

Regional Incidence of Carcinoma Stomach in Bangladesh: A Prospective Observational Study

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Conflict of Interest: None

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ABSTRACT:

Background: Carcinoma of the stomach is one of the most common cancers and the second common cause of cancer related death worldwide. Over one million cases of gastric cancer are diagnosed each year around the world. The incidence is increasing day by day in the whole world as well as in Bangladesh.

Objectives: The objective of this study was to find out the incidence of stomach cancer on regional basis in Bangladesh.

Methods: This was a prospective observational study conducted from January to June 2012 and data were collected from general surgery ward of seven divisional medical college hospital. Patients with clinically diagnosed and positive endoscopic finding and histopathologically proved carcinoma of stomach were included in this study. History, examination and necessary investigations findings were documented in a prescribed datasheet. The Statistical Package for Social Science (SPSS) software program for windows version 17.0 was used for data analysis.

Results: A total of 218 patients were enrolled in this study. The male to female ratio was 2:1. Among the patients, fifty two (23.9%) cases were from Dhaka divisions and fifty one (23.4%) from Chittagong division. About 56 (25.7%) patients were farmer. Out of 218 patients, 135 (61.9%), 16 (7.3%), 4 (1.8%) and 10 (4.8%) had history of smoking, alcohol intake, spicy food ingestion and salted food ingestion, respectively.

Conclusions: The distribution of patients suffering from gastric cancer was not uniform throughout the country. The male elderly people coming from low socioeconomic status were more vulnerable for developing carcinoma stomach.

Key Words:

Carcinoma, Stomach, Incidence, Regional, Bangladesh

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Introduction

Carcinoma of the stomach is the second most malignancy worldwide¹. The incidence is increasing day by day in the whole world as well as in Bangladesh². Gastric carcinoma has been reported to be common in developing countries or in developing sub-population of rich countries. High risk areas include East Asian Countries such

as China, Japan and Korea where the age standardized incidence rate (ASR) is greater than 20 per 1,00,000; Intermediate risk Countries (ASR 11-19/1,00,000) include Malaysia, Singapore and Taiwan while low risk areas (ASR<10/1,00,000) include countries such as Australia, New Zealand, India and Thailand^{1,3,4}.

Epidemiology of gastric cancer has been attributed to various factors². The incidence and mortality from gastric cancer may vary according to the risk factors related to the cancer. Salt contents of soil and drinking water, helicobacter pylori infection, socio-economic status and smoking^{2,5,6}. These personally linked factors showed a strong regional distribution, in that the low-risk area had more favourable categories of exposure⁵.

The geographic differences for gastric cancer have been described in various studies even within the countries also⁷⁻¹⁰. Japanese have a relatively homogenous genetic background but prevalence of gastric carcinoma is variable among different district⁸. Similar observation have been reported in India; the incidence rate of gastric cancer is four times higher in Southern India compared with Northern India⁹. Particular life style habits like consumption of salted, high-temperature foods and drinking alcohol and tobacco smoking, as well as Helicobacter pylori infection, are often mentioned in the context of risk factors^{2,9,10}.

In Bangladesh prevalence of Helicobacter pylori is very high². A major portion of population lives in costal divisions (Chittagong, Barisal, Khulna). They are habituate to take salted and smoked food. They are in high risk of developing gastric cancer. There are paucity of evidences related to this area in Bangladesh. Therefore this study intends to identify regional incidence of gastric carcinoma in our population.

Materials and methods

This prospective observational study was conducted from January to June 2012. After approval from ethical committee, patients with clinically diagnosed and positive endoscopic finding and histopathologically proved carcinoma of stomach were included in this study. Prior to commencement of the study, written informed consent was obtained from the patients after informing about the aims, objectives, procedure, risk and benefits in easily understandable language. Data were collected from general surgery ward of seven divisional medical college hospital. The researcher interviewed each patient and history was documented according to prescribed datasheet. Clinical examination and necessary investigations were done accordingly. SPSS for windows version 17.0 was used for data analysis. Data were presented in tables and figures.

Results:

A total 218 patients was diagnosed with gastric carcinoma during this time. One hundred one (46.3%) cases were found in the age group of 51-60 years, 61 (28%) cases in the age group of 41-50 years, 27 (12.4%) in the age group of 61-70 years, 17 (7.8%) in the age group less than forty and 12 (5.5%) cases above seventy. Figure 1 showed the age distribution of the study patients. Out of 218, one hundred forty eight cases are male and seventy cases are female.

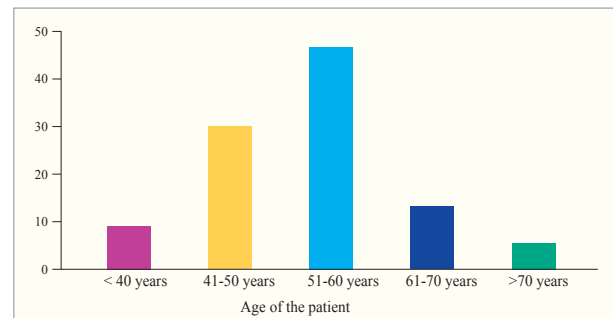


Figure 1: Age distribution of the study patients

Among the patients, 52 (23.9%) cases are from Dhaka division, 51 (23.4%) from Chittagong division, 30 (13.8%) from Barisal division, 31 (14.2%) from Khulna division, 25 (11.5%) from sylhet division, 14 (6.4%) from Rangpur division and 15 (6.9%) from Rajshahi division. Figure 2 demonstrated the regional distribution of cases.

