RESEARCH ARTICLE

PREVALENCE AND TYPES OF GASTRIC ADENOCARCINOMA DIAGNOSED AT THE ERASMO MEOZ UNIVERSITY HOSPITAL.

PREVALENCIA Y TIPOS DE ADENOCARCINOMA GÁSTRICO DIAGNOSTICADOS EN EL HOSPITAL UNIVERSITARIO ERASMO MEOZ.

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RESUMEN

Introducción: El presente articulo recopila los datos obtenidos en una investigación realizada en el Hospital Universitario Erasmo Meoz en el período comprendido entre el año 2014 al 2019, cuyo objetivo fue describir la prevalencia y los tipos histológicos de carcinoma gástrico más frecuentes. **Metodología:** Se revisaron un total de 240 historias clínicas de pacientes con diagnostico histopatológico confirmado de cáncer gástrico analizados con la clasificación Lauren de acuerdo con variables sociodemográficas y clínicas de interés. **Resultados:** El género masculino fue el más frecuente con un 68.3% de la población con una edad media de 62+-23.32 años, con un grupo de edad de 41.25% entre los 60.5 y 75.5 años de nacionalidad colombiana , procedencia de Cúcuta y residentes principalmente en las comunas

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6, 7, 8, con predominio de estrato dos, como síntoma persistente epigastralgia pérdida de peso y dolor abdominal, al examen físico el dolor a la palpación fue el principal hallazgo. Según la clasificación de Lauren el adenocarcinoma gástrico más frecuente fue el de tipo intestinal con un 65,83% mientras que el tipo difuso solo estuvo presente en el 30% de los casos. **Discusión:** El tipo de cáncer más frecuente diagnosticado en el HUEM entre el periodo 2014-2019-1 fue el adenocarcinoma gástrico tipo intestinal, siendo el que más desarrollo metástasis. siendo diagnosticado en su gran mayoría en estadios tardíos III y IV, constituyendo esto un problema de salud pública, debido a la alta prevalencia de esta enfermedad en esta región y a su vez demuestra la necesidad de herramientas de tamizaje para una detección temprana, en especial en pacientes de riesgo.

PALABRAS CLAVES: Cáncer gástrico, prevalencia, adenocarcinoma intestinal.

ABSTRACT

Introduction: This article compiles the data obtained from research conducted at the Erasmo Meoz University Hospital from 2014 to 2019, the objective of which was to describe the prevalence and the most frequent histological types of gastric carcinoma. **Methodology**: A total of 240 medical records of patients with a confirmed histopathological diagnosis of gastric cancer were reviewed, and analyzed with the Lauren classification according to sociodemographic and clinic variables of interest. **Results:** The male gender was the most frequent with 68.3% of the population with an average age of 62+-23.32 years, with an age group of 41.25% between 60.5 and 75.5 years of Colombian nationality, origin of Cúcuta and residents mainly in communes 6, 7, 8, with a predominance of stratum two, the persistent symptom was lower abdominal pain (epigastralgia), weight loss and abdominal pain; on physical examination, pain on palpation was the main finding. According to Lauren's classification, the most common gastric adenocarcinoma was the intestinal type with 65.83%, while the diffuse type was only present in 30%

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of the cases. **Discussion:** The most common type of cancer diagnosed in the HUEM between the period 2014-2019-1 was intestinal-type gastric adenocarcinoma, being the one that developed the most metastasis. being diagnosed in its vast majority in late stages III and IV, constituting a public health problem, due to the high prevalence of this disease in this region and in turn demonstrates the need for screening tools for early detection, especially in risk patients.

KEYWORDS: Gastric cancer, prevalence, intestinal adenocarcinoma.

INTRODUCTION

Gastric cancer is the most frequent neoplasm of the digestive tract worldwide; the term gastric cancer refers to adenocarcinomas of the stomach, which represent 95% of malignant tumors of this organ (1). Recio-Boiles and collaborators have observed that gastric cancer in its presentation form develops signs and symptoms at an advanced stage, which could indicate a subclinical development of the disease and therefore it is essential to perform a periodic evaluation in order to obtain an early diagnosis. The most common symptoms include non-specific weight loss, persistent abdominal pain, dysphagia, dysphagia, hematemesis, anorexia, nausea, early satiety and dyspepsia (2).

