AMERICAN JOURNALS
Open Access, Peer Reviewed Journals

American Journal of Pedagogical and Educational Research
ISSN (E): 2832-9791| Volume 23, | April - 2024

GASTRIC CANCER, INCIDENCE AMONG PATIENTS REFERRED TO JAMHURIAT HOSPITAL, KABUL, AFGHANISTAN; A CROSS-SECTIONAL STUDY, 2023

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A B S T R A C T

Background: Gastric cancer (GC) is the 4th most common cancer and the second most deadly cancer in the world. GC is caused by abnormal growth of gastric cells and tissues. Physical factors, infections, and genetic factors are the main risks of the disease.
Purpose and Method: This study aims to investigate the prevalence of GC in patients referred to the Jamhuriat Hospital in Kabul during 2023. This study was a descriptive, cross-sectional study that was collected from the Office of the Jamhuriat Hospital's Oncology Department in 2023.
Results: In 2023, 117 patients were referred to the Jamhuriat Hospital. The prevalence of GC was (2.6%). The prevalence of GC was observed mostly in ages between 81-80 years (44.4%), male (79.5%), the Pashton race (47.9%), and smoking (61.5%). Chemotherapy (55.6%) was the common GC therapy. Most married patients, self-employed, illiterate, rural residents have several children and normal weight.
Conclusion: GC is one of the most common cancers in the world, and especially in Asia, with the number of new cases growing annually. This requires observance of prevention protocols and public awareness of the risk factors.

K E Y W O R D S

Gastric cancer, incidence, and Jamhuriat Hospital.

Introduction

Cancer is a disorder in the growth of body cells caused by abnormal proliferation of cancer cells. Cells that grow more than their normal size become tumors. Tumors can be benign or malignant. Benign tumors cannot merge with nearby cells, but malignant tumors can spread to other tissues or organs, called metastasis. The malignant process of cancer cells is a closed and complex multi-stage program in which various factors (carcinogens) play a role (1). In 2012, 14.1 million new cancer events were

recorded, and 8.2 million cancer patients died. The prevalence of cancer in 2030 is likely to be 21.7 million new cases and deaths of 13 million cancer patients (2). Gastric cancer (GC) is one of the most common cancers in the world, with the highest incidence in the countries of Western Asia, Latin America, and the former Soviet Union. The incidence among Japanese, Korean, and Iranian males was 66.7, 64.6, and 30.4%, respectively (3). Every year, more than 990,000 patients with GC are diagnosed worldwide, of which 738,000 die. Considering the incidence and mortality statistics of GC patients, GC is the fourth most common cancer and the second most common cause of death among cancer patients (4). According to studies in India, GC (18.5%) includes digestive system cancers. (5)GC is a common digestive system cancer, with more prevalence among men than women (6). In 2020, about 1089103 new cases of GC were recorded worldwide. The highest prevalence in China is 478508, Japan 200470, and India 60222. In other countries, such as Russia, 37364, Germany, and Iran, respectively, 15322 and 14656 new GC cases (7). In 2023, 1,958,310 new cases of cancer were registered in the USA, of which 52% were men and 48% were women. Among the cancer patients, 26,500 had GC, of which 60.11% were men. In this year, 11,130 deaths due to GC were also recorded, and 60.10% of the deceased patients were men. Therefore, it can be noted that the incidence and mortality rates of GC are higher among men than among women (8). GC has been the fifth most common cancer in the world, the prevalence of GC in Eastern countries is higher than in other countries, and the prevalence of GC in East Asian countries in 2023 is almost twice that of Europe (9). GC can be classified according to its anatomical location and molecular mechanism. Considering its anatomical position in the stomach, GC is divided into two categories: 1) cardia, and 2) non-cardia. Considering its molecular features, gastric cancer is divided into 4 categories: 1)Epstein Barr Virus (EBV), 2) Microsatellite unstable (MSI), 3) genomically stable, and 4) chromosomally unstable (10). GC risk factors are divided into 3 categories 1) physical factors, 2) infections, and 3) genetic factors (11). GC is a multifactorial disease in which environmental and genetic factors play major roles. Other risk factors include old age, male sex, smoking and alcohol consumption, race, bacterial and viral infections, economic problems, consumption of salty foods, insufficient consumption of fruits and vegetables, lack of physical activity, radius, obesity, and poor hygiene of mouth and teeth also play a role in the development of the disease (4). Age is one of the most common risk factors for GC. According to demographic studies, GC patients have been observed between 75-64 years (average 70 years). Most of the physiological changes in the causes of this disorder (4). In the study, the prevalence of GC between 2017-2011 was about 6 % of GC patients were younger than 45 (12). In India, there was also a prevalence of GC among young people, and the age of young people with GC was lower than in other countries (13). The prevalence of GC events was also different. Compared to the female, the male is one of the risk factors for GC. The prevalence of Cardia, and Non-Cardia GC in men are 5 and 3 times higher than in women respectively (4). Studies from Turkey have reported the incidence of GC for men (22.1%) and women (7.1%) (14). Although the cause of this difference is not properly recognized until now, men are more likely to develop cancer due to being in contact with cancer. Physiological differences in male and female gender also contribute to GC. Sexual hormones of estrogen, delayed menopause, and increased ovulation in women reduce the risk of GC. In contrast, the use of estrogen inhibitors such as Tamoxifen increases the risk of GC for women. Smoking and other tobacco are also risk factors for GC. smoking for men by (60 %), and women by (20 %) increases GC. The race is also one of the other factors susceptible to GC. Studies have been more susceptible to GC than other breeds. Studies of cardia GC patients have shown that GC is twice as much as other

