Clinical and sociodemographic characteristics of patients diagnosed with gastric cancer at the Itauguá National Hospital. 2019-2020

Características clínicas y sociodemográficos de pacientes con diagnóstico de cáncer gástrico en el Hospital Nacional de Itauguá. 2019-2020

*Miguel Ángel Aranda Wildberger[1]
* Francisco Hiroyuki Yanagida Arakawa[1] **
**Camila Petry Bottini[2]

1 Ministerio de Salud Pública y Bienestar Social, Centro Médico Nacional, Hospital Nacional, Departamento de Cirugía. Itauguá, Paraguay.
2 Ministerio de Salud Pública y Bienestar Social, Centro Educativo Superior en Salud. Departamento de Extensión e Investigación. Ypacaraí-Paraguay.

ABSTRACT

Introduction: Gastric cancer is the fifth most frequent neoplasm in the world and has a high mortality. Initial symptoms are nonspecific. The diagnostic standard is gastroscopy. **Objectives:** To know the clinical and sociodemographic characteristics of patients diagnosed with gastric cancer at the Itauguá National Hospital. Period 2019 - 2020. **Material and methods**: observational, descriptive, cross-sectional study; with non-probabilistic sampling of consecutive cases, of patients diagnosed with gastric cancer, who attended the General Surgery Service of the Itauguá National Hospital, period 2019 - 2020. 24 clinical records of patients who met the inclusion criteria were collected. **Results**: Of 24 patients, 87.5% were men. With a mean age of 61 years ± 10. The most frequent reason for consultation was constitutional syndrome 47%. Helycobacter pylori infection was found in 42%. The pre-surgical TNM stage was stage 4 in 50%, and the most frequent histological type was the intestinal type adenocarcinoma 50% followed by the diffuse type 46%. **Conclusion**: Gastric cancer predominantly affects males, with a mean age greater than 60 years. Constitutional syndrome is the most frequent reason for consultation. The most frequent histological type is intestinal adenocarcinoma

Key words: gastric neoplasm, helycobacter pylori, Diagnosis, classification.

RESUMEN

Introducción: El cáncer gástrico es la quinta neoplasia más frecuente en el mundo y posee una alta mortalidad. Los síntomas al inicio son inespecíficos. El estándar de diagnóstico es la gastroscopía. **Objetivos**: Conocer las Características clínicas y sociodemográficas de pacientes con diagnóstico de cáncer gástrico en el Hospital Nacional de Itauguá. Periodo 2019 - 2020. **Material y métodos:** estudio observacional, descriptivo, de corte transversal; con muestreo no probabilístico de casos consecutivos, de Pacientes con diagnóstico de cáncer gástrico, que acudieron al Servicio de Cirugía General del Hospital Nacional de Itauguá, periodo 2019 - 2020. Se recabaron 24 expedientes clínicos de pacientes que cumplían con los criterios de inclusión. **Resultados:** De 24 pacientes, 87,5% fueron hombres. Con edad media de 61 años ± 10. El motivo de consulta más frecuente fue el síndrome constitucional 47%. Se encontró infección por Helycobacter pylori en un 42%. El estadio prequirúrgico TNM fue estadio 4 en un 50%, con el tipo histológico más frecuente fue el Adenocarcinoma tipo intestinal 50% seguido del tipo difuso 46%. **Conclusión:** El cáncer gástrico afecta predominantemente al sexo masculino, con una media de edad superior a 60 años. El síndrome constitucional es el motivo de consulta más frecuente. El tipo Histológico más frecuente es el Adenocarcinoma intestinal.

Palabras claves: cáncer gástrico, Helicobacter pylori, Diagnóstico, clasificación.

INTRODUCTION

Gastric cancer is the fifth most common neoplasm worldwide. According to the World Health Organization (WHO),[1] in 2018, there were nearly 1 034 000 new cases of gastric cancer across the world (5.7% of all the cases of cancer reported). These data show that, although its incidence rate has gone down, mortality

rate still remains high[2]. The 5-year survival rate is 20% due to delayed diagnosis. However, in countries with advanced cancer screening programs, the 5-year survival rate is nearly 90%.[3]

Factors predisposing towards this neoplasm are the use of fatty, salty, and smoked food, alcohol, hot drinks, and a diet soft on fiber, fruit and vegetables, and the use of N-nitroso compounds.[4] Another predisposing factor is infection due to *Helicobacter pylori* that is a class I human carcinogen for gastric cancer of both subtypes (diffuse and intestinal).[5,6]

