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*Original Article*

# Clinicopathological features of gastric carcinoma in Libyan patients: National cancer institute Sabratha based study

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## Abstract

Gastric cancer (GC) remains an important cancer worldwide and it is estimated that there will be over 1 089 103 new cases (representing 5.6% of all cancer cases diagnosed) and 768793 deaths ( 8.2% of all deaths from cancer ) in 2020, making it the fifth most frequently diagnosed cancer and the third leading cause of cancer death worldwide. On average, incidence rates for gastric cancer are 2 to 3 time higher for men than women. Objective: In this study we aimed to evaluate the knowledge on clinical and pathologic features of Gastric carcinoma among Libyan patients. Methods: This is a descriptive retrospective study, all the gastric carcinoma cases diagnosed at the Medical and Surgical Department, `National cancer institute of Sabratha, Libya between January 2010 and December 2017 were included in this study. Total of 105 patients aged between 28-85 years old were included in this study. The demographic and clinical data of the gastric carcinoma analyzed for patients' age, gender, blood group, clinical presentation, also endoscopic examination to detect sit and shape of Tumor and histopathological report to determine histological type of gastric adenocarcinoma .Statistical analysis: All statistical analyses were performed with the Statistical Package for Social Sciences (SPSS) version 19. Student's chi square test was employed to define association between variables. Result: Among the 105 patients in our present study, the 53 (50.9%) cases were male and 51(49.03%) of cases were female. In our study population also, 34 (32.6%) patients were less than 50 years of age and 70(67.3%)patients were more than or equal to at 50years of age .The majority of patients were known blood group (O). Clinicopathological characteristics of study population expected majority of tumor were poorly differentiated (60.8%), and (59.6%) of patients presented with advanced gastric carcinoma .

**Keywords**: Gastric cancer, Clinicopathological features, national cancer institute sabratha , Libya

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## Introduction

Gastric cancer is a relatively common cancer and has been documented as the 5th commonest cancer worldwide and the 3rd leading cause of cancer death worldwide and it is estimated that there will be over 1 089 103 new cases(representing 5.6% of all cancer cases diagnosed) and 768793 deaths ( 8.2% of all deaths from cancer ) in 2020[1]. According to GLOBOCAN 2020 the incidence of stomach cancer about 2.7% and the prevalence about 3.99% (per 100.000 population) [2].

There is a wide geographical variation being highest in the Far East (Japan and China) and lowest in Africa, on average, incidence rates for gastric cancer are higher in men than women with the age-standardized incidence range from 3.3 in West African men to 35.4 in East Asian men; and from 2.6 in West African women to13.8 in East Asian women (per 100,000)[3] .

Some studies indicated that the gastric carcinoma is rare in people under 50 years old and it incidence rates have increased in patient aged between 55 and 80 years[4-5]. However, there has been some concern about a trend toward steadily increasing GC in young patients over the past few decades and studies were conducted to define the demographic, clinicopathologic and prognostic factors of GC in young patients [4].

Adenocarcinoma is the commonest histological type of gastric carcinoma with 90% [5] and been subdivided by (Lauren classification) according to histological appearances into diffuse (undifferentiated) and intestinal (well-differentiated) types [6]. The aim of this study is to update the present data on the clinicopathological features of gastric carcinoma among Libyan patients in National cancer institute Sabratha.

Material and Methods This is a descriptive retrospective study, all the gastric carcinoma cases between 28-85 years old diagnosed at the Medical and Surgical Department, `National cancer institute of Sabratha , Libya between January 2010 and December 2017 were included in this study. Total of 105 patients were included in this study The demographic and clinical data of the gastric carcinoma patients diagnosed in the National cancer institute of Sabratha, in the above period were retrieved from the archives of National cancer institute Sabratha and analyzed for patients' age, gender, blood group , clinical presentation, also endoscopic examination to detect sit and shape of Tumor as well as the histopathological report to determine histological type of gastric adenocarcinoma . Statistical analysis: All statistical analyses were performed with the Statistical Package for Social Sciences (SPSS) version 19. Student's chi square test was employed to define association between variables. The student's t-independent test was used to compare the mean age for gender and different histologic type of gastric carcinoma. The significant value was taken as $P \leq 0.05$.