Regarding the histological classification of these and their frequency of appearance, there is Lauren's classification, which classifies them into two types: diffuse and intestinal (3,4). Surgery is currently considered the only radical treatment. As surgical techniques improve and progress is made in traditional radiotherapy, chemotherapy and the implementation of neoadjuvant therapy, the 5-year survival rate of early gastric cancer can reach a level greater than 95% (5).

Gastric carcinoma was the fourth

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most common malignant neoplasm in the world (989,600 new cases per year in 2008) and remains the second leading cause of death (738,000 deaths per year), of all malignant neoplasms in the world, this disease becomes symptomatic at an advanced stage and its 5-year survival rate is relatively good only in Japan, where it reaches 90%, but in European countries, survival rates vary from 10% to 30% (6). Gastric cancer incidence rates vary widely by gender and in different countries, these rates are 2 to 3 times higher in men than in women. Comparing different countries, the highest incidence rates are observed in East Asia, Eastern Europe and South America, while the lowest rates are observed in North America and most of Africa (6,7).

Gastric cancer in Colombia is a pathology that affects 6,028 patients, of which 1,562 were new cases for 2015, representing 4.96% of all cancer incidences in the country. Within the most prevalent group of invasive cancers in the Colombian population, gastric cancer ranks number nine, at the national level the prevalence rates of the country were 12.5 per 100,000 inhabitants, the incidence was 3.2 per 100,000 inhabitants, the total number of deceased patients with gastric cancer was 1,696, with a country mortality of 3.5 per 100,000 inhabitants (8).

In Colombia, the prevalence of gastric cancer is around 14%, while in most developed countries it reaches 20%. According to the World Health Organization (WHO), these figures are projected to double in most of the world in the next 25 years. Despite the observed decrease in incidence worldwide, gastric cancer persists as the second most common neoplasm, representing 9.9% of new cases (780,000) and 12.1% of cancer deaths (628,000). In the Colombian context, this type of cancer occupies first place as a cause of cancer mortality, generating around 6,000 deaths annually and causing the loss of 54,700 years of healthy life (8).

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In Norte de Santander for the period 2002-2006, 286 annual cases of gastric cancer were reported, of which 175 were men and 111 were women. In the period 2006-2010, the mortality rate was 2.1 deaths per 100,000 inhabitants in men and 2.2 deaths per 100,000 inhabitants in women, in the age group between 15 and 44 years old. The highest mortality peak occurred in persons over 65 years of age, with a mortality rate for men of 163.7 deaths per 100,000 inhabitants and for women of 118.8 deaths per 100,000 inhabitants (9).

Gastric cancer, being a global challenge, presents its particularities in Colombia. During 2014-2019, our research at the University of Pamplona delved into this complex reality, highlighting significant prevalence rates, sociodemographic characteristics and types of gastric cancer diagnosed. With a special focus on Norte de Santander, we identified patterns that highlight the need for specific interventions, especially for older age groups. Beyond understanding diagnostic patterns, our main objective is to improve management strategies by contributing to local knowledge, aiming to influence more effective public health policies and, ultimately, positively impact patients' lives.

METHODOLOGY

This is a descriptive, retrospective study in patients attended at the Hospital Universitario Erasmo Meoz (HUEM) with a diagnosis of gastric cancer confirmed by histopathology in the period from 2014 to 2019-1, in the first phase, the prevalence of this disease was determined and sociodemographic data were collected, including gender, age at diagnosis, geographical origin, address of residence and socioeconomic stratum.

In the second phase, the histological type of gastric carcinoma most commonly diagnosed in the HUEM during the same period was identified.

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RESULTS AND DISCUSSION

559 medical records of patients diagnosed with gastric cancer were reviewed, of these, 319 were excluded due to lack of complete data, incorrect diagnoses or absence of biopsy confirmation for a sample of 240 valid clinical histories.

From these, the sociodemographic and clinical characteristics were determined, as well as the most frequent histological type of cancer.

In the study period 0.12% (559) corresponds to patients who were admitted with diagnoses associated with gastric cancer, being 3.17% corresponding to adenocarcinoma, in 2016 the highest prevalence of cases was presented with a percentage of 24.17% (58 patients) in relation to the total number of cases; Significant differences were presented in the prevalence of gastric cancer in relation to the sex of the patient where 68.33% (164 patients) were men and 31.67% (76 patients) were women; thus having men a possibility 2. 16 times more likely than women to be diagnosed with gastric cancer, in terms of age, an overall mean age of 62.38 years is evident, with no significant difference between both sexes, the age group with the highest prevalence corresponded to patients between 60.5 - 75.5 years with a proportion of 41.25% (99 patients).