Early symptoms are non-specific, and similar to those of other gastric conditions. Epigastric pain is an early symptom in nearly 70% of the cases. Nausea, vomiting, early satiety, and constitutional syndrome (anorexia, asthenia, and weight loss).[5] The physical examination is normal at the beginning and only a third of the patients will show hidden blood in feces.[5]

Early diagnosis can be achieved through screening of large populations or targeted at higher-risk populations. This will depend on the prevalence of gastric cancer in the region at stake.[2] The standard diagnosis is gastroscopy with biopsy samples.[6]

Adenocarcinoma amounts to almost 90% of all stomach neoplasms.[7] It can be categorized according to Lauren classification into: the intestinal type (characterized by the formation of tubular structures arranged in tubular or gland formations). This type of adenocarcinomas are the ones most commonly associated with environmental and dietary factors. Also, they are predominant in regions of high incidence rate. The second type is the diffuse type. It consists of cells that lack adhesion and infiltrate the gastric wall without glandular appearance. It appears at younger ages in women and has a grim prognosis[8]. When a large section of gastric tissue is involved, it is called gastric linitis plastica.[9] Staging used is the TNM Classification of Malignant Tumors designed by the AJCC/UICC *(see table 1)*.[10]

Treatment is multidisciplinary and surgery is an important part since gross total resection is the only curative option.[11] Access route is often selected based on the TNM stage. Endoscopic mucosal resection, open or laparoscopic gastrectomy—whether typical or atypical—associated with lymphadenectomy are some of the surgical options available.[11] Gastrectomy can also be performed with palliative purposes.[12] To reinstate transit gastroduodenal anastomosis, techniques of Billroth I reconstruction, gastrojejunal anastomosis through Billroth II, gastrojejunal anastomosis in Roux-en-Y reconstruction, and jejunal

Table 1. TNM Classification of Malignant Tumors designed by the AJCC/UICC. Source: AJCC Cancer Staging Manual. 8th edition. Springer; 2017.10

Primary tumor (T)
Tx: Primary tumor cannot be assessed. **T0:** No evidence of primary tumor. **Tis:** Carcinoma in situ. **T1:** Tumor invades lamina propria, muscularis mucosae or submucosa. **T1a:** Tumor invades lamina propria or muscularis mucosae. **T1b:** Tumor invades submucosa. **T2:** Tumor invades submucosa propria. **T3:** Tumor invades all muscular layers. **T4:** Tumor invades serosa and peritoneum. **T4a:** Tumor has grown into the serosa. **T4b:** Tumor has grown into other organs.

Regional lymph nodes (N)
Nx: regional lymph nodes cannot be assessed. **N0**: No regional lymph node metastasis. **N1:** Metastasis in 1 to 2 regional lymph nodes. **N2**: Metastasis in 3 to 6 regional lymph nodes. **N3:** Metastasis in 7 or more regional lymph nodes. **N3a:** Metastasis in 7 to 15 regional lymph nodes. **N3b:** Metastasis in 15 or more regional lymph nodes.

Distant metastasis (M)
Mx: No distant metastasis. **M0:** Cancer did not spread to other parts of the body. **M1:** Cancer did spread to other parts of the body.

Stage	T y T and N	M
0	TisN0	M0
IA	T1N0	M0
IB	T2N0; T1N1	M0
IIA	T3N0; T2N1; T1N2	M0
IIB	T4aN0; T3N1; T2N2; T1N3a	M0
IIIA	T4aN1; T4aN2; T4bN0; T3N2; T2N3a	M0
IIIB	T1N3b; T2N3b; T3N3a; T4aN3a; T4bN1-2	M0
IIIC	T3N3b, T4aN3b, T4bN3a, T4bN3b	M0
IV	Any T and N	M1

and esophago-jejunal interposition reconstruction can be used, among others.[10]

Although, in our country, the actual incidence rate of gastric cancer is low, there is a great social impact due to its high mortality and morbidity. Diagnosis often comes late since symptoms are non-specific, and similar to those of other non-neoplastic gastric conditions, which reduces the chances of satisfactory curative treatment.[13]

The objective of this study was to know the clinical and social and demographic variations of patients with a diagnosis of gastric cancer at the General Surgery Unit of *Hospital Nacional de Itauguá*, Itauguá, Paraguay from January 2019 through September 2020.

