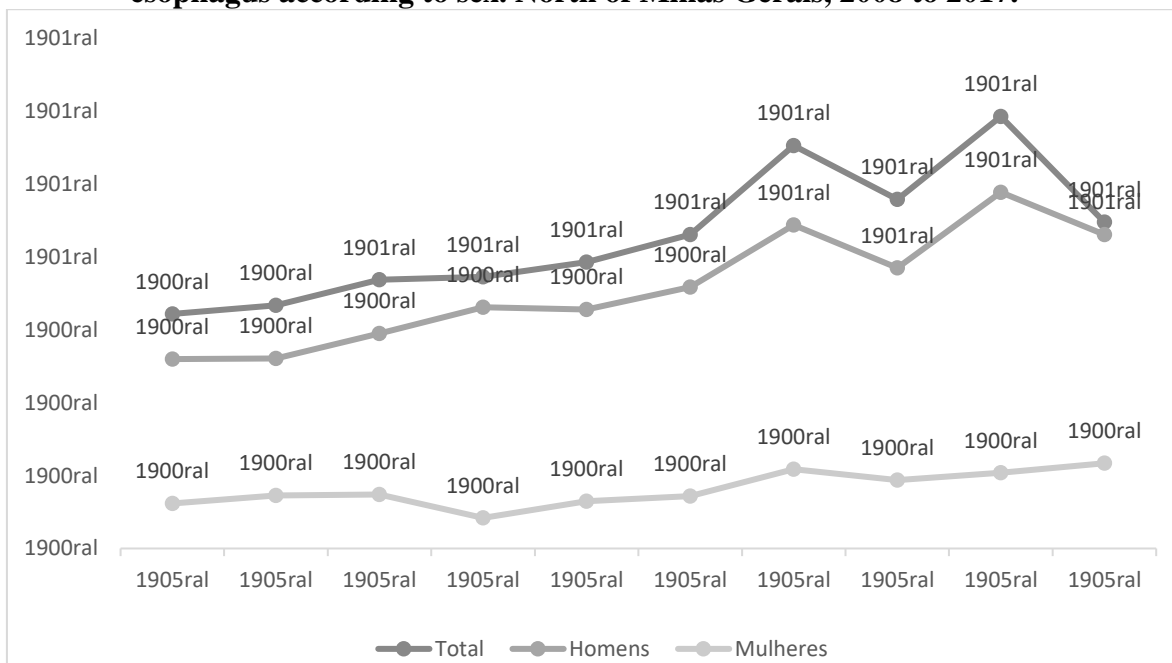
the results were presented by means of table using *Microsoft Word 2007*.

The research in question, due to collecting data in the public domain, did not require the approval of the Committee on Ethics in Research by not identifying the research participants and not requiring testing in humans.

year. There was an increase of 84.2% in the number of hospitalizations between 2008 and 2016, and a drop of 13.4% and 24.5% in the years 2015 and 2017, respectively (Figure 1).

It is worth mentioning a greater number of hospitalizations in male patients, these being responsible for 3583 hospitalizations (81.52%), while there were 812 admissions (18.48%) in females. Comparing the proportion of cases between genders, there is an index of 4.4:1 (Figure 1).

Figure 1: The number of hospitalizations due to malignant neoplasms of the esophagus according to sex. North of Minas Gerais, 2008 to 2017.