Regarding the place of origin of the patients, 58.33% (140 patients) were from the city of Cúcuta and 41.67% from other regions of the department, as well as from other regions such as Arauca and Venezuela. Of the patients from the city of Cúcuta, their location was determined by communes and socioeconomic stratum, which corresponded mostly to communes 8 with 20% and 7 with 15%, as well as stratum 2 with 46.43%, corresponding mostly to a low socioeconomic level (Table 1).

Epigastralgia (39.58), weight loss (38.75%), and abdominal pain (38.33%), were the most frequent

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symptoms (Table 2), When analyzing the information about the physical examination performed on these patients, it is evident that pain on palpation is presented as the most outstanding clinical manifestation in these patients in 52.5%, followed by pallor with 22.50% and abdominal distension with 17.08%. This data agrees with the results obtained by Holland-Frei in 2003, where the most common symptoms at the time of diagnosis are abdominal pain (50% to 65%), followed by pallor, findings most frequently found in patients with gastric cancer (19) (Table 1).

Regarding the type of surgery to which the patients of the present study were submitted, the analysis of the results allows determining that the technique of choice in the HUEM was laparoscopic gastrectomy, performed in 47.08% (113 patients) of the total number of patients, being this performed in 38.33% of the cases totally and in 8.75% of the patients subtotally. Of the cases, 11.25% (27 patients) were operated by laparotomy, either total or subtotal.

Of the patients 41.67% were not operated on, because some of them had advanced metastasis, or the stage in which they were found was an impediment to their intervention (Table 1). Gastrectomy is the standard surgical technique to resect the primary tumor, depending on the extension and location in the stomach, the gastrectomy will be total or subtotal, and in addition the chains of lymph nodes that are compromised are removed (20).

Table 1. Clinical and sociodemographic characteristics of patients with gastric cancer at HUEM between 2014 to 2019-1.

Category	N (%)	Male n(%)	Female n(%)
Study Population	240(100%)	164 (68,33%)	76 (31,67%)
Average Age ±(DE)	62 ± 23,32		

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Age Group			
15,5-30,5years	7 (2,92)	4 (1,67)	3 (1,25)
30,5-45,5 years	28 (11,67)	17 (7,08)	11 (4,58)
45,5- 60,5 years	62 (25,83)	47 (19,58)	15 (6,25)
60,5-75,5 years	99 (41,25)	71 (29,58%)	28 (11,67%)
75,5-90,5 years	44 (18,33)	25 (10,42)	19 (7,92)
Nationality		-	-
Colombian	236 (98,33%)		
Venezuelan	4 (1,67%)		
Origin		-	-
Cúcuta	140 (58,33%)		
Other regions	100 (41,67%)		
Location in Cúcuta	**140 (58,33)**	-	-
Commune 8	28 (20%)		
Commune 7	21 (15%)		
Commune 6	19 (13,57)		
Commune 9	14 (10)		
Commune 3	13 (9,29)		
Commune 1	11 (7,86)		
Commune 5	9 (6,43)		
Commune 2	7 (5)		
Commune 4	4 (2,86)		
Commune 10	3 (2,14)		
Rural Cúcuta			
Stratum	**140 (58,33)**	-	-
2	65 (46,43%)		
3	36 (25,71%)		
1	26 (18,57)		
4	7 (5)		
5	4 (2,86)		
6	2 (1,43)		
Symptoms			
Epigastralgia	95 (39,58%)	57 (23,75)	38 (15,83)
Loss of weight	93 (38,75%)	65 (27,08)	28 (11,67)
Abdominal pain	92 (38,33)	60 (25)	32 (13,33)
Asthenia	84 (35%)	57 (23,75)	27 (11,25)
Adynamia	79 (32,92%)	53 (22,08)	26 (10,83)
Emesis	79 (32,92%)	44 (18,33)	35 (14,58)
Physical Exam Pain		-	-
on palpation	126 (52,5%)		
Pallor	54 (22,5%)		
Abdominal distension	41 (17,08%)		

Of the total number of patients who were histopathologically confirmed, 82% underwent upper endoscopy. The most frequent location was in the antrum with 56%, followed by the body and cardia with 40.89% and 10.67%

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respectively; In several patients it was found that the tumor covered more than one region of the stomach, as for the type of gastric cancer according to Lauren's classification the most frequent in the HUEM was the intestinal type adenocarcinoma with 65.83% while the diffuse type was only present in 30% of the cases.