MATERIALS AND METHODS

This is a descriptive, observational, retrospective, and cross-sectional study with non-probabilistic sampling of consecutive cases of all patients with a diagnosis of gastric cancer admitted to the General Surgery Unit of *Hospital Nacional de Itauguá*, Itauguá, Paraguay from January 2019 through September 2020. Inclusion criteria were age > 18 years regardless of sex, endoscopic and anatomopathological diagnosis of gastric cancer at the General Surgery Unit of *Hospital Nacional de Itauguá*, uninvolved gastroesophageal junction, and patients with complete health records. The health records of 24 patients who met the inclusion and exclusion criteria were included in the study. Data were analyzed using Microsoft Excel spreadsheet and frequency (%) and dispersion measures (SD) tables were used.

Bioethical principles were observed at all times: Information obtained was analyzed under confidentiality standards. Codes of the health records of each patient were used. No informed consent was required since data were drawn from the health records. No risk of non-maleficence or discrimination existed. No conflicts of interest were reported either.

Study limitations: the size of the sample was too small, which complicates result extrapolation. It is a descriptive study that does not create data associations. The General Surgery Unit of *Hospital Nacional de Itauguá* does not have echoendoscopy technology available for diagnosis or staging purposed, which could have reduced the diagnostic accuracy of TNM staging.
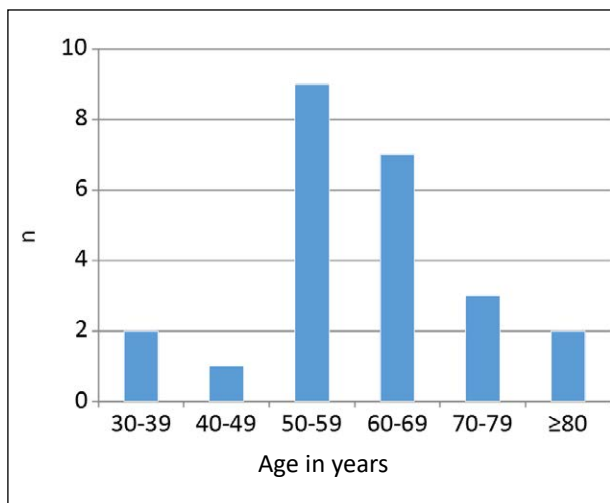
RESULTS

Out of the 24 patients included, 12.5% (3) were women and 87.5% (21) men. In the distribution based on the age group the larger number of cases was reported from 50 through 69 years old (see figure 1). Mean age was 61 years ± 10; median age was 62 years while mode was 52 years.

The most common reason for consultation was constitutional syndrome (47%) followed by abdominal pain (34%), upper digestive bleeding (13%), and early satiety (6%) *(see figure 2)*.

Regarding the origin of the patients, 92% (22) came from rural areas while 8% (2) from metropolitan areas. Concomitant infection due to *Helycobacter pylori*, according to the results of anatomical pathology examination of gastric biopsies that tested positive in 42% (10) and negative in 58% of the cases (14).

Preoperative stage according to the TNM Classification of Malignant Tumors was IIA in 17% (4), IIB in 17% (4), IIA in 13% (3) IIB in 4% (1), and stage IV in 50% (12). *Table 2.*

Out of all the patients, a total of 58% (14) received palliative care, and 33% (8) surgical treatment. Total gastrectomy was performed in all the cases with D1 plus or D2 node drainage and esophageal-jejunal reconstruction in Roux-en-Y. A total of 8% (2) of the patients died at the hospital without any surgical or palliative care. The most common histological type found in endoscopic biopsies and the anatomopathological findings of the surgical pieces from patients treated with surgery was the intestinal type in 50% (12) of the patients followed by the diffuse type [46% (11)] and non-Hodgkin lymphoma [4% (1)].

Table 2. Distribution of patients based on the TNM stage.

Stage	N	%
I A	0	0 %
I B	0	0 %
II A	4	17 %
II B	4	17 %
III A	3	13 %
III B	1	4 %
IV	12	50 %
Total	**24**	**100%**

Figure 1: Distribution of patients based on age group. N = 24.
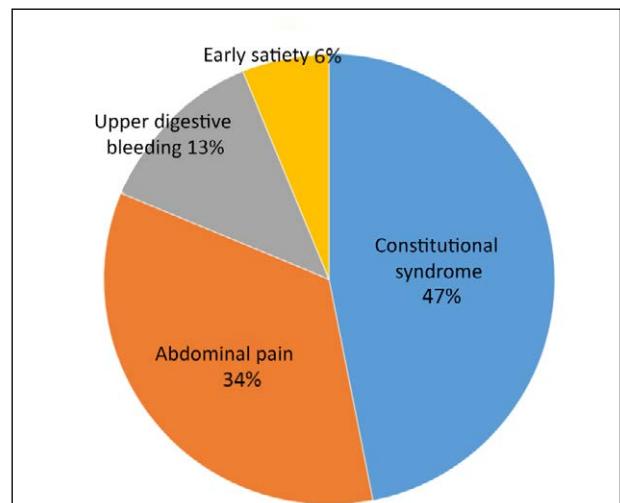

Figure 2: Distribution of patients based on reason for consultation.