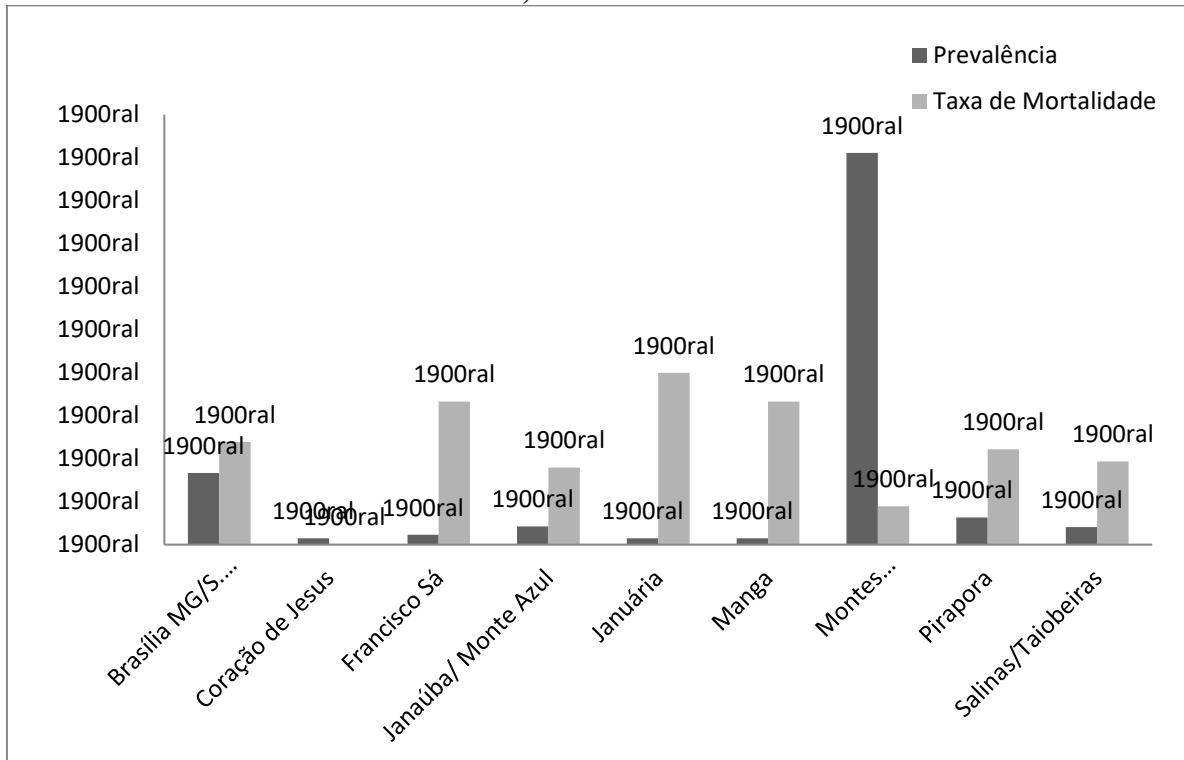


Source: Ministry of Health - Hospital Information System of SUS (SIH/SUS)

Upon analyzing the prevalence of this disease by region of health, it was observed an average record of approximately 48.2 cases per 100,000 inhabitants. The regions with the highest prevalence of hospitalizations were Montes Claros/Bocaiúva (91.1

cases), and Brasília de Minas/São Francisco. However, the regions with a lower prevalence of hospitalizations, presented the highest mortality rates, Januária (40.0); Manga (33.3) and Francisco Sá (33.3) (Figure 2).

Figure 2: Mean prevalence of hospitalizations and mortality rate of malignant neoplasia of the esophagus in accordance with the health regions. North of Minas Gerais, 2008 to 2017.



Source: Ministry of Health - Hospital Information System of SUS (SIH/SUS)

By analyzing the most affected age groups, it was realized a predominance of hospitalizations between 50 and 59 years, these being responsible for 1487 cases (33.85%), followed by the age 60-69 and 40-49, with 1124 (25.58%) and 810 (18.43%) cases, respectively (Table 1).

The ethnicity that predominated in cases of hospitalization for esophagus cancer was the brown, which accounted

for 3371 hospitalizations (76.70%). There were also 371 patients who were hospitalized without informing their complexion, however these represent only 8.44% of the total, not influencing significantly the ethnic characterization of these patients (Table 1).

It was realized a predominance of private service during the hospitalizations because they 2961 hospitalizations were recorded

(67.40%) in this regime. In contrast, hospitalizations in which the type of only 207 cases (4.70%) were in the scheme was ignored, being this a public service. It is important to significant value, because it represents highlight that there were 1227 27.90% of the cases (Table 1).

Table 1 - variables related with the number of hospitalizations

VARIABLES	NUMBER (no)	PERCENTAGE %
SEX		
Female	812	18.48%
Male	3583	81.52%
AGE RANGE		
Less than 1 year	6	0.13%
5 to 9 years	1	0.02%
10 to 14 years	2	0.04%
15 to 19 years	1	0.02%
20 to 29 years	9	0.20%
30 to 39 years	135	3.07%
40 to 49 years	810	18.43%
50 to 59 years	1487	33.85%
60 to 69 years	1124	25.58%
70 to 79 years	640	14.56%
80 years and older	180	4.10%
BREED		
White	339	7.71%
Black	304	6.92%
Brown	3371	76.70%
Yellow	10	0.23%
No information	371	8.44%
REGIME		
Public	207	4.70%
Private	2961	67.40%
Ignored	1227	27.90%

Source: Ministry of Health - Hospital Information System of SUS (SIH/SUS)

