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Socio-Demographic Factors of Stomach Cancer Patients Admitted in NICRH

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Abstract

Background: *Gastric cancer is the 4th most common cancer worldwide and the second most common cause of cancer related deaths. The available treatment modalities are not satisfactory in terms of overall survival benefit. Therefore, primary prevention and early detection strategies remain the most important public health interventions. The aim of the study was to determine socio-demographic factors of stomach cancers among the patients admitted in NICRH.* ***Methods:*** *It was a cross-sectional comparative study conducted at the department of medical oncology of NICRH. A total of 122 patients suffering from different cancers were included in the study.* ***Results:*** *The mean age of the gastric cancer patients was 51.8 (±12.28) years and that of the non gastric cancer patients was 51.43 (±12.09) years. Most of the patients came from Dhaka & Chattogram divisions. In gastric cancer patients just less than half of the respondents (44.3%) had no education and 31% of the respondents can sign their name only. Most of the gastric cancer patients were suffering from intestinal variant (45, 73.8%) and the rest 16 (26.2%) patients had diffuse type.* ***Conclusion:*** *Anti-salt and spicy food intake campaign should be started. Through awareness program people should be encouraged to moderate exercise & to take more vegetables and fish.*

Key words*: Stomach cancer, Risk factors*

Introduction

Gastric cancer is the 4th most common cancer worldwide and the second most common cause of cancer related deaths.[1] Despite complete resection of gastric cancer and lymph nodes dissection, as well as improvement of chemotherapy and radiotherapy, there are still 700000 gastric cancer related deaths per year worldwide and more than 80% of patients with advanced gastric cancer die of the disease or recurrence of the disease within 1 year after diagnosis. None of the treatment modalities we have been applying today can influence the overall survival rates. At present, the 5-year relative survival rate for gastric cancer is about 28%.[2] According to the International Gastric Cancer Society, more than 800,000 people are affected by gastric cancer every year and up to 650,000 people have succumbed to gastric cancer.[2]

It is likely that in 2020 gastric cancer will increase by 10% in developing countries. Gastric cancer remains an important burden for public health, particularly in less developed countries including Middle and Eastern Asia, South America and Eastern Europe, being responsible for 70% of cases worldwide.[2] Mortality rates remain high with disease usually detected late in its course; at this stage treatment strategies are often not useful. Therefore, primary prevention and early detection strategies remain the most important public health interventions.[3] However, these strategies require identification& understanding risk factors that lead to carcinogenesis. With gastric cancer, a disease that is traced to ancient civilizations, the risk appears to evolve over time as a possible result of change in dietary and lifestyle factors. Improved sanitation, refrigeration and effective screening strategies have led to significant reduction in incidence of cancer in the recent past but the fact that this disease remains prevalent in modern times suggests that other environmental risk factors are involved in sustaining this condition. Salt is strong independent risk factors for gastric cancer whereas alcohol is only a risk when it is heavily consumed. Red meat and high fat increase the risk of gastric cancer while fresh fruits, vegetables (allium family) and certain micronutrients (selenium, vitamin C) reduce the risk with evidence lacking for fish, coffee and tea. Obesity is increasingly recognized as a contributory factor in gastric cardia carcinogenesis. Therefore, modest daily physical activities can be protective against cancer. Large epidemiological studies have shown a correlation between diet and gastric cancer development.[4] In particular, pickled foods, foods rich in nitrites, and diet poor in fruits and vegetables are reported to increase the risk of gastric cancer.[5] An earlier study examined 24-hour urine samples from 39 populations, sampled from 24 countries and showed a correlation between gastric cancer development and nitrate consumption and salt expulsion.[6] Similarly, several studies have demonstrated that while a diet rich in foods fried in fat, processed meat and fish, alcohol and animal fats increases the risk of gastric cancer, consumption of fresh fruits and fish reduces that risk.[7] One earlier study suggested a positive correlation between gastric cancer risk and nitrate-based fertilizer[7], salted products containing nitroso compounds and smoked meats.[7] On the other hand, due to its antioxidant capacity, black tea might have anticarcinogenic properties[8], and indeed, a recent study suggests that black tea consumption might lower the risk of cancer development. Gender is shown to play a role in the occurrence of certain cancers. Gastric cancer is more frequent among males than females as a whole. Other factors also play a considerable role in the development of gastric cancer, similarly as in various other cancer types. For example, factors such as low socioeconomic level, excessive tea drinking, eating salted foods, living on a diet poor in fruit and vegetables, living in poor hygiene conditions, consuming excessively hot foods and spring water might trigger the development of gastric cancer.[9] Study was to determine environmental and dietary factors that might induce the development of gastric cancer, most frequently encountered type of gastrointestinal system cancer in Bangladesh.