DISCUSSION

Regarding the sex most commonly affected, masculine predominance was seen in 88% of the cases, which is consistent with data from World Cancer Research Found International that reports rates that are 2 or 3 times higher in men.[14] Opposing data were found by Dávila et al. who reported feminine predominance in 33 020 patients (64%).[15]

Mean age of patients with gastric cancer was 61 ± 10 years. In a study conducted by Dávila et al. in Costa Rica back in 2018, they saw that the mean age of patients with gastric cancer was 61.8 years, which are similar figures compared to those reported in our study[15]. Mean age of 68% of the population was somewhere between 50 and 69 years.

The most common reason for consultation was constitutional syndrome in 47% of the cases (a clinical manifestation of advanced disease) followed by abdominal pain (34%) according to the studies conducted by Carnecelli et al. who found pain as the first clinical sign of gastric cancer in 40 patients.[16] Upper digestive bleeding and early satiety are a rare finding as first clinical signs and are associated with advanced disease.[15] Similarly, the predominance of gastric cancer in patients from rural areas of 92% contradicts the data provided by Dávila et al. who found a similar distribution in metropolitan and rural areas with a large bias though.[15] This could be representative of sample bias because our center is geographically located outside the city limits of Asunción, Paraguay, where there is a huge population of patients from across the country.

The presence of *Helicobacter pylori* in 42% of the patients is slightly higher compared to the data provided by De León et al. and Hernández et al. who found prevalences of 32% and 39%, respectively.[17]

At diagnosis, 34% of the patients already had locoregional disease and the remaining 66% regionally advanced disease. None of the patients was diagnosed at the early stages of the disease, which can be due to delayed consultations since symptom onset. Treatment was palliative in 58% of the patients (a very high rate). However, this is what could be expected when cancer is diagnosed at late stages of the disease.

Regarding the histological type, the intestinal-type adenocarcinoma is still the most common of the two (reported in up to 50% of the cases) while the rate of diffuse-type adenocarcinoma is 46% (which is higher compared to other studies conducted in the region). For example, in Ecuador, Muñoz et al. found the intestinal type to be the most common one in 64.5% of the cases while the diffuse one was only the most common type in 29.0% of the patients.[18] In Brazil, Carnicelli et al. also found predominance of the intestinal type in 68% of the patients with predominance of the diffuse type in 25% of the cases only.[16]

CONCLUSION

Gastric cancer predominantly affects men with a mean age of 61 years ± 10 at diagnosis. Constitutional syndrome is the most common reason for consultation in our population. Upper digestive bleeding and early satiety are a rare finding as the first clinical presentation. This type of cancer is predominant in patients from rural areas.

The presence of *Helicobacter pylori* is commonly detected at diagnosis. According to the TNM Classification of Malignant Tumors no gastric cancer was found in its early stages in our population. The most common histological type is still intestinal adenocarcinoma with increasing figures in the diffuse type.

Conflicts of interest

The authors declared no conflicts of interest whatsoever. Also, they observed ethics and good practices of the publishing house. No external funding was ever received to conduct this study.

REFERENCES

1. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global Cancer Statistics 2018: GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. CA: A Cancer Journal for Clinicians. 2018. doi:10.3322/caac.21492

2. Buján Murillo S, Bolaños Umaña S, Mora Membreño K, Bolaños Martínez I. Carcinoma gástrico: revisión bibliográfica. Med. leg. Costa Rica [Internet]. 2020 Mar [cited 2021 Nov 04] ; 37(1): 62-73. Available from: http://www.scielo.sa.cr/scielo.php?script=sci_arttext&pid=S1409-00152020000100062&lng=en

3. F-Giralt, M, et al. Introduction of the new lymphoparietal index for gastric cancer patients. ABCD. Arquivos Brasileiros de Cirurgia Digestiva (São Paulo) [online]. 2019, v. 32, n. 02 [Accessed 9 November 2021] , e1441. Available from: <https://doi.org/10.1590/0102-672020190001e1441>. Epub 26 Aug 2019. ISSN 2317-6326. https://doi.org/10.1590/0102-672020190001e1441

