

A Prospective Study of Etiology and Clinical Presentation of Gastric Adenocarcinoma

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Abstract

Background: Dietary factors, Smoking, Alcohol, H. Pylori all have been linked to gastric carcinoma and most of them are modifiable which can reduce the risk of cancer hence this study was undertaken to study the etiology of gastric adenocarcinoma and its clinical presentation.

Methodology: This was a prospective study in which 50 patients of gastric adenocarcinoma admitted in the surgery department at a tertiary hospital were studied.

Results: Out of 50 patients studied, 36 were males and 14 were females. The risk factors like H. pylori biopsy, heredity, salt and preserved food were found less in the cancer patients while alcohol was found to be more in them. Smoking was present equally in both the groups. Vomiting (100%) and loss of weight (100%) were the most common presenting feature. 46% had a Karnofsky score more than 80.

Conclusion: Alcohol is a risk factor for gastric adenocarcinoma and loss of weight and vomiting are common clinical presentation.

Keywords: Gastric adenocarcinoma, etiology, clinical presentation.

Introduction

Among all cancer related deaths, Gastric Carcinoma holds the 2nd spot. Though incidence of cancer in age less than 30 years is very rare^{1, 2}, It still causes nearly 900,000 new diagnosed cases and upto 700,000 deaths each year⁴. The decline in the incidence of gastric cancer is unknown as it occurred before the discovery and eradication of H. pylori. Gastric cancer incidence and mortality rates show a large variation across different

countries the highest incidence rates being in Japan and China⁵. Portugal in Europe has the highest incidence rates (31.9/100,000) and gastric carcinoma is the top cause of cancer related deaths in this country¹¹. Gastric carcinoma incidence is known to increase with age most commonly occurring between 60-80 years.

The pathology of gastric adenocarcinoma is a sequential process which is started by Helicobacter pylori- decisively involving bacterial virulence factors and host body's immune response along with possible involvement of other environmental factors³

Symptoms usually develop at a late stage, and the incidence of advanced GC (Stage IV) is 20-30% from GC in general. Median survival in Stage IV cancer is up to 9 months with no long-term survival^{5 6}. For patients with PM from GC, median overall survival (mOS) is 3 months,

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if patients treated with an aggressive approach (intra-peritoneal chemotherapy or crypto-reductive surgery (CRS) followed by intra-peritoneal chemotherapy) are excluded. Hence this study was conducted to study the etiology and the clinical presentation of the patients with gastric adenocarcinoma.

Methodology

This was a prospective descriptive study conducted on a total of 50 patients admitted in the Surgery department in a tertiary hospital from July 2012 to December 2013.

Inclusion Criteria: The study population includes 50 patients who underwent surgery for gastric adenocarcinoma (histopathologically proven gastric adenocarcinoma) by endoscopic biopsy at the Department of General Surgery.

Exclusion Criteria:

1. Patients with gastro intestinal stromal tumor or Gastric Lymphoma or Gastric carcinoid's tumors are excluded from the study.
2. Patient only received palliative chemo radiotherapy without going any forms of surgery are excluded from study.
3. Patient who is unfit for surgery excluded from study.

All patients underwent a detailed medical history and clinical examination.

Clinical examination comprises of General examination, systemic examination and Digital rectal examination. Diagnosis of patients based on UGI Endoscopy, biopsy, CT scan, PET scan and assessment for H. Pylori. Staging based on TNM Classification system according to the AJCC Staging. From July 2012 to Dec 2013 data entered prospectively in to a methodology specifically designed for the study.

Statistical analysis: The categorical data were represented by frequency with percentage and chi-square and Fisher exact test were used for analysis. The continuous data represented by mean (SD) for normal data and Median (Range) for abnormal data was analyzed by using Independent t-test and Mann- Whitney U test.

SPSS version 16 was used for analysis and P value less than 0.05 were considered as statistically significant.

Results

A total of 50 patients who underwent surgery for histologically proven gastric adenocarcinoma were studied out of which 36 were males and 14 were females. The risk factors like H. pylori biopsy, heredity, salt and preserved food were found less in the cancer patients while alcohol was found to be more i.e. 28 as compared to 22, in them. Smoking was present equally in both the groups. (table 1 and figure 1).