breeds for whites and other breeds are more susceptible to non-cardia GC. Bacterial infections are also involved in the development of GC. Helicobacter pylori (H. Pylori) causes GC due to cytotoxin-associated gene A. The bacterium causes (65-80%) of GC cases, with 660,000 patients suffering from GC due to H. Pylori (4). H. pylori infections are the most common risk of non-cardia GC (12). The socio-economic situation has also been involved in the incidence of GC and is one of the major risk factors for GC in developing countries. The prevalence of GC is greater in families with less income and GC awareness because a lack of awareness of the risk factors and lack of access to proper food is involved in GC. The diet also affects GC. Salf-preserved food consumption plays an important role in causing GC. Eating these foods increases the risk of GC by (22%). In contrast, consuming fresh fruits and vegetables reduces GC. Consuming 50 gr of fresh vegetables daily reduces the incidence of GC by (22%). The presence of active and anti-cancer ingredients in fresh fruits and vegetables causes the activity of carcinogenic substances to stop in the body (15,16). Obesity and overweight are also affecting GC. According to studies, BMI can increase GC cardio between 30 and 35 and BMI more than 40 to three times. So far, the relationship between obesity and the prevalence of non-cardia GC has not been proven. Regular exercise also prevents GC. Regular exercise and physical activity reduce cardia and non-cardia, respectively, by about (20%) and (37%) respectively (5). The prevention of GC outbreaks is divided into two categories. The first category includes primary prevention measures that are aimed at reducing contact with GC factors. The second category contains secondary prevention measures that aim to identify and treat rapid GC (7). Treatment of advanced gastric cancer has been one of the most challenging treatments in the last 2 decades. Chemotherapy is usually used for the treatment of non-advanced gastric cancer; however, combined chemotherapy and surgery are used for treating advanced GC. In human epidermal receptors 2 GC, trastuzumab is used as the first line of treatment, and ramucirumab as the second line of treatment (10). In a study by Mabula et al. at Bugando Medical Center in the United States, 232 patients were diagnosed with GC from 2007 to 2011. Most of these patients were between 51 and 60 years old (53.4%), most of the tumors were located in the antrum region (56.5%), and most of the GC patients (52.3%) had wound infections (17). In a similar study conducted by Barad et al. at the Regional Cancer Center, RIMS, Manipur, India, 158 patients were diagnosed with GC between 2009 to 2013. Among these patients, (68.4%) were male, (42.2%) were older than 60 years, and (60.12%) were smoking (18). Warsinggih et al. conducted a descriptive cross-sectional study on the prevalence of GC in Indonesia. In this study, GC patients referred to Eastern Indonesia Hospital were examined between 2016 to 2019, during which 64 patients with GC were identified. Among these patients (56%) were women and (46.9%) were between 50 and 69 years old (3). In another similar study, Kamran et al. examined patients with GC referred to Fatima Hospital in Pakistan between 2016 to 2019. In this study, 1193 patients with symptoms and signs of GC were referred to the hospital. Among 1193 patients, 727 patients were diagnosed with pathological findings of the digestive system, so 170 patients were diagnosed with GC. (58.23%) GC patients were less than 40 years old, (53.52%) were male patients, (48.23%) were Pashton patients, (48.82%) were normal BMI patients, and (81.17%) were out-patients (19). In 2021, Rahimi et al. also investigated the prevalence of GC among patients referred to the Tohid Hospital in Sanandaj city. In this study, 553 patients with GC were diagnosed, of which (74.5%) were men, (57%) were between 60-80 years old, (56.6%) had a history of smoking, and (61.3%) patients used chemotherapy to treat GC (20).

