Stomach Cancer in Patients Referred to Tohid Hospital in Sanandaj, 2012 - 2018: An Epidemiological Study

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Abstract

Background: Stomach cancer is the fourth most common cancer in the world and first cancer in Iran. The northern and northwestern regions of the country are areas with a high prevalence of gastrointestinal cancers, especially gastric cancer. Different factors are effective in the incidence of this cancer.

Objectives: The present study aimed to evaluate the epidemiology of gastric cancer.

Methods: This research was a cross-sectional study. All patients referred to Tohid Hospital in Sanandaj between 2012 and 2018 were examined. Data were extracted using patients' medical records. Descriptive information was collected through SPSS software, and the results were analyzed.

Results: The number of patients in this study was 553. The mean age was 66.9 years, and the highest age group was 60 - 80 years. Four hundred twelve patients were male, and 141 were female. In 50% of patients, the location of the cardiac tumor was gastric. Chemotherapy was the most common treatment in more than 60% of patients.

Conclusions: The results of this study show that smoking is unfortunately high in patients in this province. An educational intervention to quit smoking is recommended. Smoking is an important risk factor for gastric cancer, and this intervention may also be effective in reducing the incidence of this disease.

Keywords: Stomach Cancer, Gastric Cancer, Risk Factor, Sanandaj, Intervention

1. Background

The second leading cause of death worldwide is cancer (1-3). The global incidence of this disease has increased from 10 million per year in 2000 to 15 million in 2020. More than half of these deaths occur in developing countries (4). Lung cancer, breast cancer, colon cancer, skin cancer, prostate cancer, and stomach cancer are the most common cancers in the world (1). Reducing the incidence of infectious diseases, increasing life expectancy, lifestyle changes, and genetic predisposition are some of the effective reasons for increasing the incidence of cancer.

One of the most common cancers of the gastrointestinal tract is stomach cancer. Unfortunately, this disease is mainly diagnosed in advanced stages (5-7).

The classification of this disease is based on two types: Anatomical classification (cardia and noncardia) and histological classification (diffuse and intestinal). Each of them has different causes, symptoms, and prognoses (8). South America, Central America, East Asia, and East Europe are the areas with the highest incidence of this disease, and South Asia, North Africa, East Africa, Australia, and North America are the areas with the lowest incidence of this disease (9). The incidence and mortality of this disease have decreased over the last 70 years. Despite this decrease, stomach cancer has been identified as the fourth most common cancer in Iran and the second leading cause of cancer deaths. The incidence and mortality of gastric cancer in the north and northwest of the country are higher than in other regions (5). Gastric cancer is more common in men, and smoking and aging are its risk factors (10).

2. Objectives

Kurdistan province is one of the regions with a high incidence of gastric cancer in Iran. Therefore, identifying risk
factors and epidemiological studies is an effective step in preventing this disease.

3. Methods

This study was approved by the Ethics Committee of Hamadan University of Medical Sciences (IR.UMSHA.REC.1397.103). This research was a cross-sectional and descriptive-analytic study. The statistical population consisted of all patients with gastric cancer identified by pathology tests and referred to Tohid Hospital in Sanandaj from the beginning of April 2012 to the end of March 2018. The data collection was performed using a checklist which was completed by studying the patients’ medical records. This checklist included information such as age at the time of diagnosis by year, a previous history of smoking, tumor location, metastasis location, number of metastases, a family history of cancer in first and second degree relatives, a previous history of cancer (cancer of any type), treatment method, metastasis, surgery, and type of surgery. The data were entered into SPSS software version 24 after initial registration in the checklist. The results of descriptive statistics were calculated and presented in terms of mean and standard deviation, number, and percentage.

4. Results

In this study, all patients with stomach cancer referred to Tohid Hospital in Sanandaj during 2012-2017 were included (n = 553). Four hundred twelve patients (74.5%) were male, and 141 (25.5%) were female. Their mean age was 66.9 years with a standard deviation of 13.3 years, and the highest age group was 60 - 80 years with a frequency of 315 people (57% of patients). Three hundred thirteen patients (56.6%) had a previous history of smoking (Table 1). The most common treatment was chemotherapy for 339 patients (61%). In two hundred twenty-seven patients (50.1%), tumor were located at the site of the cardiac. Four hundred twenty-three patients (76.5%) had no metastases, and 164 patients (29.7%) needed surgery (Table 2).

5. Discussion

According to the results of this study, the sex ratio of the disease (male to female) was 2.9, which is almost similar to Jenabi et al.’s study (the study on the national distribution of the disease in Iran) (11). However, the results of this study were slightly different from the results of Ghasemi-Kebria et al.’s study conducted in Golestan province, which might be due to the difference in the population distribution of these two provinces (12). The mean age of patients in this study was 66.9 years which was similar to Hedayatizadeh-OMRAN et al.’s study conducted in Mazandaran province and was a little different from Nikbakht et al.’s study performed in Fars province, indicating the differences between the age groups of these two provinces (13, 14). In this study, 56.6% of patients had a previous history of smoking which was higher than Toorang et al.’s study performed on patients referred to Imam Khomeini Hospital in Tehran (a hospital which accepts patients from almost all provinces of Iran). The high frequency of smoking probably affects the high prevalence of this disease in Kurdistan province (15). Family history of cancer in first and second degree relatives in this study was less than 4% in patients, while in Farhadifar et al.’s study, it was less than 12%. On the other hand, in Mehravar et al. ‘s study conducted in Ardabil province, it was more than 70%. However, this discrepancy may be due to the small number of patients in the study performed in Ardabil province. Due to the contradictory results, investigating risk factors in future studies is recommended (16, 17) In this study, in more than 50% of cases, tumor location was cardia, sim-
Table 2. The Frequency Distribution of Stomach Cancer by Malignancy Indices

| Malignancy Indicators | Frequency (%) |
|-----------------------|---------------|
| Metastasis            |               |
| Yes                   | 209 (37.8)    |
| No                    | 344 (62.2)    |
| Surgery               |               |
| Yes                   | 164 (29.7)    |
| No                    | 389 (70.3)    |
| Type of surgery       |               |
| Not operated          | 386 (69.8)    |
| Partial               | 50 (9.0)      |
| Subtotal              | 22 (4.0)      |
| Total                 | 38 (6.9)      |
| Other                 | 57 (10.3)     |
| Tumor location        |               |
| Antrum                | 120 (21.7)    |
| Body                  | 57 (10.3)     |
| Cardia                | 277 (50.1)    |
| Fund                  | 53 (9.6)      |
| Unknown (unregistered)| 46 (8.3)      |
| Metastasis location   |               |
| No metastasis         | 423 (76.5)    |
| Liver                 | 165 (31.7)    |
| Lung                  | 23 (4.2)      |
| Bone                  | 7 (1.1)       |
| Distant lymph nodes   | 14 (6.3)      |

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Footnotes

Authors’ Contribution: Study concept and design: G.R., B.G., and J.F.; Acquisition of data: M.R. and B.G.; Analysis and interpretation of data: J.F., G.R., and B.G.; Drafting of the manuscript: L.M. and M.R.; Critical revision of the manuscript for important intellectual content: L.M. and M.R.; Statistical analysis: L.M. and M.R.

Conflict of Interests: The authors declare no conflict of interest.

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