The most common clinical features were vomiting (100%) and loss of weight (100%) while 12% patients had melena and 10% patients had dysphagia. 46% patients presented in early stage. (table 2 and figure 2).

The Karnofsky Performance Status was calculated for all patients and it was found that a majority of the patients i.e. 46% had a score more than 80. (table 3 and figure 3).

Table 1 showing distribution of Risk factors in the study population

Risk Factor	Present	Absent
Helicobacter Pylori Biopsy	23	27
Heridity	13	37
Salt and preserved food	13	37
Alcohol	28	22
Smoking	25	25

Table 2 showing clinical features in study population:

Clinical feature	Number	Percentage
Vomiting	50	100%
Loss of weight	50	100%
Dysphagia	5	10%
Lump in epigastric region	0	0%
Hematemesis	0	0%
Melena	6	12%
Early stage	23	46%

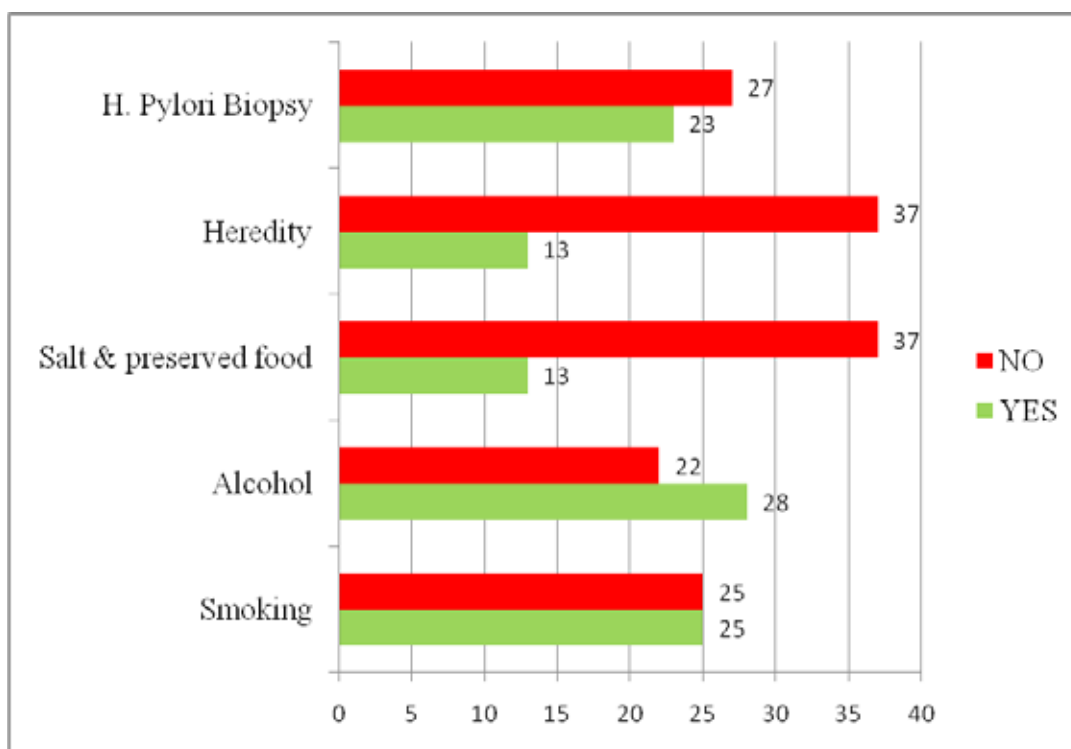


Figure 1 showing distribution of risk factors in the study population:

