E-ISSN: 2616-3470
P-ISSN: 2616-3462

www.surgeryscience.com
2019; 3(1): 136-140
Received: 13-11-2018
Accepted: 15-12-2018

Dr. Avinash Rinait
Senior Resident, Dept. of General Surgery GMC, Nagpur, Maharashtra, India

Dr. Sarita Durge
Assistant Professor, Dept. of General Surgery, GMC, Chandrapur, Maharashtra, India

Dr. Rajkumar Williams
Professor and Head, Dept. of Surgery, MMC, Chennai, Tamil Nadu, India

Dr. Shital Dhoble
Assistant Professor, Dept. of Community Medicine, GMC, Chandrapur, Maharashtra, India

Correspondence
Dr. Sarita Durge
Assistant Professor, Dept. of General Surgery, GMC, Chandrapur, Maharashtra, India

Management and outcome of gastric carcinoma in a tertiary health care centre

Dr. Avinash Rinait, Dr. Sarita Durge, Dr. Rajkumar Williams and Dr. Shital Dhoble

DOI: https://doi.org/10.33545/surgery.2019.v3.i1c.25

Abstract
Background: Cancer is a biggest burden of modern society. Gastric cancer is the second leading cause of cancer death in the world. The objective of study was to study the clinico pathological features and management and outcome of gastric cancer patients admitted to hospital.
Methodology: A prospective descriptive study was conducted in 50 diagnosed patients of gastric adenocarcinoma using pre-designed questionnaire collecting information on demographics, stage and site of tumor, clinical history, duration of stay etc.
Results: There were 50 patients with male to female ratio 2.5: 1 with mean age of 62+/- 7.89 SD. 88% patients had tumor at antrum region. 25 (50%) and 28 (56%) patients gave h/o smoking and alcohol consumption respectively with 23 (46%) had biopsy positive for H. pylori. Of the gastrectomies, 41 (82%) study subjects were managed by curative surgeries. The overall hospital stay in stage II gastric adenocarcinoma was 6-8 days and 7-8 days in stage III (p=0.16).
Conclusion: systematic population screening program of upper gastrointestinal endoscopy should be established to detect early cases of gastric cancer show that treatment may be initiated early which has impact on survival for this dreaded diseases.

Keywords: Gastric cancer, gastrectomy, treatment, H. pylori, survival

Introduction
Worldwide in 2007, cancer led to the death of 8.2 million people which comprises around 13% of all deaths [1]. The main types of cancer leading to overall cancer mortality are solid tumors arising from lung, stomach, colorectum, liver, esophagus, breast, cervix and prostate [2]. Screening programs might result in increased incidence rates of early stage cancer, but treatment of cancers such as colorectal, breast and cervical cancer in an early stage have a high cure rate. Gastric cancer is the fourth most common cancer worldwide, and second most common cause of cancer death [3].
Gastric Cancer remains the fifth most common cancer among males and seventh most common cancer among females in India [4]. However, the overall incidence of gastric cancer in India is less compared to the worldwide incidence and India falls under the low incidence region category for gastric cancer. Reports from the National Cancer Registry Programme (NCRP) 2010, suggested that the mean age-adjusted rate (AAR) of gastric cancer among urban registries in India varied from 3.0 to 13.2, with the highest rate being recorded in Chennai registry [5-7].
Gastric cancer has a multi-factorial pathogenesis that can be considered an example of the interaction between environmental factors - Helicobacter pylori, a major carcinogenic agent - and genetic factors of the host organism, the prognosis of these tumors being dictated by specific parameters appreciated with histopathological and immune-histochemical techniques. There are differences in morbidity and mortality rates associated with the different extents of GC surgery, although they are all commonly denoted as radical resection [8-10].
This study has proposed a complete and thorough evaluation of gastric carcinogenesis and natural history of these tumors, using conventional histopathological methods, to study the clinico pathological features of gastric cancer and extent of gastric cancer surgeries and management and outcome of gastric cancer patients admitted to hospital.

Materials and Method

A prospective descriptive study was conducted in 50 patients admitted to Department of general surgery, Billroth hospitals, Chennai from JULY 2012 to December 2013.

