

Evaluation of the Prevalence of Upper Gastrointestinal Cancers in Khorramadad

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Abstract

Background

Gastrointestinal cancer is one of the leading causes of cancer-related deaths and its incidence varies based on geographical, demographic, genetic and clinical factors. In this study, we aim to investigate the frequency of upper gastrointestinal cancers in patients referred to the endoscopy department Shohada Ashayer and Shahid Rahimi Hospital of Khorramabad from 2015-2019.

Methods

This research is a descriptive observational study where patients suspected for gastrointestinal cancer were included. These patients underwent endoscopy where samples from suspected cancer patient were subjected to histopathological analysis for confirmation. Demographic data along with the findings from endoscopy and pathology and details regarding the lesions (type and location) and the causes of lesions were recorded in the checklist for all the patients.

Results

Of 1274 patients, 630 (49/5%) were male and 644 (50/5%) were female. The mean age of the patients was 50 years. The Frequency of stomach cancer was 194 (16.7%) and that of esophageal cancer was 123 (9.7%).

The most common type of pathology in esophageal cancer was squamous cell carcinoma with 91 cases (73.9%) and in the stomach were all cases were of adenocarcinoma. The distal part of the esophagus was most affected, 88 cases (72.2%) and cardiac end in the stomach. with 98 cases (50.5%) . The frequency of cancer was significantly higher in men and in patients aged above 60 years, $p < 0.05$, respectively.

Conclusion

According to the results of the study, gastric cancer is the most common upper gastrointestinal cancer in regional population, followed by esophageal cancer.

Introduction

In recent years, the major cause of death in human societies has changed from infectious diseases to non-communicable diseases (1). Cancer, as a non-communicable disease, is the cause of 13% of all deaths in the world (2). 56% cancer cases and 64% of deaths due to cancer occur in developing countries (3). Cancer in developing countries is the second leading cause of death after cardiovascular disease (4). In the population of 70.4 million in Iran, 50,000 new cases of cancer are reported, annually (5) and after cardiovascular disease and accidents, it is the third leading cause of death (6). Gastrointestinal cancer as

the most common cancer in both the sexes and accounts for 38% of the total cancer cases (7). Out of every 100 deaths due to cancer, 22 are due to gastric cancer where 6 are due to esophageal cancer (8).

In 2012, gastric cancer was recognized as the fifth most common cancer in the world and the third leading cause of cancer death, more than half of which occurred in East Asia, especially China. In Iran, as the second most common cancer, it is 2 times more common in men than women (9) and is most prevalent in the northern parts, especially in the northwest of the country, as well as south of the Caspian Sea (4,9).

Unfortunately, gastrointestinal cancers are diagnosed when they are in advanced stages, at which medical procedures cannot provide the possibility of recovery and long-term survival for patients. Therefore, early diagnosis of gastrointestinal cancers with the intervention of medical procedures allows patients to recover (8). As a result, it is necessary to implement programs to prevent or diagnose gastrointestinal cancers in regions with high prevalence. The present study aimed to investigate the prevalence of upper gastrointestinal cancers in patients referred for the endoscopy at two of the largest health care centers in Khorramabad, Iran.

Methods

This study is a descriptive cross-sectional study in which all patients with gastrointestinal symptoms that were candidates for endoscopy at Shohada-ye Ashayer Hospital and Shohada-e-Ashayer and Shahid Rahimi Hospital of Khorramabad from 2015–2019 were included.

The sample collection method was census; inclusion criteria include all patients who referred to the two centers for endoscopy during the study period where cancer was confirmed based on endoscopic and pathological findings.

Patients records with incomplete data or undetermined findings from pathology or endoscopy were excluded from the study. These findings were noted in a checklist that was based on each patient ID.