Results

occurred below 50 years and 59(56.2%) age 50 to 80, and 7(6.7%) age>= 81. The mean of age groups were 58.29± 15.28 years. The mean ages for the male patients were 59±14.6 years and the mean ages for the female patients were 57.5±16.02 years.

As shown in Table 1, a total of 105 cases of gastric carcinoma were diagnosed in the National cancer institute of Sabratha, between January, 2010 and December, 2017. Of these 105 cases, 53 (50.5%) were males and 52 (49.5%) were females. About 39 (37.1%) of cases

Table (1): Demographic and Clinico-pathologic characteristics of 105 patients with gastric carcinoma.

| Characteristics | N | (f) % |
|---|---|---|
| **Sex** | | |
| **Male** | 53 | 50.5 |
| **Female** | 52 | 49.5 |
| **Age group** | | |
| **Less than or equal 49** | 35 | 33.3 |
| **50-80** | 63 | 60.0 |
| **81 or above** | 7 | 6.7 |
| **Blood Group** | | |
| **O** | 32 | 43.8 |
| **A** | 29 | 39.7 |
| **B** | 11 | 15.1 |
| **AB** | 1 | 1.4 |
| **Presentation (some patients have more than one presentation)** | | |
| **Abdominal pain** | 82 | 78.1 |
| **Vomiting** | 41 | 39.0 |
| **Change bowel habit** | 17 | 16.2 |
| **Anemia** | 3 | 2.9 |
| **Hematemesis** | 2 | 1.9 |
| **Dark stool** | 1 | 0.9 |
| **Dysphagia** | 6 | 5.7 |
| **Weight loss** | 6 | 5.7 |
| **Mouth ulcer** | 1 | 0.9 |
| **Tumor site (n=97)** | | |
| **Cardia** | 9 | 9.3 |
| **Fundus** | 11 | 11.3 |
| **Body** | 35 | 36.1 |
| **Antrum /pylorus** | 42 | 43.2 |
| **Tumor Shape (n=101)** | | |
| **Ulcer** | 67 | 66.3 |
| **Mass** | 19 | 18.8 |
| **Infiltrative** | 15 | 14.9 |
| **Histological subtype (n=102)** | | |
| **Intestinal subtype** | 49 | 48.0 |
| **Mixed subtype** | 2 | 2.0 |
| **Undifferentiated subtype** | 6 | 5.9 |
| **Diffuse subtype** | 45 | 44.1 |
| **Signet ring cells** | 34/45 | 75.6 |
| **Diffuse with signet or without** | 11/45 | 24.4 |
| **Tumor grade (n=94 )** | | |
| **Well differentiated** | 8 | 8.5 |
| **Moderately differentiated** | 27 | 28.7 |
| **Poorly differentiated** | 59 | 60.8 |
| **Tumor Stage (n=104)** | | |
| **Non advanced** | 42 | 40.4 |
| **Advanced** | 62 | 59.6 |

The blood group type O was predominant 32 (43.8%) followed by blood group type A 29(39.7%) and blood group type B 11(15.1%) and only one patient carry blood group type AB (1.4%). The predominant primary cancer commonest anatomical site in our study for gastric carcinoma (antrum /pylorus) was most site of tumor (42.2%) followed by gastric body (36.1%) and the fundus/cardia 11(11.3) and 9(9.3%) respectively. The histological type of gastric carcinoma most commonly the intestinal subtype 49 cases ( 48%) ,the diffuse subtype accounted for 45 of cases (44.1%) the mostly was signet ring cells ( 75.6%) from 45 of the cases, while the diffuse with or without signet ring cells represented (24.4%) . Majority of tumor were poorly differentiated 59 cases (60.8%), followed by 27(28.3%) Moderately differentiated and only 8 (8.5%) of the tumor grade were Well differentiated. Overall, 62 (59.6%) of patients presented with advanced gastric carcinoma while 42(40.4%) presented with non-advanced gastric carcinoma

Patient's distribution according to signs and symptoms, Abdominal pains was the most common presenting symptom in 82 (78.1%) of patients followed by vomiting 41 (39.0%) and Change bowel habit 17(16.2%) (Figure 1).