Patients who came for treatment at Billroth Hospitals for Gastric Adenocarcinoma was selected for study, by using convenient sampling method. The information obtained included patients date of admission, demographics, clinical history, investigations, and type of surgery, type of anesthesia, duration of surgery, date of discharge and return to work. The patients were further enquired and clinically examined. Patients were further reviewed on subsequent clinical visit.

The study population who underwent surgery for gastric adenocarcinoma (histopathological proven gastric adenocarcinoma) by endoscopic biopsy was included for the study. Whereas, patients with gastro intestinal stromal tumor or Gastric Lymphoma or Gastric carcinoid's tumors, patient only received palliative chemo radiotherapy without going any forms of surgery, patient who was unfit for surgery were excluded from study.

After selection, and after informed consent had been given, patients were interviewed by using pre-designed proforma. All patients under goes detailed medical history and clinical examination. Clinical examination comprises of General examination, abdominal examination, Respiratory examination, cardiovascular examination and Digital rectal examination.

Diagnosis of patients based on Upper Gastrointestinal (UGI) Endoscopy, biopsy, CT scan, PET scan and assessment for H. Pylori. Staging based on TNM Classification system according to the AJCC Staging. Approval from Institutional Ethics Committee has been taken.

All categorical data's were represented by frequency with percentage and it was analyzed by using chi-square and Fisher exact test. Continuous data were represented by mean (SD) for normal data and Median (Range) for abnormal data and it was analyzed by using Independent t-test and Mann- Whitney U test. All the analysis was done by using SPSS 16.0 version. A P value less than 0.05 were considered as significant.

Results

Fig. 1 depicts that out of 50 subjects, 36 (72%) and 14 (28%) were male and female patients respectively.

Table 1 shows that even though mean age for male patients is slightly higher than female patients (62 versus 60, p value =0.043), but p value is insignificant (i.e.>.05).There is no statistical difference in age distribution.

Table 2 illustrates that out of 50 study subjects, 23 (46%) had >80 Karnofsky performance status while only 8 (16%) had <40 status. Most commonly i.e. 44 (88%) patients had tumor at antrum region whereas 2, 3 and 1 had tumor at body, cardia and diffuse location respectively. 44 (88%) patients were classified as stage II carcinoma and 6 (12%) as stage III and no patients were in stage I and IV.

Fig.2. depicts that out of total 50 study subjects, 23 (46%) had biopsy positive for H. pylori. Hereditary history was present in 13 (26%). 25 (50%) participants had a H/o smoking present while 28 (56%) patients gave a h/o of alcohol consumption. 13 (26%) patients had consumed preserved or smoke food.

Table 3 shows distribution of participants by significant history. Amongst these, out of 50 subjects, 20 (40%) had h/o of treatement for gastric dueodenal ulcer prior to diagnosis of carcinoma. Only 4 (8%) had h/o blood in stool and 10 (20%) patients were diagnosed for jaundice. Out of 50 subjects, 23 (46%) patients had comorbid conditions present which may affect the prognosis in carcinoma patients. all the 50 (100%) subjects had loss of weight and vomiting.

Fig 3 shows that 41 (82%) study subjects were managed by curative surgeries whereas 9 (18%) by palliative surgeries.

Table 4 depicts that, the duration of hospital stay for Gastric Adenocarcinoma surgery for Stage II ranges from 6-8 days (median 7 days) whereas for Stage III it is 7-8 days (median 7.5 day). The p value is 0.16 which is not significant. The overall hospital stay is lesser in gastrectomy surgeries.