The number of deaths in hospitalized patients with esophageal

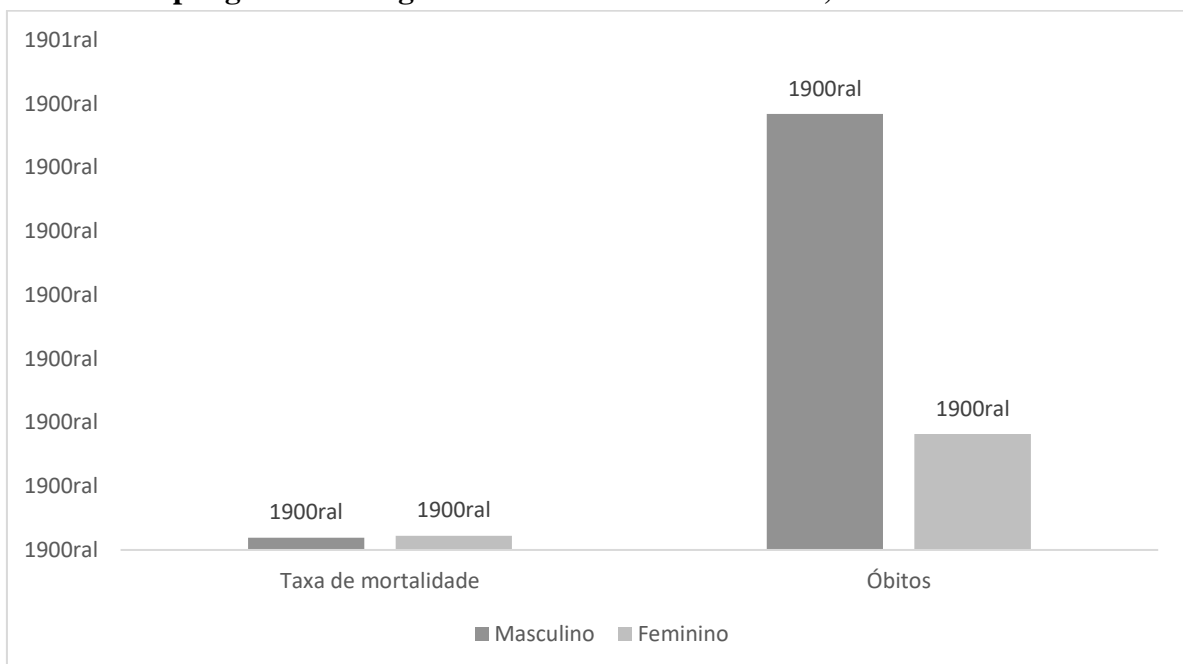
cancer in northern Minas was 433 cases, characterizing 9.85% of the total. The age range with a greater number of deaths was 50 to 59 years, accounting for 145 deaths (33.48%), followed by the range between 60 to 69 years, with 102 deaths (23.55%).

As already discussed, the number of hospitalizations in males is significantly higher than in females, however, as evidenced in figure 3, the

mortality rate in women was greater in the analyzed period, showing a rate of 11.21% while in men, the rate was 9.55%.

However, despite of presenting a lower mortality rate, the men admitted present a greater number of deaths due to esophagus cancer, counting 342 deaths, while there were 91 deaths in females (Figure 3).

Figure 3: Rate of mortality and deaths caused by malignant neoplasms of esophagus according to sex. North of Minas Gerais, 2008 to 2017.



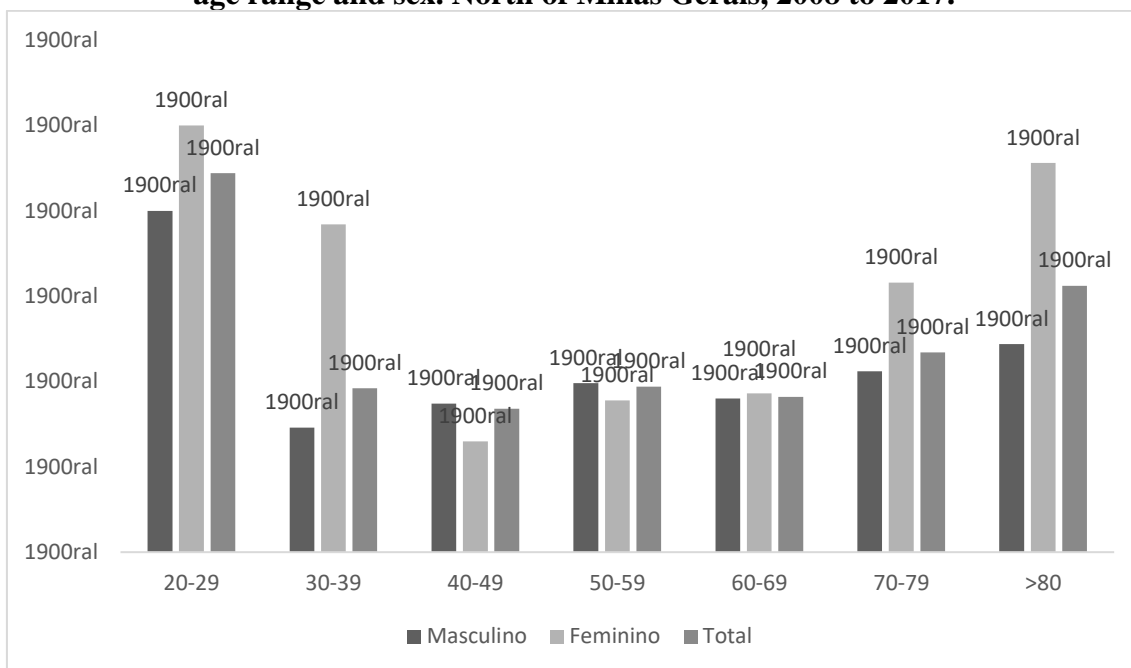
Source: Ministry of Health - Hospital Information System of SUS (SIH/SUS)