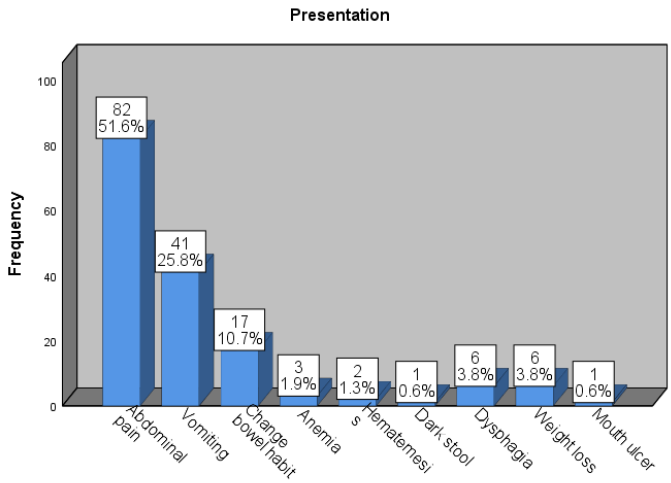


Figure 1. Common symptoms and signs of gastric cancer patients

According to table 2: There is significant difference of an association was observed among male (p<0.001), (62.7%) of males associated with Intestinal subtype, (33.3%) associated with Diffuse subtype, while (3.9%) were Undifferentiated. However (33.3%) of female were associated with Intestinal subtype, (54.9%) were associated with diffuse subtype (p<0.001). Moreover, significant evidence of an association was observed with age groups. More than half (57.1%) of patients aged below 50 were associated with diffuse subtype, and (37.1%) of the same age group were associated with Intestinal subtype (p=0.001).On the other hand, (54.8%) of the patients aged 50 to 80 were associated with Intestinal subtype,

while (35.5%) of the same age group were associated with diffuse subtype (p<0.001). There is no association for tumor type among age group 81 or older (p=0.655> 0.05). There is substantial difference of an association in the patient's Blood groups (O and A) with the different histological subtypes of gastric carcinoma at (p< 0.018 and 0.003) respectively.

Table (2): Association between Type of tumor and sex, age group and blood group.

| Variable | subtype of Tumor | | | | p-value |
|---|---|---|---|---|---|
| | Intestinal | Diffuse | Mixed | Undifferentiated | |
| **Sex** | | | | | |
| **Male (n=51)** | )62.7 32 ( | 17(33.3) | 0(0.0) | 2(3.9) | 0.000 |
| **Female (n=51)** | 17(33.3) | 28(54.9) | 2(3.9) | 4(7.8) | 0.000 |
| **Age group** | | | | | |
| **Less than 50 (n=35)** | 13(37.1) | 20(57.1) | 0(0.0) | 2(5.7) | 0.001 |
| **51-80 (n=62)** | 34(54.8) | 22(35.5) | 2(3.2) | 4(6.5) | 0.000 |
| **More than 80 (n=5)** | 2(40.0) | 3(60.0) | 0(0.0) | 0(0.0) | 0.655 |
| **Blood group** | | | | | |
| **O (n=31)** | 15(48.4) | 13(41.9) | 0(0.0) | 3(9.7) ( | 0.018 |
| **A (n=27)** | 11(40.7) | 15(55.6) | 0(0.0) | 1(3.7) | 0.003 |
| **B (n=11)** | 4(36.4) | 5(45.5) | 0(0.0) | 2(18.2) | 0.529 |
| **AB (n=1)** | 1(100.0) | 0(0.0) | 0(0.0) | 0(0.0) | 0.999 |

As shown in table 3, There was not statistically significant difference between the mean ages of the male and female patients with sex (P =0.537).