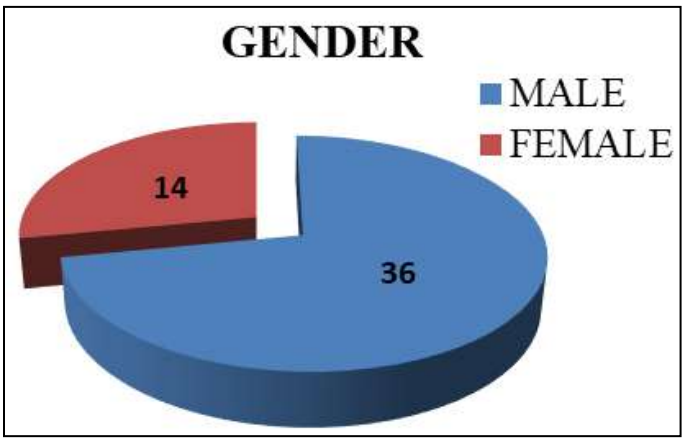

Fig 1: Gender-wise distribution of study population

Table 1: Age wise distribution of participants

	Variables	Median	Std Deviation	P. Value
AGE	Male	62	7.89	0.043
	Female	60	6.72	

Table 2: Characteristics of gastric carcinoma patients.

Characteristics		Number	%
Karnofsky Performance Status	<40	8	16.0%
	40-80	19	38.0%
	>80	23	46.0%
	Total	50	100%
Location of Tumor	Antrum	44	88.0%
	Body	2	4.0%
	Cardia	3	6.0%
	Diffuse	1	2.0%
	Total	50	100%
Stage of Tumor	I	0	0.0%
	II	44	88.0%
	III	6	12.0%
	IV	0	0.0%
	Total	50	100%

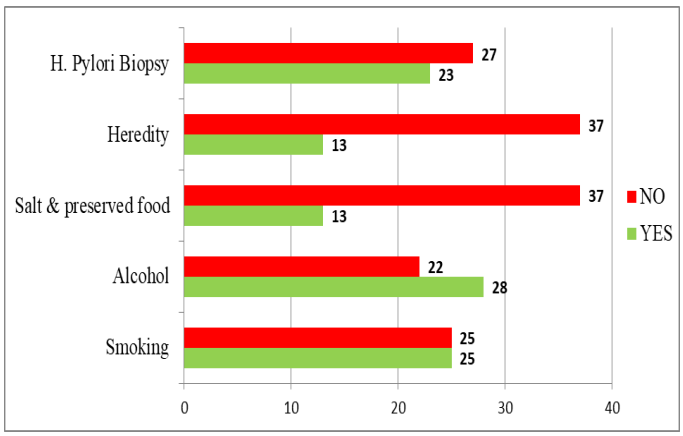

Fig 2: Distribution of risk factor

Table 3: Distribution of subjects by significant history

Characteristics		Number	%
H/o Treatement for gastric dueodenal ulcer	Present	20	40
	Absent	30	60
	Total	50	100
H/o Haematemesis	Present	0	0
	Absent	50	100
	Total	50	100
H/o Blood stained stool	Present	4	8
	Absent	46	92
	Total	50	100
H/o Jaundice	Present	10	20
	Absent	40	80
	Total	50	100
H/o Comorbid illness (DM/HTN/Asthma)	Present	23	46
	Absent	27	54
	Total	50	100

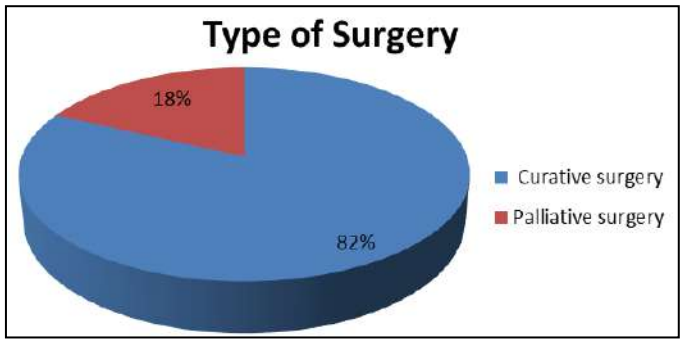

Fig 3: Distribution of study subjects by type of surgery

Table 4: Duration of hospital stay

	Variables	Median	Standard Deviation	P. Value
Duration of hospital stay	Stage II	7	1.25	0.16
	Stage II	7.5	0.5	

Discussion

In the present study, mean age of patients with gastric cancer is approximately 60-62 year. Incident of gastric cancer found to be 2-3 times more frequent in males than females. This could be due to differences in lifestyle, including drinking, smoking, or increased stress levels in men, which have been linked to the early development of gastric cancer. Ahmed A etal[11] in his study on Management and outcome of gastric carcinoma in Zaria, Nigeria found that a male to female ratio of 1.4:1. Their mean age was 51±6.3. Ten (5.6%) patients presented with early gastric cancer. Forty five (25.1%) patients had additional medical diseases including hypertension and diabetes mellitus in 36 and 15 of them respectively. 116 (64.8%) patients had tumor at antral area. whereas 113 (63.1%) in stage III.