Materials and methods

It was a comparative cross-sectional study carried out in National Institute of Cancer Research & Hospital (NICRH), Mohakhali, Dhaka from January 2017 to March 2018. The subjects were selected purposively. The targeted sample size was 61. Equal numbers of other patients not suffering from gastric cancer were also included in the study for comparison. After obtaining appropriate permission data were collected by researcher from the patients by face to face interview. Relevant medical records were consulted and recorded in a semi-structured questionnaire.

Results

Out of 122 patients 61 patients were suffering from gastric cancers. Another 61 patients of non-gastric cancers (lung cancer 17, 27.9%, lymphoma 15, 24.6%, sarcoma 11, 18%, seminoma 9, 14.7%, cervical cancer 5,8.2% and other cancers 4, 6.6%) were also enrolled in the study. The mean age of the gastric cancer patients was 51.8 years and that of the non gastric cancer patients was 51.43 years (Fig. 1A, IB). No significant difference was observed between these two groups (p>0.05). Most of the patients came from Dhaka & Chattogram divisions (Fig. IC). There were 48 (78.7%) male and 13 (21.3%) female gastric patients in the current study. Almost similar numbers of male (50, 82%) and female (11, 18%) non-gastric cancer patients were included in the study. Statistically the difference was not significant (p>0.05) (Table I). Most of the respondents in both groups were

doing some services (75.4% in GC group and 68.9% in non-GC group). Almost equal numbers of respondents in both groups were day laborer (11.5% in GC group and 9.8% in non-GC group). Only few respondents in both groups were business person or students. The differences of occupation between two groups was not statistically significant (p>0.05) (Table I). In gastric cancer patients just less than half of the respondents (44.3%) had no education and 31% of the respondents can sign their name only. Only 23% of the respondents in this group had primary level education. In non-gastric cancer patients group only 8.8% respondents were illiterate but a considerable percentage (42.6%) had primary level education. The differences of education between these two groups were statistically significant ($\div^2$ =33.169 (df=4); I<.001). Most of the gastric cancer patients (39.3%) were earning BDT 5000-10000 per month while most of the non-gastric cancer patients (45.9%) were earning BDT 10000-20000 per month. A considerable numbers of patients in both groups were earning <5000 BDT per month. However, the differences of monthly income between these two groups were statistically not significant ($\div^2$ =4.66 $_{(df=3)}$; p>0.05). Around 57% patients of GC group were using well maintained sanitary latrine while this figure was 77% in non-GC patients group. In former group more patients were using poorly maintained or open latrine than latter group. The differences of latrine types between these two groups were statistically significant (p<0.05) (Table I). Fourteen patients in GC group had blood group "A" while only 6 patients of non-GC group had "A" group blood. "B" blood patients were higher in non-GC group. However, this difference was statistically not significant (p>0.05) (Table II). Only 5 GC patients had gastric cancer in their family and 7 had family members with other cancer. These numbers in non-GC patients were 4 and 8 respectively. The differences were not statistically significant (Table II). Most of the gastric cancer patients were suffering from intestinal variant (45, 73.8%) and the rest 16 (26.2%) patients had diffuse type (Fig. ID).