Table (3): Association between Mean Age Group of patients with Sex

| Variable | Age Group | | | P- value |
|---|---|---|---|---|
| | Less than or equal to 49 | 50-80 | 81 or above | |
| **Sex** | | | | 0.537 |
| **Male** | 15(28.3) | 34(64.2) | 4(7.5) | |
| **Female** | 20(38.5) | 29(55.8) | 3(5.7) | |

According to data shown in table 4, there is no significant association was found between Tumor grade and age group,

Table (4): Association between Tumor grade and age group,

| Variable | Grade of Tumor | | | P- value |
|---|---|---|---|---|
| | Well | Moderately | Poorly | |
| **Age Group** | | | | 0.361 |
| **49 or less** | 4(11.4) | 7(20.0) | 24(68.6) | |
| **50-80** | 3(6.0) | 19(38.0) | 28(56.0) | |
| **80 or above** | 1(20.0) | 1(20.0) | 3(60.0) | |

## Discussion

Globocan reported that no data about the incidence of gastric cancer in Libya and Estimated from national incidence estimates by modelling, using incidence: mortality ratios derived from cancer registry data in neighboring countries [2]. In this study, the main age of gastric adenocarcinoma 58.29 ± 15.28 years which are comparable with the average for the rest of the Arab World countries was around 60 years [7] ,while in Western study age around 70 years [8] , regarding to susceptibility to gastric carcinoma we found in this result male to female ratio 1.01:1, while in neighboring countries as in Tunisia 1.4:1 while in Egypt 1.3:1 [2]. However this study about only gastric adenocarcinoma which form 90% of gastric carcinoma [5]. Regarding blood group, this result revealed that the frequency of blood group type O (43.8%) was more than blood group type A (39.7%) followed by blood group type B (15.1%) while in other study blood group type A the most common type ,however blood group type AB (1.4%) less common type as other study [9] same study reported that patients with blood group type O has better prognosis than that of patients with other blood types, while Qiu et al [10] reported that there is no prognostic relationship between ABO blood type and gastric cancer .

Most of the patients included in this study presented by more than one symptom , the most common presenting symptoms in this study abdominal pain (78.1%) which similar to that reported in previous study done in eastern of Libya [11], and followed by Vomiting (39.0 %) which low frequency presentation in same study . Finding of this study revealed that the (antrum /pylorus ) was most site of tumor (42.2%) followed by gastric body (36.1%) which are in consistent with other Arab studies [7] . Distal or antral gastric cancers that are associated with H. pylori infection, alcohol use, high-salt diet, processed meat and low fruit and vegetable intake [5] , Endoscopic and grossly examination found that ulcerating tumor is main shape of tumor in this study (66%) followed by fungating mass (18.8%) and infiltrative tumor (14.9%) respectively, however other study reported that mass lesion is

the typical presentation of gastric adenocarcinoma and may be present as nonhealing ulcer or as diffuse infiltrative form [12] .

Regarding Lauren [6] histological classification of gastric carcinoma there is two main gastric carcinoma subtype, intestinal subtype and diffuse subtype. This result showed that the ininal testtype (48.0%) is higher than diffuse type (44.1%) of gastric carcinoma, and significant association between male and intestinal subtype ($p<0.001$) was obtained in addition to significant association between female and diffuse subtype ($p<0.001$). There is also significant association between diffuse type and patients aged below 50, signet ring cells form (75.6 %) of diffuse type which is associated with a poor prognosis [5] .

This study revealed that the majority of tumor grade were poorly differentiated (60.8%), similar to neighboring countries [2] and in other countries [13]

And regarding tumor stage 62 (59.6%) of patients presented with advanced gastric carcinoma which similar to those patients in Arab world most of them diagnosed in advanced stage [7]. Rebai et al [14] reported that The 5-year overall survival rate of the patients was low in advanced cancer stages.

Recommendation: Data on incidence of gastric carcinoma, Demographic and Clinico-pathologic characteristics of patients with gastric carcinoma in Libya is scanty, so more studies importantly needed to obtain more representative overview and a better understanding of the disease in our country.

**Conclusion.** The clinicopathological characteristics of gastric carcinoma which observed in this study are similar to those of Arab world in some features as age, site of tumor, grade of tumor and stage of tumor, and different on them in other features as male to female susceptibility to gastric carcinoma. However this study about only gastric adenocarcinoma which form 90% of gastric carcinoma, in this study also compared some features with non-arabic world studies as blood group, found that the frequency of blood group type more than blood group type A which the last more common in nonarabic studies and ulcerating tumor more common than fungating mass which not mentioned in Arabic studies reviewed in this study.

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