4. Sierra R. Cáncer gástrico, epidemiología y prevención. Acta méd. costarric [Internet]. 2002 June [cited 2021 Nov 04] ; 44(2): 55-61. Available from: http://www.scielo.sa.cr/scielo.php?script=sci_arttext&pid=S0001-60022002000200003&lng=e

5. Rojas-Montoya V, Montagné N. Generalidades del cáncer gástrico. Rev Clin Esc Med. 2019;9(2):22-29. DOI: 10.1016/S0304-5412(13)70487-6

6. Moss SF. The Clinical Evidence Linking Helicobacter pylori to Gastric Cancer. Cellular and Molecular Gastroenterology and Hepatology, 2017. 3(2), 183–191. doi:10.1016/j.jcmgh.2016.12.001

7. Fuchs CS, Mayer RJ. Gastric Carcinoma. New England Journal of Medicine, 1995. 333(1), 32–41. doi:10.1056/nejm199507063330107

8. Van Cutsem E, Sagaert X, Topal B, Haustermans K, Prenen H. Gastric cancer. The Lancet. 2016. 388(10060), 2654–2664. doi:10.1016/s0140-6736(16)30354-3

9. Feldman M, Friedman L, Brandt L. Sleisenger and Fordtran's gastrointestinal and liver disease. 10th ed. Elsevier Saunders; 2015.

10. Amin MB, Greene FL, Edge SB, et al. The Eighth Edition AJCC Cancer Staging Manual: Continuing to build a bridge from a population-based to a more "personalized" approach to cancer staging. *CA Cancer J Clin*. 2017;67(2):93-99. doi:10.3322/caac.21388

11. Hiki N, Sano T, Fukunaga T, Ohyama S, Tokunaga M, Yamagu-chi T. Survival Benefit of Pylorus-Preserving Gastrectomy in Early Gastric Cancer. Journal of the American College of Surgeons. 2009. 209(3), 297–301. doi:10.1016/j.jamcollsurg.2009.05

12. Bourke MJ, Neuhaus H, Bergman JJ. Endoscopic Submucosal Dissection: Indications and Application in Western Endoscopy Practice. Gastroenterology. 2018. 154(7), 1887–1900.e5. doi:10.1053/j.gastro.2018.01.068

13. Kasamatsu E. Carcinoma Gastrico en el Paraguay Un analisis patológico de 1100 casos en 40 años. Anales de la Facultad de Ciencias Medicas de la UNA. 2004. 37 (1-2). 46-54. Disponible en: http://archivo.bc.una.py/index.php/RP/article/view/471

14. World cancer research fund international. Stomach cancer statistics. Disponible en: http://www.wcrf.org/int/cancer-facts-figures/data-specific-cancers/stomach-cancer-statistics.

15. Dávila Meneses A, Quintanilla Retana F, Castillo Araya K, Sánchez Ortiz L, Barquero Uriarte T, Romero Zúñiga JJ. Caracterización clínica y epidemiológica de la población tamizada en el centro de detección temprana de cáncer gástrico, costa rica: período 1996-2015. Rev. costarric. salud pública [Internet]. 2018 Dec [cited 2021 Nov 06] ; 27(2): 68-81. Available from: http://www.scielo.sa.cr/scielo.php?script=sci_arttext&pid=S1409-14292018000200068&lng=en.

16. Carnicelli C, Okubo T, Zanotto A Tolosa EM, Goffi FS. Cancer gas-trico - reavaliacao dos metodos de diagnostico. / Gastric cancer- reevaluation of the methods of diagnosis. rev. Assoc. Med. Bras *; 1981, 27(12): 362-4.*

17. Rollán A, Cortés P, Calvo A, Araya R, Bufadel ME, González R, et al. Diagnóstico precoz de cáncer gástrico: Propuesta de detección y seguimiento de lesiones premalignas gástricas: protocolo ACHED. Rev. méd. Chile [Internet]. 2014 Sep [citado 2022 Feb 11] ; 142(9): 1181-1192. Disponible en: http://www.scielo.cl/scielo.php?script=sci_arttext&pid=S0034-98872014000900013&lng=es. http://dx.doi.org/10.4067/S0034-98872014000900013.

18. Muñoz-Cedeño R, Martínez P, Paullán-Sani V, Rodríguez-Chica G. Caracterización clínica, histológica y endoscópica del cáncer gástrico en el Hospital de Especialidades Dr. Abel Gilbert Pontón, Ecuador. Rev Colomb Gastroenterol. 2021;36(1):163-171. https://doi.org/10.22516/25007440.558