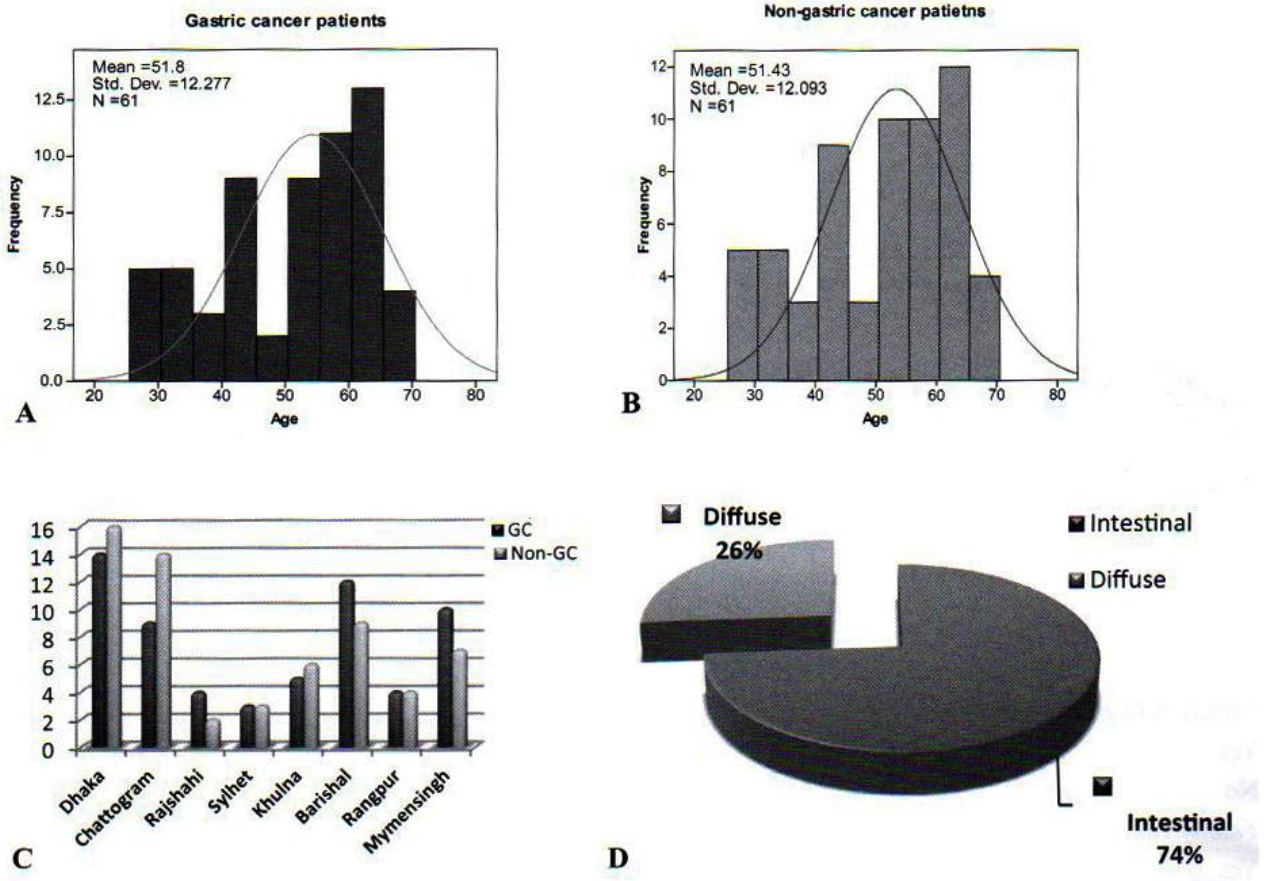

Figure 1: ***A)*** *Age distribution of the gastric cancer patients* ***B)*** *Age distribution of the non-gastric cancer patients* ***C)*** *Distribution of the patients by division* ***D)*** *Histological types of the gastric cancer*