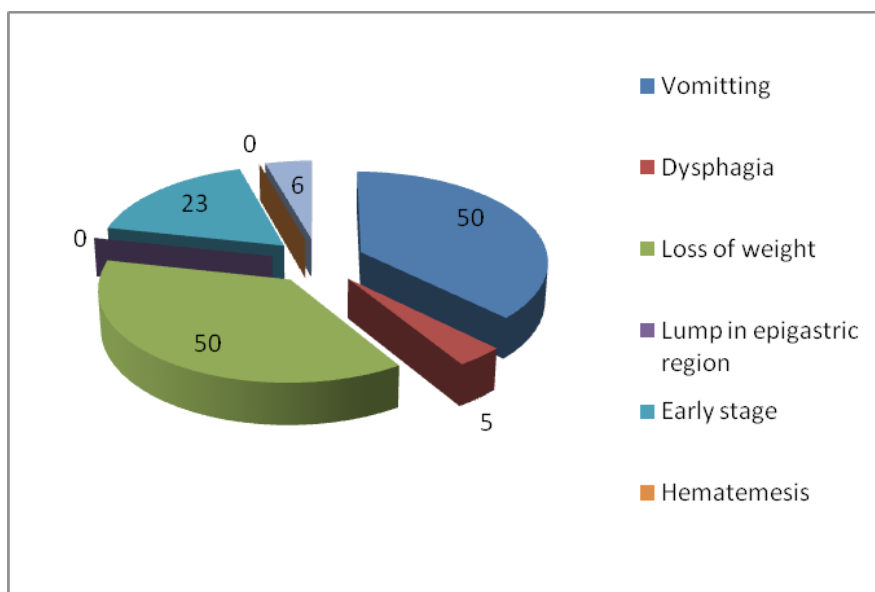


Figure 2 showing clinical feature of gastric carcinoma in the study population:

Table 3 showing Karnofsky Performance Status of the study population:

Karnofsky performance status	Number	Percentage
<40	8	16%
40-80	19	38%
>80	23	46%

Discussion

A total of 50 patients of gastric adenocarcinoma were studied out of which 28 patients showed alcohol as more common risk factor while helicobacter pylori on biopsy, diet rich in higher salts and heredity were found to be less commonly present.

Becker K¹⁷ found that heredity plays an important role in gastric cancer. There is an increased risk of developing lobular breast cancer among women in those families who have a germ line mutation of CDH1 and hence should be screened accordingly. The family members of young patients with the diffuse-type of gastric cancer are advised to undergo Genetic screening.

Adachi Y⁶ in their study found that the most important cause of distal gastric adenocarcinoma is Chronic H. pylori infection as It commonly causes chronic gastritis and may induce mucosal atrophy after few decades causing possibility of development of cancer⁷⁻¹⁰. An important role in the severity of gastritis and intestinal metaplasia is played by bacterial virulence factors, such as CagA of the so-called pathogenicity island and Vac A (vacuolating enzyme).¹¹⁻¹²

Causes of gastric carcinoma included diet as a major risk factor which by providing a number of elements and vitamins reduce the formation of carcinogens, but also at the same time acts as the source of well-established carcinogenic molecules or precursors of them. Diet high in fruits and vegetables may protect against gastric carcinoma while diet rich in salted foods, processed foods could increase the risk of this malignancy¹⁵⁻¹⁶. In our study however it was not found.

Smoking too is an important risk factor and by increasing the role of H. pylori infection by consumption of high salted or preserved foods and smoking, gastric carcinoma risk is increased^{13,14}. In our study smoking as a risk factor was distributed exactly equally in both groups.

Alcohol is an important risk factor and it increases risk of gastric carcinoma by 20% per 50g+ (6+ units) per day of alcohol consumed. Though in meta-analysis there was a lack of association found between moderate alcohol drinking and gastric cancer risk we found an increased association with heavy alcohol drinking in our study.

Symptoms usually develop at a late stage and include vomiting, loss of weight, hematemesis, melena, lump in the abdomen etc and the incidence of advanced GC (Stage IV) is 20-30% from GC in general. Median survival in Stage IV cancer is up to 9 months with no long-term survival 5-6. For patients with PM from GC, median overall survival (mOS) is 3 months, if patients treated with an aggressive approach (intra-peritoneal chemotherapy or cytopreductive surgery

(CRS) followed by intra-peritoneal chemotherapy) are excluded. In our study almost 100% patients had vomiting and loss of weight while a remarkable 46% presented in early stage. A majority of patients had a Karnofsky score >80 which means that they could do normal activity with effort and had some symptom of the disease which shows that majority of our cases presented early²².

Conclusion: Alcohol was more commonly found as a risk factor for gastric adenocarcinoma, vomiting and loss of weight were most common clinical features and majority of cases presented early hence the Karnofsky score was above 80.

Ethical Clearance: Taken from institutional ethics committee.

Source of Funding: Self.

Conflict of Interest: Nil.

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