PURPOSE & RESEARCH METHOD

The purpose of this study was to evaluate the prevalence of GC at the Jamhuriat Hospital in Kabul during 2023. This descriptive cross-sectional study was collected from the Office of Cancer Registration office from the Jamhuriat Hospital's oncology department by the questionnaire. The data was analyzed after collection by Ikel and SPSS 27. programs.

RESULTS

Based on the study, 93 patients (79.5%) of the 117 patients were men, and 24 patients (20.5%) of them were women. The average age of men and women was 59.27 and 49 years, respectively, and the most common age of the GC was diagnosed in men aged 61-80 years and in women aged 41-60 years. The relative frequency distribution of the studied subjects based on age group is given in Table (1).

Table (1): Frequency distribution of EC patients based on age

Age (year)	Male		Female	
	Frequency (n)	Percent (%)	Frequency (n)	Percent (%)
Less than 20	3	2.56	0	0.00
21-40	1	0.85	8	6.83
41-60	41	35.04	9	7.69
61-80	45	38.46	7	5.98
Up 80	3	2.56	0	0.00

The incidence rate in this research was 2.6%. 5 patients (4.3%) were single, 107 (91.5%) were married, and 5 (4.3%) were widows. 56 patients (47.9%) were from Pashton, 28 patients (23.9%) were Tajik, 16 patients (13.7%) were Hazara and 17 patients (14.5%) were from other ethnic groups. Out of all the people studied, 77 patients (65.8%) were unemployed, 21 patients (17.9%) were employees, and 19 patients (16.2%) were housewives. 103 patients (88%) were poor and 14 patients (12%) were rich. 71 patients (60.7 %) were illiterate, 35 patients (29.9 %) had primary literacy, 7 patients (6 %) had secondary literacy and 4 patients (3.4 %) had university literacy. Geographically, 10 patients (8.5%) were from Kabul and 107 patients were from the provinces, of which 76 patients (64.9%) were from the districts and 31 patients (26.4%) were from the center of the provinces. 26 patients (22%) have a BMI less than 18.5, 71 patients (60.7%) have a BMI between 18.6-24.9, 16 patients (13.7%) have a BMI between 25-29.9 and 4 patients (3.4%) have a BMI between 18.6-24.9. 5 patients (4.3%) had no children, 29 patients (24.8%) had one to three children, and 83 patients (70.9%) had more than three children. 65 patients (55.6%) of them had a history of chemotherapy and 52 patients (44.4%) of them had no history of chemotherapy. 54 patients (46.2%) had curative symptoms and 63 patients (53.8%) had palliative symptoms. 31 patients (26.5%) had a family history of cancer and 86 patients (73.5%) did not have a family history of cancer. 23 patients (19.7%) had a history of using anti-cancer drugs, and 94 patients (80.3%) had no history of using anti-cancer drugs. 72 patients (61.5%) were smokers, and 45 people (38.5%) had no history of using cigarettes. 93 patients (79.5%) have symptoms of Adenocarcinoma (AC), 5 patients (4.3%) of them have symptoms of Squamous Cell Carcinoma (SCC), 9 patients (7.7%) of them have symptoms of Lymphoma, and 10 patients (8.5%) have symptoms of Carcinoma of Gastric Junction (CGJ). The relative frequency distribution of the GC patient's information is given in Table (2).