Correlated the rate of mortality by age and sex, there is a higher mortality rate among females comparing to males in almost all age

groups. The males only present a higher rate of mortality in groups of 40-49 and 50-59 years. In both sexes and in a general way, the mortality rate is

higher among patients aged 20-29 and ≥80 years (Figure 4).

Figure 4: Mortality rate due to malignant neoplasms of the esophagus according age range and sex. North of Minas Gerais, 2008 to 2017.



Source: Ministry of Health - Hospital Information System of SUS (SIH/SUS)

DISCUSSION

According to the DATASUS data obtained in the present study, in relation to the epidemiology of esophageal cancer in the north of Minas Gerais in the period from 2008 to 2017 it was possible to perceive in general an increasing number of hospitalizations in the analyzed period, given that there was a remarkable increase of 84.2% between 2008 and 2016. This same trend of increase was reported by

Brandão⁸ (2012) in an epidemiological study on hospitalizations and deaths due to esophagus cancer in Bahia. In this study, the absolute number of hospitalizations due to this pathology increased 278% in the period between 2001 and 2010.

The survey showed a predominance of hospitalizations in the fifth decade of life, which correlates with the data from the study by Monteiro *et al.*⁵(2009) in which the age group most related to the involvement

of esophagus cancer was between 50 and 61 years of life, in a study about the particularities of this neoplasm in patients submitted to oncological treatment at a reference center in Minas Gerais.

It is possible to realize that the results of the research show a steady growth in the number of hospitalizations, totaling 4395 cases. By analyzing the proportion of hospitalization between the sexes in the present study, the number of men admitted, referring to the 81.52%, was greater than the number of women, who accounted for 18.48% of the cases. This is consistent information with the literature, since that the study by Santos *et al.*⁹ (2017) about the deaths and hospitalizations for esophageal neoplasm in Montes Claros show a growing increase in the number in the same period.

Analyzing the incidence data in the present study, it was possible to verify that the most affected age group predominates in the 5th decade of life, a fact that is related positively with the epidemiological study carried out by Queiroga; Pernambuco² (2006), which presented a higher frequency of

diagnosis after 50 years of age.

There was a disagreement in relation to most affected ethnic groups in relation to the results found in the literature. In the present study, there was a greater number of hospitalizations in patients of brown ethnicity. In a study conducted by Queiroga; Pernambuco² (2005), especially in the western world a greater predominance in black patients, as well as in the study by Ruivo *et al.*¹¹ (2016).

Upon analyzing the data on mortality rate in this study with the numbers obtained by Rego; Fonseca¹² (2014) in a study on the trend of mortality due to esophageal cancer in the city of Salvador, State of Bahia, there is a mismatch. In the present study, although the percentage of men admitted being higher than the women, these showed a mortality rate of 11.21%, being higher than that of men, where this rate was 9.55%. In the study by Rego; Fonseca¹² (2014), data analyzed between the period of 1980 and 2012 showed a higher number of deaths caused by esophageal cancer in males (73.44%) than in females (26.47%).

CONCLUSION

The esophagus cancer is a malignant neoplasm that has become prevalent in recent years. It affects mainly men, with higher prevalence after 50 years. During the period analyzed in this study, the rate of hospital admissions in the northern region of Minas Gerais has increased considerably from the year 2014, with a peak in the year 2016. As previously stated, the predominance of age hospitalized was 50-59 years, followed by 60-69 years and 40-49 years. Regarding mortality, a higher rate was realized at the extremes of age, between 20-29 years and 80-89 years. In addition, it was concluded that, despite having a greater quantity of hospitalized cases and deaths in males, the mortality rate in females was greater in the analyzed period. In addition, due to early diagnosis and the public policies of dissemination of information about the risk factors, such as alcoholism and smoking, the treatment of these patients is becoming more effective, reducing the morbidity and mortality of esophagus cancer.

CONFLICTS OF INTEREST

The authors report no conflicts of interest.

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