In India, the age range for stomach cancer is 35-55 years in the South and 45-55 years in the North. The disease shows a male preponderance in almost all countries, with rates two to four times higher among males than females [12, 13]. Stomach cancer incidence is known to increase with age with the peak incidence occurring at 60-80 years. Cases in patients younger than 30 years are very rare [13, 14]. In India, the age range for stomach cancer is 35-55 years in the South and 45-55 years in the North. The disease shows a male preponderance in almost all countries, with rates two to four times higher among males than females [12, 13]. Gastric cancer is twice more common in men and its incidence increases with age [14-16], having a peak in the sixth and seventh decade of life. Hypotheses exist to explain this gender effect, as differences in exposure to risk factors are not sufficient to explain such a large difference in risk. One hypothesis is that women benefit from a protective effect of estrogen, which has been explored in animal models, in studies of men who have received hormone replacement therapy and of women who have received hormone therapy that blocks estrogen binding. Data from cancer registries indicate temporal changes in the incidence of gastric cancer in Norway (Munoz and Aswall [17], 1971) and Japan (Hanai [18] *et al*., 1982) to be due largely to the disappearance of the 'intestinal' type of gastric cancer as opposed to the diffuse type. Noncardia gastric cancer has a male-to-female ratio of approximately 2:1 [19, 20]. Incidence rates are significantly higher among blacks and lower socio-economic groups, and in developing countries [19].

Fig.2. depicts that out of total 50 study subjects, 23 (46%) had biopsy positive for H. pylori. Hereditary history was present in 13 (26%). 25 (50%) participants had a H/o smoking present while 28 (56%) patients gave a h/o of alcohol consumption. 13 (26%) patients had consumed preserved or smoke food.

Helicobacter pylori infection is now widely recognized as a cause of stomach cancer (Replogle [21] *et al*., 1976; Tanida [22], 1997). In Correa's model of gastric carcinogenesis, H pylori infection triggers the progressive sequence of gastric lesions from chronic gastritis, gastric atrophy, intestinal metaplasia, dysplasia, and finally, gastric adenocarcinoma [23]. Countries with high gastric cancer rates typically have a high prevalence of H pylori infection, and the decline in Hpylori prevalence in developed countries parallels the decreasing incidence of gastric cancer [24, 25].

Many diet studies, including those by Hakama and Saxen [26], 1967) and Bjelke [27] (1974), suggest that a high intake of complex carbohydrates or salty foods may be important risk factors or indicators. Several case-control studies have shown that a high intake of salt and salt-preserved food was associated with gastric cancer risk [28-31]

The effect of smoking was more pronounced for distal gastric cancer, with adjusted rate ratios of 2.0 (95% CI, 1.1-3.7) and 2.1 (95% CI, 1.2-3.6) for past and current smokers, respectively [32].

A positive family history is a significant risk factor, particularly with genetic syndromes such as hereditary no polyposis colon cancer and Li-Fraumeni syndrome [33-35].

The decrease in the incidence of stomach cancer is associated with the improving standard of living, which results in changes in dietary habits. The current opinion is that adequate intake of certain vitamins is likely to decrease the probability of contracting stomach cancer. Hirayama[36] showed that consumption of green-yellow vegetables is associated with a decreased risk (1977). (Tulinius, 1978 [37]. Jensen [38] (1982) has shown that the decrease in the incidence of stomach cancer coincides with an increase in the consumption of fruits and vegetables and with a decrease in the consumption of cereals. 73: Improvement in treatment modality for a gastric cancer patient gives good survival rate to the patient; and Decreased in post-operative complication rate for the patients who undergoes surgery. In our study population, total number of 41 patients undergoes curative resection it means that Patients undergoing curative surgery shows Histopathological/Microscopic Macroscopic aberrations are showing negative in RO resections; total number of patients undergoes palliative surgery were 9. It means that there histopathology was showing R1 resection which means microscopic residual tumor. Hospital stay is one of the factors used for assessment of outcome of various surgical methods. When compare to open literature studies, in our study hospital stay is significantly lower than others studies. Many

factors are related to length of hospital stays apart from nature of surgery.