Table I: *Distribution of the respondents by occupation*

Parameter	Category		$\chi 2$	*p*-value
	GC(n=61)	Non-GC(n=61)		
Gender				
Male	48 (78.7)	50 (82.0)	0.207	0.649
Female	13 (21.3)	11 (18.0)		
Occupation				
Service	46 (75.4)	42 (68.9)	10.612	0.069*
Day laborer	7 (11.5)	6 (9.8)		
Business	4 (6.6)	5 (8.2)		
Student	2 (3.3)	3 (4.9)		
Unemployed	2 (3.3)	5 (8.2)		
Educational status				
Illiterate	27 (44.3)	5 (8.2)	33.169	<0.001
Can sign only	19 (31.1)	16 (26.2)		
Primary	14 (23.0)	26 (42.6)		
SSC	1 (1.6)	11 (18.0)		
HSC	0 (0.0)	3 (4.9)		
Family income (BDT)				
<5000	17 (27.9)	15 (24.6)	4.66	0.188*
5000-10000	24 (39.3)	16 (26.2)		
10000-20000	19 (31.1)	28 (45.9)		
>20000	1 (1.6)	2 (3.3)		
Sanitation				
Open place	5 (8.2)	0 (0.0)	7.997	0.011*
Poorly maintained place	21 (34.4)	14 (23.0)		
Well maintained place	35 (57.4)	47 (77.0)		

*Fisher's Exact test; GC= Gastric cancer; Percentage is given in parenthesis

Table II: *Distribution of the patients by blood group and family h/o cancer*

Variables	Category		χ^2	*p*-value
	GC (n=61)	Non-GC (n=61)		
ABO blood group			4.058	0.255
AB	7 (11.4)	8 (13.1)		
A	14 (23.0)	6 (9.8)		
B	25 (41.0)	27 (44.3)		
O	15 (24.6)	20 (32.8)		
Family H/O gastric cancer				
Yes	5 (8.2)	4 (6.6)	0.12	0.729*
No	56 (91.8)	57 (93.4)		
Family H/O other cancer				
Yes	7 (11.5)	8 (13.1)	0.076	0.782
No	54 (88.5)	53 (86.9)		

*Fisher's Exact test; GC= Gastric cancer; Percentage is given in parenthesis

Discussion

Gastric cancer remains an important burden for public health, particularly in less developed countries including Middle and Eastern Asia, South America and Eastern Europe, being responsible for 70% of cases worldwide.[2] Mortality rates remain high with disease usually detected late in its course; at this stage treatment strategies are often not useful. Therefore, primary prevention and early detection strategies remain the most important public health interventions.[3] However, these strategies require identification and understanding of risk factors that lead to carcinogenesis. With gastric cancer the risk appears to evolve over time as a possible result of change in dietary and lifestyle factors. Improved sanitation, and effective screening strategies have to lead to significant reduction in incidence of this cancer in cancer in the recent past [10] but the fact that this disease remains prevalent in modern times suggests that other environmental risk factors are involved in sustaining this condition. In the present study the overall sanitation status was significantly worse in the houses of gastric cancer patients.

Gastric cancer tends to affect the poorer classes. Although the reasons are not exactly known, some investigators suggest this may be the result of excessive physical activity, exposure to high risk occupation and having poorer quality diets in comparison to the wealthy.[10] However in our study no significant difference was noted regarding family income. In a case-control study in Brazil a reverse association was found with an index of socio-economic status i.e. educational status. [11] The present study also supports this finding.

Conclusion

No significant differences were noted between gastric cancer and non-gastric cancer patients in respect to age, sex, area of residence, occupation and family income. Likewise ABO blood grouping and family history of cancer were not found to be associated with gastric cancer. However level of education and low sanitary conditions were found to be associated with the development of gastric cancer.

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