Table (2): Demographic information of all 82 EC patients

Variables		Frequency (n)	Percent (%)
Gender	Male	93	79.5
	Female	24	20.5
Age	Less than 20	3	2.6
	21-40	9	7.7
	41-60	50	42.7
	61-80	52	44.4
	Up 80	3	2.6
Marital status	Single	5	4.3
	Married	107	91.5
	Widow	5	4.3
Ethnicity	Pashton	56	47.9
	Tajik	28	23.9
	Hazara	16	13.7
	Others	17	14.5
Occupation	Self-employed	77	65.8
	Employee	21	17.9
	Hose wife	19	16.2
Economic level	Poor	103	88
	Rich	14	12
Education level	Illiterate	71	60.7
	Primary	35	29.9
	Secondary	7	6
	High	4	3.4
Residence	Kabul	10	8.5
	Other provinces	107	91.5
BMI	Less than 18.5	26	22.2
	18.6- 24.9	71	60.7
	25- 29.9	16	13.7
	Up 30	4	3.4
Parity	None	5	4.3
	1-3	29	24.8
	Up 3	83	70.9
Chemotherapy	Yes	65	55.6
	No	52	44.4
Family history	Yes	31	26.5
	No	86	73.5
Smoking	Yes	72	61.5
	No	45	38.5
Types of EC	AC	93	79.5
	SCC	5	4.3
	Lymphoma	9	7.7
	CGJ	10	8.5

DISCUSSION

The prevalence of GC is older, as (44.4%) of GC patients were between 80-61 years old. These results are similar to the results of studies in Iran (20), India (18), Indonesia (3), and the US (17). GC patients in Iran were between 80-60 years (57%), in India over 60 years (42.4%), in Indonesia 69-69 (47%), and in the US 51-60 years (53.4%). In Pakistan (19), the prevalence of GC has been greater among young people. (58.23%) GC patients were less than 40 years. The reason for this difference can be

attributed to being in contact with carcinogenic factors. The prevalence of GC in males has been greater than in females. (79.5%) GC patients were male. These results are similar to studies in India (18), Iran (20), and Pakistan (19). In India (68.4%), in Iran (74.5%), and in Pakistan (53.52%) male patients have GC. But in Indonesia (56%) female patients are GC. This difference is also due to the risk of GC factors (3). The prevalence of GC in different races also varies. The Pashtun race in this study was the highest breed with GC (47.9%), which is similar to studies in Pakistan (19). In a study conducted in Pakistan, the Pashton breed (48.82%) constitutes GC patients. The reason for this difference is the genetic factors and their population. The prevalence of GC in people with marital status, self-employed, poor economic situation, multiple children, and rural residences has been higher than others. The reason for this difference can be considered socio-economic conditions. Although obesity and overweight are also some of the factors in GC, the majority of patients have GC. Chemotherapy was common in this study (55.6%) in GC patients. These statistics were similar to the study in Iran (61.1%) (20). The reason for this similarity can be the same as the patient's state. Family history is also one of the risk factors for GC. In this study (26.5%), GC patients had a family history of GC, and genetics can be considered as one of the causes of GC. In this study (61.5%), patients were smokers, which is similar to studies in Iran (20), and India (18). In Iran (56.6%), and India (60.12%), GC patients use cigarettes. Smoking is one of the major risk factors for GC. The type of GC is also different in patients, with the most common type of GC in this study being adenocarcinoma, which can be attributed to the difference in the physiological properties of the patient.

CONCLUSION

GC is one of the most common cancers in the world and Asia. New cases of this cancer are increasing annually. This cancer occurs mostly at an early age, and females, the main cause of which is to be exposed to the risk of GC factors. The prevalence of GC factors can be prevented by providing public awareness of the risk factors of GC.

Declaration Of Competing Interest: The authors declare that there is no conflict of interest.

Acknowledgment:
The researchers are grateful to all the patients, and staff of Jamhuriat hospital.