Conclusion

It is found that promotion of early diagnosis of gastric cancer by upper gastro intestinal endoscopy improves survival rate. For a locally advanced gastric cancer neoadjuvant chemo-radiation can be given to achieve RO resection. From the results found through this work it is recommended that a systematic population screening program of upper gastrointestinal endoscopy should be established to detect early cases of gastric cancer show that treatment may be initiated early which has impact on survival for this dreaded diseases.

References

1. Rastogi T, Devesa S, Mangtani P *et al*. Cancer incidence rates among South Asians in four geographic regions: India, Singapore, UK and US. Int J Epidemiol. 2008; 37:147-60.
2. Sahasrabudhe MR, Lakshminarayan Rao MV. The influence of dietary protein on the cystine and methionine contents of liver protein. Curr Sci. 1950; 19:285-6.
3. Ferlay J, Shin HR, Bray F, Forman D, Mathers C, Parkin DM. GLOBOCAN 2008 v2.0, Cancer Incidence and Mortality Worldwide: IARC Cancer Base No. 10 [Internet]. Lyon, France: International Agency for Research on Cancer, 2010. Accessed on, 2013. Available from: URL: http://globocan.iarc.fr
4. Rastogi T, Hildesheim A, Sinha R. Opportunities for cancer epidemiology in developing countries. Nat. Rev. 2004; 4:909-917.
5. Black RJ, Bray F, Ferlay J, Parkin DM. Cancer incidence and mortality in the European Union: cancer registry data and estimates of national incidence for 1990. Eur. J Cancer. 1997; 33:1075-1107.
6. Jemal A, Bray F, Center MM, Ferlay J, Ward E, Forman D. Global cancer statistics. CA Cancer J Clin. 2011; 61:69-90
7. Theuer CP, de Virgilio C, Keese G, French S, Arnell T, Tolmos J, Klein S *et al*. Gastric adenocarcinoma in patients 40 years of age or younger. Am J Surg. 1996; 172:473-476. Discussion 473-476.
8. Marrelli D, Pedrazzani C, Neri A, Corso G, DeStefano A, Pinto E, Roviello F. Complications after Extended (D2) and Super extended (D3) Lymphadenectomy for Gastric Cancer: Analysis of potential risk factors. Ann Surg Oncol. 2007; 14:25-33
9. Cuschieri A, Fayers P, Fielding J, Craven J, Bancewicz J, Joypaul V, Cook P. Patient survival after D1 and D2 resections for gastric cancer: long-term results of the MRC randomised surgical trial. Br J Cancer. 1999; 79:1522-1530.
10. Brennan MF. Current status of surgery for gastric cancer: a review. Gastric Cancer. 2005; 8:64-70.
11. Ahmed A *et al*. Management and outcome of gastric carcinoma in Zaria, Nigeria African Health Sciences. 2011; 11(3):353-361.
12. Parkin DM, Bray F, Ferlay J, Pisani P. Global cancer statistics, 2002. CA Cancer J Clin. 2005; 55(2):74-108.
13. Bevan S, Houlston RS. Genetic predisposition to gastric cancer. QJM. 1999; 92:5-10
14. Lichtenstein P, Holm NV, Verkasalo PK, Iliadou A, Kaprio J, Koskenvuo M, Pukkala E, Skytthe A, Hemminki K. Environmental and heritable factors in the causation of cancer-analyses of cohorts of twins from Sweden, Denmark, and Finland. N Engl J Med. 2000; 343:78-85
15. Maehara Y, Kakeji Y, Oda S, Baba H, Sugimachi K. Tumor growth patterns and biological characteristics of early gastric carcinoma. Oncology. 2001; 61(2):102-112.
16. Hamilton SA. Health Organization Classification of Tumours - Pathology and genetics of tumours of the digestive system. Lyon. IARC Press, 2000.
