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Original Research Article

Gastric cancer in young patients under the age of 35 years: a hospital based study

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ABSTRACT

Background: Over the last decade the incidence rate of gastric cancer in young patients has a trend towards a gradual increase. Our aim was to examine the characteristics of clinical development as well as anatomo-morphologic characteristics of the tumour and to evaluate the results of multimodal treatment of gastric cancer in young patients.
Methods: A total of 163 patients record were available for the study. Patient with diagnosis of gastric cancer were evaluated in term of age, sex, race and symptoms. We only employed descriptive statistical methods in statistical analysis with central tendency and dispersion measurements. Survival curves were estimated using the Kaplan-Meier method, and the log-rank test was utilized to compare survival data.
Results: In the observed group of 28 young gastric cancer patients under the age of 35, with an age range of 20-35 years male to female ratio was 1.3:1. So, for young adults under the age of 35, male population is more predisposed to gastric cancer than female. In all cases the diagnosis was confirmed by histological tests. Glandular and poorly differentiated forms of gastric cancer were prevailing.
Conclusions: This present study concludes that pathophysiological process, such as environmental factors and dietary; may interact with genetic factors. A close association has been observed between diffuse gastric cancer and family history in a younger generation of young patients.

Keywords: Gastric cancer, Clinical characteristics and treatments

INTRODUCTION

Gastric cancer has been and still remains one of the most common causes of cancer-related death and continues to be a major public health issue in spite of decreasing trends in its incidence and mortality.[1-3] Globally, gastric cancer accounts for 989,600 new cases and 738,000 deaths annually.[3] The case-fatality ratio of gastric cancer is higher than for common malignancies like colon, breast, and prostate cancers.[3] Relevant published studies show that the incidence of gastric cancer varies in different parts of the world, with higher incidence rates documented in Eastern Asia, Eastern Europe, and South America, while North America and Africa show the lowest recorded rates.[3-5]

Over the last decade the incidence rate of gastric cancer in young patients has a trend towards a gradual increase.[6-10] As the first clinical signs of early gastric cancer are non-specific, and its symptoms are very similar to that of gastritis and gastric ulcer, the diagnosis is often made late. Previous studies indicate that tumor develops within 4-6 years; however, the recorded medical history usually does not exceed one year, indicating an extensive asymptomatic period. This is why many questions regarding the molecular-biological conditions, early

diagnosis and treatment of stomach cancer at a young age still remain relevant and not well-researched.[11-14] Our aim was to examine the characteristics of clinical development as well as anatomo-morphologic characteristics of the tumor and to evaluate the results of multimodal treatment of gastric cancer in young patients.

METHODS

This study was conducted in the Department of Surgical Oncology, Panda Medical Centre (PMC) Bepari Sahi, Cuttack, Odisha, India during the period From 01.01.2013 to 31.12.2015, 163 patients with malignant stomach tumors were registered in Bepari Sahi, Cuttack. Out of these, Gastric cancer in young was diagnosed in 28 cases. Data was collected from patient history sheets at the record room of the hospital and was analyzed to identify the influence of various factors on the etiology for young patients with gastric carcinoma. A total of 163 patients record were available for the study. Patient with diagnosis of gastric cancer were evaluated in term of age, sex, race and symptoms. Clinical manifestations, image examination, pathological, and operative records of these patients were reviewed to identify patients with pattern of gastric cancer. The age, sex, course of disease, tumor location, symptoms, image examination, pathology, tumor mark, lymphatic invasion and metastasis stage were evaluated by reviewing medical charts and pathologic records.

We only employed descriptive statistical methods in statistical analysis with central tendency and dispersion measurements. Survival curves were estimated using the Kaplan–Meier method, and the log-rank test was utilized to compare survival data. In all cases, a two-tailed value of $P<0.05$ was considered statistically significant. We employed the SPPS 18.0 for Windows software package for statistical analysis.

RESULTS

In the observed group of 28 young gastric cancer patients under the age of 35, with an age range of 20-35 years male to female ratio was 1.3:1. So, for young adults under the age of 35, male population is more predisposed to gastric cancer than female. In all cases the diagnosis was confirmed by histological tests. Glandular and poorly differentiated forms of gastric cancer were prevailing (Table 4).

The patient cohort included 16 males and 12 females; 31% of the population had oncological histories. Among the other important patient characteristics, 29% had a report of signet ring cell adenocarcinoma; 72% indicated that pain was the primary manifestation of a disorder; 84% were diagnosed by endoscopy; (Endoscopy could not be done in remaining patients due to varied reasons, such as low general condition, severe oral candidiasis and non-co-operative pts, 55% had been submitted to computerized axial tomography (CAT) as the auxiliary diagnostic method; and 38% of patients had been managed outside of our institution using a variety of therapeutic regimens (Table 1); thus, only 61.6% of patients were candidates for management at our institution. Of this group, only 43% (12 patients) were scheduled to undergo surgery (Table 2).

Table 1: General characteristics of the patient population.

Age (Yrs)	M/F (Gender)	Total	%
20-35	16/12	28	57/43
Oncological history	-	7	31
Primary manifestation	-	20	72
Endoscopy	-	24	84
Tomography	-	15	55
Previous management	-	11	38
Clinical stage	II	3	11
	IIIC	4	14
	IV	21	75

Table 2: Treatment employed in the population studied.