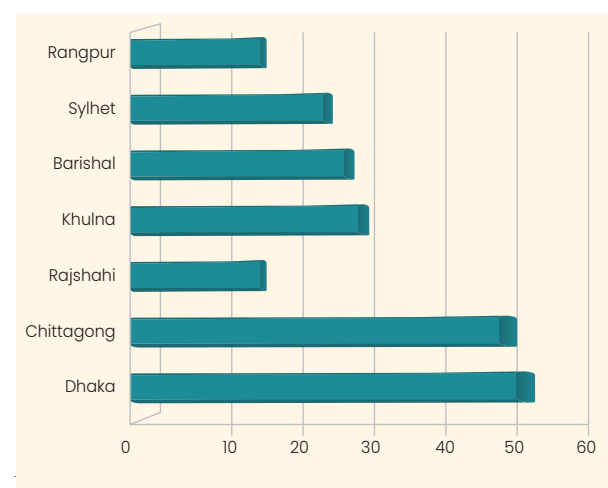


Figure2: Regional distribution of cases in percentages.

The occupation of the study participants were presented in table 1. Fifty six patients were farmer, fifty three were laborer, thirty six were businessmen, thirty one were service holder, seven were fisherman and thirty five did other jobs.

Table 1: Occupation of the study participants

Occupation	Frequency	Percent
Farmer	56	25.7
Labourer	53	24.3
Business	36	16.5
Service	31	14.2
Others	35	16.1
Fisher man	7	3.2

Table 2: Frequency of smoking, alcohol intake, salted and spicy food intake

Characteristics	Frequency	Percent
Smoking	135	61.9
Alcohol	16	7.3
Salted food	10	4.6
Spicy food	4	1.8

Discussion

Gastric carcinoma is a worldwide disease. There is a wide variation of incidence of gastric carcinoma in different parts of the world¹. We have found that the commonest age group of gastric carcinoma was 51-60 years (46.3%). Only 17 (7.8%) cases were below 40 years and 12 (5.5%) cases over 70 years of age. Tania et al.¹¹ found the mean age of gastric carcinoma in north-east part of Bangladesh was 52 years. Islam et al.² reported the higher incidence was in the age group of 50-60 years which similar to our study. Another study done by Wanebo et al. reported 51.3% cases were more than 70 years of age¹². Qurieshi et al. found that most of the gastric carcinoma cases were in 60-64 years age group¹⁰. Possibly these age difference is due to lower life expectancy in our country compared with abroad. We have found that the incidence of gastric carcinoma was higher in male (2.12:1). It was also observed in other studies^{2,9-12}.

Most of the cases were come from rural area, which correlates with general population distribution of our country. Regarding occupation, farmers (53) were the maximum in this study. Farmers are exposed to chemical fertilizer and insecticides which may be risk factors. Gastric carcinoma is associated with low socio-economic group. Tania et al.¹¹ also found that 39 (59.1%) patients were from lower economic group. Lack of adequate nutrition, food habit and environment might play a

crucial role in the development of gastric cancer in low socioeconomic group. Lower socioeconomic status is thought to be associated with higher prevalence of *H. pylori* infection because it is associated with poor hygiene and unfavorable sanitary conditions, which are considered important risk factors for *H. pylori* infection.

The association between *H. pylori* infection and gastric carcinoma is well established². The seroprevalence of *H. pylori* infection in Western countries has been reported to be much lower than in Asia. However, there is considerable variability in the *H. pylori* seroprevalence distribution among Asian countries. *H. pylori* seroprevalence in developing countries, such as Bangladesh, India, and Thailand, is especially high. In the more industrialized countries, such as Singapore, *H. pylori* seroprevalence is low⁶.

In this study, we have found the highest cases in Dhaka Division (23.9%), then Chittagong Division (23.4%) followed by Khulna (14.2%), Barisal (13.8%), Sylhet (11.5%), Rajshahi (6.9%) and Rangpur (6.4%). Here Dhaka Division shows the highest patients but in relation with total population Chittagong Division has the highest patient. Chittagong, Barisal and Khulna divisions has total one hundred twelve patients that is about half of the total patient though its population is one third of the total population. A study done by Islam et al. reported that the prevalence of gastric carcinoma was higher in Chittagong division (44%) followed by Dhaka (30.08%), Rajshahi (17.28%), and Khulna (9.28%)². Various studies also described the regional differences in different countries⁷⁻¹⁰.

Epidemiological studies have reported that alcohol consumption and tobacco smoking is associated with increased risk of gastric cancer^{13,14}. Current smoking is associated with a 1.5 to 2.5-fold increase in the risk of gastric cancer compared with never having smoked¹⁴. In our study, most of the (61.9%) patients were smoker. Tania et al.¹¹ also found 41 (62.1%) subjects were smoker and 52 (78.8%) were tobacco chewer in their study.

Gastric cancer appears to be positively correlated with ingestion of starch, pickled vegetable, salted fish and meat and negatively correlated with whole milk, fresh vegetable, vitamin C. In the present study, all patient have history of plenty of rice intake in comparison to

meat, fish and vegetables. We have found only four cases of taking spicy food and only ten cases of taking salted food.

The study did not cover the entire geographic areas of Bangladesh. It reflects the regional picture of gastric cancer incidence along with potential risk factors. Further studies with large sample size are needed to find out the actual incidence pattern of gastric carcinoma in Bangladesh.

Conclusion

The incidence of carcinoma stomach is quiet high in different regions in Bangladesh. Low socio-economic groups are more vulnerable to the development of the disease. Limited resources and health care facilities do not permit routine screening in Bangladesh. Health education would be a more affordable approach to reduce the incidence of gastric cancer.

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