17. Munoz N, as wall. Time trends of intestinal and diffuse types of gastric cancer in Norway. Int J Cancer. 1971; 8:144- 157
18. Hanai A, Fugimoto I, Taniguchi H. Trends of Stomach Cancer Incidence and Histological types in Osaka, In: Trends in Cancer Incidence-Causes and Practical Implications Eds: K Magnus, Washington DC, Hemisphere, 1982, 143-54.
19. Parkin DM, Whelan SL, Ferlay J. Cancer Incidence in Five Continents, vol VII. Lyon, France: International Agency for Research on Cancer, 1997, 822-823
20. Nomura A. Stomach Cancer. In: Schottenfeld D, Fraumeni JF, eds. Cancer Epidemiology and Prevention. 2nd Ed. New York, NY: Oxford University Press, 1996: 707-724
21. Replogle ML, Kasumi W, Ishikawa KB *et al*. Increased risk of helicobacter pylori associated with birth in war time and post-war Japan. Int J Epidemiol. 1976; 25:210-14.
22. Tanida N, Sakagami T, Sawada Y *et al*. Critical Review on the WHO/IARC report regarding carcigenicity of Helicobacter pylori. Nippon Ringsho. 1997; 55:995-1002
23. Correa P. Helicobacter pylori and gastric cancer: state of the art. Cancer Epidemiol Biomarkers Prev. 1996; 5:477-481
24. Parsonnet J. The incidence of Helicobacter pylori infection. Aliment Pharmacol Ther. 1995; 9(2):45-51
25. Howson CP, Hiyama T, Wynder EL. The decline in gastric cancer: epidemiology of an unplanned triumph. Epidemiol Rev. 1986; 8:1-27
26. Hakama M, Saxen E. Cereal consumption and gastric cancer. Int J Cancer. 1967; 2:265-68.
27. Bjelke E. Epidemiological studies of cancer of the stomach, colon & rectum, with special emphasis on role of diet, Scand J Gastroenterol. 1974; 9(31):1-235.
28. Kono S, Hirohata T. Nutrition and stomach cancer. Cancer Causes Control. 1996; 7:41-55
29. World Cancer Research Fund, American Institute for Cancer Research. Food, Nutrition and the Prevention of Cancer: a Global Perspective. Washington, D.C.: American Institute for Cancer Research, 1997.
30. Ward MH, Lopez-Carrillo L. Dietary factors and the risk of gastric cancer in Mexico City. Am J Epidemiol. 1999; 149:925-932
31. Kim HJ, Chang WK, Kim MK, Lee SS, Choi BY. Dietary factors and gastric cancer in Korea: a case-control study. Int J Cancer. 2002; 97:531-535
32. Chao A, Thun MJ, Henley SJ, Jacobs EJ, McCullough ML, Calle EE. Cigarette smoking, use of other tobacco products and stomach cancer mortality in US adults: The Cancer Prevention Study II. Int J Cancer. 2002; 101:380-389
33. Palli D,Galli M, Caporaso NE, Cipriani F, Decarli A, Saieva C, Fraumeni JF Jr, Buiatti E. Family history and risk of stomach cancer in Italy. Cancer Epidemiol Biomarkers Prev. 1994; 3:15-18
34. La Vecchia C, Negri E, Franceschi S, Gentile A. Family history and the risk of stomach and colorectal cancer. Cancer. 1992; 70:50-55
35. Lissowska J, Groves FD, Sobin LH, Fraumeni JF Jr, Nasierows-ka-Guttmejer A, Radziszewski J, Regula J *et al*. Family history and risk of stomach cancer in Warsaw, Poland. Eur J Cancer Prev. 1999; 8:223-227

36. Hirayama T. Descriptive and analytic epidemiology of stomach cancer, IARC, Scientific Publication, 20, 167-89, Lyon, France, 1977.
37. Tulinius H. Epidemiology of Gastric Cancer. Naringsforsking. 1978; 22(16):52-63.
38. Jensen OM. Nitrate in drinking water and cancer in Northern Juteland, Denmark, With Special reference to stomach cancer. Ecotoxial Enviorn Saf. 1982; 6:258-67