Characteristics		Medical treatment N= 16 (57%)	Surgical treatment N=12 (43%)
Gender	Male	11	4
	Female	5	8
Age in years	<25	4	2
	>25	12	10

Table 3 shows the total 12 (43%) patients have different types of surgical treatment, out of these 6 (21%) were Gastrojejunalanastomosis (derivation, 3 (11%) were Subtotal gastrectomy, 2 (7%) were total gastrectomy and 1 (3%) others.

Table 3: Prevalence of symptoms related to gastric cancer.

Symptoms	n (%)
Epigastric pain	21 (75)
Obstruction	1 (4)
Early fullness	3 (11)
General symptoms (asthenia, adynamia, hyporexia)	2 (7)
Upper digestive tract bleeding	1 (3)

The predominant histology found was signet ring cell adenocarcinoma, in 8 patients (29%). 21 patients (75%) were diagnosed with clinical stage IV disease, 4 (14%) with clinical stage III disease and 3 (11%) with clinical stage II disease (Table 1 & 4). Table 5 shows prevalence of symptoms related to gastric cancer: With respect to symptoms, 21 patients (70%) presented with pain, and 4 patients (14%) presented with a clinical profile of gastric

obstruction or early gastric fullness; duration from symptom initiation to disease diagnosis was 3-12 months in 86% of cases, and 1-2 years in 14% of cases. Average follow-up was 5 months (range, 1 day to 26 months). It is noteworthy that only 5 (18%) patients had a 1-year follow-up; 14 (50%) patients had a 1 month follow-up period, and 9 (32%) patients had a follow-up period of between 2 months and 1 year.

Table 4: Different types of surgical treatment.

Treatment type	Gender	Number	Total treatments
Surgical	Male	4	12
	Female	8	
Gastro-jejunalanastomosis (derivation)	Male	2	6
	Female	4	
Subtotal gastrectomy	Male	1	3
	Female	2	
Total gastrectomy	Male	0	2
	Female	2	
Other	Male	1	1
	Female	0	

Table 5: Gastric cancer lesion/tumor types (histology).

Histological type	Gender	n	%
Signet ring cell adenocarcinoma	Male	3	29
	Female	5	
Moderately differentiated adenocarcinoma	Male	2	11
	Female	1	
Poorly differentiated adenocarcinoma	Male	6	29
	Female	2	
Other histologies	Male	7	31
	Female	2	

DISCUSSION

Certain genetic or familial background and conditions resulting in gastric dysplasia have been reported as definite risk factors for the development of stomach cancer. The use of tobacco, Gutka, dietary risk factors and excess alcohol consumption also has been implicated as causal elements.[15,16]

The clinical and pathological characteristics of gastric cancer diagnosed in young patients have been described in various recently published reports. In a population that included patients who were over and under the age of 30 years, Bedikian et al reported that both groups presented with similar symptoms, predominantly undifferentiated neoplasms, and poor prognosis.[17] In 51 patients aged, 45 years, these authors observed that this cancer was more frequent in females (57% vs 36.3%), with the most common cancer type being diffuse (according to the Lauren classification). Lymphatic invasion presented with greatest frequency (59% vs 38.9%) and with greatest frequency in stage IV at diagnosis (49% vs 35.7%); notwithstanding this, no difference was observed in 5 to 10 years survival rates between young patients and those aged >45 years.[17]

In India, the ASRs in Mumbai for the years 1973-1978 revealed that there were variations among religious communities in general for all sites and in particular for digestive tract cancer. Higher incidence rates (As Rs) for stomach cancer in both sexes were observed among Christians (males 16.6, females 9.1) than among Hindus (males 9.4, females 6.1) and Muslims (males 9.1, females 6.6) and this was attributed mainly to differences in the tobacco habit. Further, stomach cancer rates were higher than esophageal cancer rates among Christians and Parsis compared to Hindus and Muslims in Mumbai.[18-20] Parsis generally do not indulge in tobacco chewing and smoking. Dietary practices may play a major role in these observed differences. Smith and Stabile, in a report on 350 patients, and with 30 patients (9%) aged <35 years compared with those aged >35 years, found a greater incidence of invasion of adjacent organs (74% vs 29%) and distant metastasis (81% vs 50%) in patients younger than 35 years, as well as a reduced possibility of curative surgery (58% vs 17%) and greater postsurgical mortality (22% vs 2%).[21]

A very important issue is the development of the effective protocols for adjuvant therapy for patients with a high risk of cancer progression after palliative surgeries. Our observations revealed that chemotherapy treatment is not statistically significant in increasing survival rates for patients under the age of 35, and we believe that a feasible way of increasing the survival rate in young patients is further development of neoadjuvant medication therapy that requires additional randomized studies.

CONCLUSION

This present study concludes that pathophysiological process, such as environmental factors and dietary; may interact with genetic factors. A close association has been observed between diffuse gastric cancer and family history in a younger generation of young patients. So that Although *H. pylori* infection is generally associated with intestinal type gastric cancer in western countries. Some symptoms may be nonspecific and relatively minor, epigastric pain in patients at risk groups should prompt endoscopic evaluation. Further, identification of gastric cancer within young populations necessitates extended biopsy techniques, careful follow-up and appropriate treatment. Delay in diagnosis of young patients leads to presentation at advanced disease stages and makes these young patients candidates for palliative care.

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