The data collection tool was a researcher-made checklist that included the patient ID, demographic information (age and sex), endoscopy and pathology findings of various parts of the esophagus, stomach and duodenum such as, esophageal lesions such as hiatal hernia, esophagitis, Mallory Weiss tear, Barrett esophagus, varicose veins, malignancies, etc. in the proximal, middle and distal parts based on their anatomical location, and gastric lesions such as erythema, ulcer, atrophy, erosion, nodularity, malignancy, etc, duodenal lesions such as erythema, ulcer, erosion, atrophy, diverticulum, etc. related to the bulb or D2. If the biopsy was prepared for pathology, its anatomical location was recorded in the checklist. In case of any suspicion of cancer, a biopsy was performed. The findings were recorded based on their location For example, esophageal pathology findings were recorded in the proximal, medial, or distal areas, and gastric pathology findings were recorded in the cardia, fundus, airway, or antrum, and duodenal pathology findings were recorded in the bulb or D2. In addition to the location of the tumor, specific types of tumors (adenocarcinoma, squamous cell carcinoma) were recorded. And were statistically analyzed.

The study was approved by the research ethical committee of Shohada Ashayer Hospital and Shohada Ashayer and Shahid Rahimi Hospital of Khorramabad under registration number IR.LUMS.REC.1397.011.

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Results

In this descriptive study, 1274 people were studied. Of these, 630 (49.5%) were male and 644 (50.5%) were female. The mean age of patients was 50.7 ± 16.4 years (14–96 years).

Based on endoscopic observations, the frequency of lesions suspected of malignancy in the upper gastrointestinal tract (Esophagus, stomach and duodenum) was 16.8% (n = 215) which was 25.7% (n = 320) after biopsy and histopathological confirmation. As reported in table 1 and 2,, based on endoscopic observations and histological findings, gastric cancer and esophagus cancer were the most common cancers of the upper gastrointestinal tract, 16.7% and 8.6%, respectively.

Based on endoscopic observations of the upper gastrointestinal tract, the middle part in the esophagus with 68.2%, the cardiac region in the stomach with 53.2% and the D2 region of the duodenum with 100% were the most common anatomical sites involved. Based on the pathological findings of the upper gastrointestinal tract, the distal part of the esophagus with 72.2%, the cardiac region in the stomach with 50.5% and the D2 region in the duodenum with 100% are the most common anatomical sites involved.

In patients with esophageal cancer compared to those without cancer, cases of esophagitis, hiatal hernia and Candidiasis were less observed, but this difference was significant for esophagitis and hiatal hernia $p < 0.05$. In patients with and without gastric cancer, the cases of gastritis, intestinal metaplasia, dysplasia and *Helicobacter pylori* infection were less observed, but this difference was significant for gastritis and *Helicobacter pylori* infection $p < 0.05$, where *Helicobacter pylori* infection was more in cancer patients. Among patients with and without gastric malignancy, the incidence of ulcers was higher (25.3%), which was statistically significant, $p < 0.05$. Patients with duodenal cancer were less likely to have ulcers and duodenitis than those without cancer, but this difference was not significant $p > 0.05$.

The frequency of upper gastrointestinal cancers was significantly higher in men than women, $p < 0.05$. The frequency of upper gastrointestinal cancers in the age group of more than 60 years was also significantly higher than other age groups, $p < 0.05$. The most common reason for patients to refer for endoscopy was abdominal pain (473 patients, 37.1%) and dyspepsia 28.8%. Pathologically, patients with dysphagia (72.6%) and peptic ulcer history (75%) and nausea were had greater incidence of upper gastrointestinal cancers (Table 3).

Table 1
Frequency of upper gastrointestinal cancers based on endoscopic observations.

upper gastrointestinal cancers	Positive histological findings	Negative histological findings	Total
	Number(%)	Number(%)	
Esophagus	104(8.2)	1170(91.8)	1274(100)
Stomach	109(8.6)	1165(91.4)	1274(100)
Duodenum	2(0.2)	1272(99.8)	1274(100)

Table 2
Frequency of upper gastrointestinal cancers based on histological findings.

upper gastrointestinal cancers	Positive histological findings	Negative histological findings	Total
	Number(%)	Number(%)	
Esophagus	123(9.7)	1151(90.3)	1274(100)
Stomach	194(16.7)	1080(83.3)	1274(100)
Duodenum	3(0.9)	1271(90.1)	1274(100)

Table 3
Frequency of upper gastrointestinal cancers by type of cancer.

	Esophageal malignancy	Stomach malignancy	Duodenal malignancy
	Number(%)	Number(%)	Number(%)
adenocarcinoma	32(26.1)	94(100)	3(100)
squamous cell carcinoma	91(73.9)	0	0

Out of 123 cases of esophageal cancer, 91 cases (73.9) were of squamous cell carcinoma and 32 cases (26.1) were adenocarcinoma. All cases of gastric and duodenal cancer were of adenocarcinoma.