Histological confirmation for gastric cancer was performed in 4.17% of the cases, but they were not classified at the time of diagnosis. Of these, the intestinal type, which corresponds to 29.58% of the cases, had an age between 60.5 and 75.5 years, 46.67% of the cases being men. As for the diffuse type, it was more frequent in men with 19.17% and its main age group was between 60.5 and 75.5 years in 10% of the cases; however, there was no significant relationship between the age and sex of the patient with the type of cancer presented (Table 2).

When reviewing the international literature, these data are similar to a study performed in Korea in 2017 where they studied 282 patients with early gastric adenocarcinoma in which 61.7% of the cases were intestinal type, and 38.3% were diffuse type; however when comparing the ages of presentation, the data of that study differ with those of this study, since in the study in Korea patients with diffuse type cancer were younger than those with intestinal type cancer, different from what was observed in the present study, where the age of highest frequency of presentation was the same for the diffuse type as for the intestinal type, between 60.5 to 75.5 years (21). Another study conducted in Taiwan in 2015, where pathology specimens from gastrectomies of 3071 patients with gastric cancer were studied, 46.3% were intestinal type, 32.6% diffuse type and 21.1% mixed type. Regarding sex and age, male sex predominated for both types of cancer, while age was higher for patients with intestinal type of which 1054 patients were >65 years and 368 patients were <65 years in contrast

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with the diffuse type where 569 <65 years and 431 >65 years (22), thus showing significant differences regarding the age of presentation of each type of cancer; similar data with this study in relation to the intestinal type, since in both studies it was the most frequent.

When analyzing the diffuse type, we did find differences, since in the present study there were no significant differences in the age of presentation of the tumor. Regarding the most frequent location of the tumor a review published in 2019 by Kim and Choi, concluded that the lower part of the stomach (antrum and lower third of the body) is the site most frequently affected by this neoplasm, followed by the lesser curvature (23). Another study published in the same year by Kim and collaborators where they studied the anatomical locations of 644 cases of early gastric cancer and its histopathological correlation showed that the most frequent location in 57.5% was in the antrum and in 37.8% along the lesser curvature. Thus the cancer located in the middle third of the stomach (middle and lower body) are mostly poorly differentiated or signet ring cell (diffuse type in Lauren's classification) with 95 patients and the remaining two thirds, the upper third (from the cardia to the upper body) and lower third (antrum) were mostly well differentiated tumors (intestinal type in Lauren's classification) with 29 and 168 patients respectively (24). These data support the findings found, where the most frequent location was the antrum followed by the body, but unlike these studies, in the findings mentioned the minor curvature had a low proportion of cases (2.67%) and the intestinal type was predominant in all locations, it should be noted that in the present study the location of the tumor has no significant relationship with the type of cancer that the patient develops.

From the histopathological findings, the results obtained allow determining that 24.17% of them have atrophic chronic gastritis and 12.92% present intestinal type metaplasia. The

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Helicobacter pylori test was performed in only 40 patients, 25% of whom had a positive finding. For the group of patients who underwent the Helicobacter pylori test, it was found that 15% had a positive finding of the bacterium and intestinal type cancer (Table 2). The frequency of gastritis in the patients in this study is similar to that documented by Bravo et al. in 2003 and by McDonald et al. in 2001, who emphasize that although H. pylori is considered by the WHO to be a type 1 carcinogen, its presence in patients with cancerous lesions does not exceed 40%, which was similar in this report (25,26).

As for the presence of metastasis, it was present in 24.17% of cases (P <0.005 - CI 0.1875- 0.2959), being significantly more frequent in patients aged 60.5 to 75.5 years with 10.83% of all cases and in men with 18.33% of cases. The cancer that metastasized the most was the intestinal type in 15% vs. diffuse in 7.5% of cases. When reviewing the staging of the patients, only 175 were staged, of which 34.29% corresponded to stage IV, followed by stage IIIC. Of these, 15.43% corresponded to patients between 60.5 and 75.5 years of age with stage IV and 6.86% to stage IIIC patients in this same age group. It is noteworthy that 9.71% of the patients were classified as stage IV and were aged between 45.5 and 60.5 years. When observing the behavior of the stage in relation to sex, it was observed that with stage IV, 26.86% were men and only 7.43% were women. Regarding the histological type of gastric cancer and its stage, 21.71% and 12% of the cases were intestinal type - stage IV and intestinal type stage IIB respectively, while diffuse stage IV was 10.29%, these being the most frequent presentations found. There was no significant relationship between stage, presence of metastases and age or sex of the patient (Table 2).