REFERENCES

1. Barzaman K, Karami J, Zarei Z, Hosseinzadeh A, Kazemi MH, Moradi-Kalbolandi S, et al. Breast cancer: Biology, biomarkers, and treatments. Int Immunopharmacol. 2020;84(February).
2. Pakzad R, Khani Y, Pakzad I, Momenimovahed Z, Salehiniya H, Towhidi F. Spatial Analysis of Stomach Cancer Incidence in Iran. 2016;17:27–32.
3. Syarifuddin E, Erasio R, Labeda I, Sampetoding S, Iwan M, Ihwan M, et al. Association of clinicopathological features and gastric cancer incidence in a single institution. Asian J Surg [Internet]. 2022;45(1):246–9. Available from: https://doi.org/10.1016/j.asjsur.2021.05.004
4. DeSantis C, Ma J, Bryan L, Jemal A. Breast cancer statistics, 2013. CA Cancer J Clin. 2014;64(1):52–62.

5. Shakuntala TS, Krishnan SK, Das P, Sudarshan L, Kotian CM, Santhappan S, et al. Descriptive Epidemiology of Gastrointestinal Cancers : Results from National Cancer Registry Programme , India. 2022;23:409–18.
6. Zhou J, Wang S, Wei W. Gastric and esophageal cancer in China 2000 to 2030 : Recent trends and short- - term predictions of the future burden. 2022;(December 2021):1902–12.
7. Yan X, Lei L, Li H, Cao M, Yang F, He S, et al. Stomach cancer burden in China : Epidemiology and prevention. 2023;35(1):81–91.
8. Grunberg SM. The role of progesterone receptors in meningioma. Cancer Treat Res. 1991;58(January):127–37.
9. Shin WS, Xie F, Chen B, Yu P, Yu J, To KF, et al. Updated Epidemiology of Gastric Cancer in Asia : Decreased Incidence but Still a Big Challenge. 2023;
10. Harbeck N, Gnant M. Breast cancer. Lancet [Internet]. 2017;389(10074):1134–50. Available from: http://dx.doi.org/10.1016/S0140-6736(16)31891-8
11. Article R. Gastric cancer in Jammu and Kashmir , India : A review of genetic perspectives. 2022;873–9.
12. Kim GH, Liang PS, Bang SJ, Hwang JH. Screening and surveillance for gastric cancer in the United States : Is it needed ? 2016;84(1).
13. Maheshwari U, Sharma M, Goel V, Goyal P, Jain P. Clinical Pro fi le and Outcomes of Treatment in Gastric Cancer in Young Patients in India. 2022;111–8.
14. Journal T, Public OF. Clinical and epidemiological characteristics of cancer cases reported between 2013-2017 in Amasya. 2023;21(1).
15. DeSantis CE, Ma J, Gaudet MM, Newman LA, Miller KD, Goding Sauer A, et al. Breast cancer statistics, 2019. CA Cancer J Clin. 2019;69(6):438–51.
16. Akbarpour E, Sadjadi A, Derakhshan MH, Roshandel G. IRANIAN Gastric Cancer in Iran : An Overview of Risk Factors and Preventive Measures. Acad Med Sci IR Iran [Internet]. 2021;24(7):556–67. Available from: https://doi.org/10.34172/aim.2021.79
17. Mabula JB, Mchembe MD, Koy M, Chalya PL, Massaga F, Rambau PF. Gastric cancer at a university teaching hospital in northwestern Tanzania : a retrospective review of 232 cases. 2012;1–10.
18. Barad AK, Mandal SK, Harsha HS, Sharma BM, Singh TS. Gastric cancer — a clinicopathological study in a tertiary care centre of North-eastern India. 2014;5(2):142–7.
19. Kamran M, Khalid A Bin. Epidemiology of premalignant and malignant upper gastrointestinal lesions among patients presenting from a rural community in Karachi , Pakistan. 2023;39(3):858–62.
20. Rahimi M, Roshanaei G. Stomach Cancer in Patients Referred to Tohid Hospital in Sanandaj , 2012 - 2018 : An Epidemiological Study. 2021;9(1):1–4.