Discussion

Since the incidence of gastrointestinal cancers in Iran is very high (68), this study investigated the frequency of upper gastrointestinal cancers in patients referred to Shohada Ashayer Hospital and Shohada Ashayer and Shahid Rahimi Hospital. A study indicating the trend of gastric malignancies in among two large cities in Iran (Tehran and Shiraz) has reported that there has been a sharp increase in colorectal cancer, moderate increase in stomach cancer and a sharp decrease in the incidence of

esophageal cancer [1]. A study has also shown that based on the differences in the region of the country, the type of the gastric cancer and its location may vary [2].

According to a study by Abdolhian et al., [3] that evaluated the frequency of various gastrointestinal cancers based on upper and lower endoscopy in the city of Khorramabad, in 3088 patients, 408 people had upper gastrointestinal cancers and the percentage of men was higher than women. Our study was based on a large sample size and the frequency was significantly higher in men. Furthermore, the study reported that esophageal cancer had the greatest incidence, where in our population, gastric cancer was the most frequent one. Similar to our study, squamous cell carcinoma was the most common esophageal cancer and adenocarcinoma in case of gastric cancer.

In a study examining the prevalence of upper gastrointestinal cancers in the Jewish and non-Jewish populations, the number of men affected was higher than women. In the Jewish population, lower-third esophageal cancer and non-Jewish gastric cancer had a higher rate [4]. In a study conducted by Osman Gado et al. in Gizan evaluating 2572 patients for gastric malignancies over a period of 6 years, 63 had upper gastrointestinal cancer, in which esophageal cancer was the most common [5]. Despite the greater sample size and prolonged period of study, the incidence of the malignancy appears more in Khorramabad region, indicated from our study and previous such studies. In another study by Al-Mofleh [6], 10,725 people were included, 86 of whom had gastric cancers, which is lesser than our study.

According to a study by Taghavi et al [2]. examining the epidemiology of upper gastrointestinal cancers in Iran, cardiac end of the stomach was most common in patients in Ardabil, but in patients in Tehran and Golestan had a lower percentage. Hashemi, Hagh-Azali [7] showed that the most common anatomical site from endoscopic and pathological finding was antrum of the stomach, whereas our study showed the cardiac end was chiefly involved. In the study by Keyhanin et al., [8] the anatomical involved in the stomach cancer was antrum, and adenocarcinoma was the commonest type.

Studies have indicated that esophagitis and candidiasis can be the risk factors of esophageal cancer [9–11], however, in our study, these were more in non-cancerous patients. Among gastric cancer patients, gastritis, intestinal metaplasia, dysplasia and *Helicobacter pylori* infection were less common, in our study. In the study of Abangah G et al., [12] the highest frequency of gastric cancer was associated with chronic gastritis with *Helicobacter pylori* infection in 80.8% which is not consistent with our study. Other studies also consider the mentioned factors as cancer risk factors [9, 12–14].

Conclusion

Our study does not include therapeutic, survival and risk factors-related data. Further studies including these parameters are therefore, recommended.

Research in these fields in the country is significant in planning the prevention and treatment, understanding pathogenesis and inculcating healthy cultural eating habits. Comparing the pattern of

gastric cancer in different populations can help to better understand the role of environmental, genetic, and racial factors in its development.

Declarations

Conflict of interest: The authors deny any conflict of interest in any terms or by any means during the study.

Ethical approval and consent to participate

All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Consent to participate: from the under 16 years old was given by a parent or legal guardian

Consent for publication: Not applicable

Availability of data and material: Data sharing is not applicable to this article as no datasets were generated or analyzed during the current study.

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Contributors' Statement Page:

Dr. Saleh Azadbakht: conceptualized and designed the study, drafted the initial manuscript, and reviewed and revised the manuscript.

Dr. Salehe Azadbakht: Designed the data collection instruments, collected data, carried out the initial analyses, and reviewed and revised the manuscript.

Dr. Morteza Azadbakht: Coordinated and supervised data collection, and critically reviewed the manuscript for important intellectual content.

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