Table 2. Histological characteristics of patients diagnosed with gastric cancer at HUEM between 2014 to 2019-1.

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Histological characteristics	
Location	
Antrum	126 (56%)
Body	92 (40,89%)
Cardia	24 (10,67%)
Histological subtype	
Intestinal	158 (65,83%)
Diffuse	72 (30%)
Confirmed unclassified	10 (4,17%)
Histopathologic findings	
Chronic atrophic gastritis	58 (24,17%)
Intestinal metaplasia	31 (12,92%)
Helicobacter Pylori	
Pylori	
Positive	10 (25%)
Negative	30 (75%)
Metastases	
Present	58 (24,17%)
Absent	182 (75,83%)
Pathologic stage	
IA	3 (1,71%)
IB	9 (5,14%)
IIA	15 (8,57%)
IIB	26 (14,86%)
IIIA	20 (11,43%)
IIIB	13 (7,43%)
IIIC	29 (16,57%)
IV	60 (34,39%)

In a Mexican study published by Medrano-Guzman et al. in 2016, out of 588 patients 30.1% presented metastatic disease, similar to the findings found in our study. Unlike this study, in the present study the predominant clinical stages were stage IIIA (34.5%) and IIIB (31.2%) respectively, in turn stage IV was present in 6%, it was found that the female sex was the most affected in <45 years with 77%, in this same group stage IIIA was present 41% of the time (27).

It can be affirmed that in both cases the diagnosis is made in advanced stages. On the other hand, in another study conducted by Tavares and collaborators in 2013 where stage IV was the most frequent stage found in patients both older and younger than 40 years, being present in 26.9% and

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26.1% respectively (28). In a study published in Spain by Rodriguez de Santiago and collaborators in 2019, stage IV gastric cancer was found in both younger and older patients (45.7% and 41% respectively), followed by stage III (28.6% AND 28.7% respectively) (29), this being consistent with our findings where stage IV was the most frequently diagnosed and in turn coincides with the age group where the majority of patients with this stage are older than 40 years. Thus the data obtained agree with the studies of Medrano-Guzmán, Tavares and Rodríguez de Santiago where gastric adenocarcinoma is detected mostly in advanced stages of the disease, the most frequent stage found is stage IV, followed by stage III.

CONCLUSIONS

Gastric cancer is a prevalent pathology in this region, characterized by being asymptomatic in early stages, and being diagnosed late. The main symptoms are epigastralgia, weight loss and unspecified abdominal pain. It occurs more frequently in men, between 60 and 75 years old, the eastern part of the department (Cúcuta and its metropolitan area) was the one that contributed most of the patients, perhaps due to the proximity to the HUEM. Similarly, it is necessary to highlight the large proportion of patients in the western zone corresponding to the province of Ocaña.

The most frequent type of cancer diagnosed in HUEM between the period 2014 to 2019-1 was intestinal type gastric adenocarcinoma, it was also the one that most developed metastasis. In addition, gastric adenocarcinoma was diagnosed in HUEM in its vast majority in late stages III and IV, constituting a public health problem, due to the high prevalence of this disease in this region and in turn demonstrates the need for screening tools for early detection, especially in patients at risk.

The results derived from the present investigation on gastric cancer at the Erasmo Meoz Hospital stand as

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fundamental pillars for hospital administration, providing a thorough vision of the burden that this pathology represents. These findings not only guide healthcare professionals in their clinical practices, refining their understanding of the clinical presentation and allowing a more insightful approach to diagnosis and treatment, but also delineate fundamental management strategies through the identification of prevalent histological types and assessment of the frequency of metastasis. Beyond the hospital setting, these results contribute substantially to the body of local scientific knowledge, and when shared, foster collaborations and encourage global comparisons. The significant prevalence of advanced stages underscores the pressing need to strengthen early detection programs, thereby advocating a positive impact on both disease care and surrounding public awareness.

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