

Original Article

## A Retrospective Analysis of Esophagus and Gastric Cancer

### *Özofagus ve Mide Kanserinin Retrospektif Analizi*

Canan BİRDAL<sup>1</sup> , Hakan DURSUN<sup>2</sup> , Onur Can KILINÇ<sup>3\*</sup> 

<sup>1</sup>Göztepe Prof.Dr. Süleyman Yalçın City Hospital, İstanbul, Turkey

<sup>2</sup>Atatürk University, Faculty of Medicine, Department of Internal Medicine, Erzurum, Turkey

<sup>3</sup>Dışkapı Yıldırım Beyazıt Training and Research Hospital, Internal Medicine, Ankara, Turkey

#### Abstract

**Aim:** Esophageal and gastric cancer are among the most commonly seen and fatal malignancies. In this study we aimed to evaluate the data of patients who were newly diagnosed with esophagus and gastric cancer.

**Material and Methods:** 271 patients that were diagnosed with esophageal cancer and 352 patients that were diagnosed with gastric cancer and had undergone total/subtotal gastrectomy were investigated in this study.

**Results:** The mean age was  $63 \pm 13.2$  years for patients with esophageal cancer, and  $64.6 \pm 11.5$  for patients with gastric cancer. The most common histopathological type in patients with esophageal cancer was squamous cell carcinoma (77.5%) and the most common histopathological type in patients with gastric cancer was adenocarcinoma (92.6%). The most common tumor location in patients with esophageal cancer was lower third of esophagus and the most common tumor location in patients with gastric cancer was corpus. 5.9% of patients with gastric cancer were accepted as early stage gastric cancer. There were no significant differences between the groups in terms of survival according to gender, tumor localization or histopathological types in patients with esophageal or gastric cancer.

**Conclusion:** National screening programs may be considered for early diagnosis of esophageal and gastric cancers, which are common and have high mortality rates in Turkey.

**Keywords:** Esophageal cancer; gastric cancer; demographics; survival

Corresponding Author\*: Onur Can KILINÇ, Dışkapı Yıldırım Beyazıt Training and Research Hospital, Internal Medicine, Ziraat Mah. Şehit Ömer Halisdemir Cad. No:20 Dışkapı, Ankara, Turkey

E-mail: ockilinc@hotmail.com

ORCID: 0000-0003-1692-5094

Received: 21.12.2021 Accepted: 12.05.2022

Doi: 10.18663/tjcl.1039557

## Öz

**Amaç:** Özofagus ve mide kanseri en sık görülen ve ölümcül maligniteler arasındadır. Bu çalışmada yeni özofagus ve mide kanseri tanısı alan hastaların verilerinin retrospektif olarak değerlendirilmesi amaçlandı.

**Gereç ve Yöntem:** Çalışmaya özofagus kanseri tanısı almış 271 hasta ve mide kanseri tanısı alıp total/subtotal gastrektomi yapılmış 352 hasta dahil edildi.

**Bulgular:** Özofagus kanseri tanılı hastalarda yaş ortalaması  $63 \pm 13,2$  iken mide kanserli hastalarda  $64,6 \pm 11,5$  idi. Özofagus kanseri tanılı hastalarda en sık görülen histopatolojik tip %77,5 ile skuamöz hücreli karsinom iken mide kanseri tanılı hastalarda en sık görülen histopatolojik tip %92,6 ile adenokarsinom idi. Özofagus kanserli hastalarda en sık görülen tümör yerleşimi özofagusun alt üçte biri iken mide kanserli hastalarda korpus idi. Mide kanserli hastaların %5,9'u erken evre mide kanseri olarak kabul edildi. Hem özofagus hem de mide kanserli hastalarda cinsiyetin, tümör lokalizasyonunun veya histopatolojik tipin sağkalım açısından anlamlı fark oluşturmadığı görüldü.

**Sonuç:** Ülkemizde sık görülen ve mortalitesi yüksek olan özofagus ve mide kanserlerinin erken tanısı için ulusal tarama programları uygulanması düşünülebilir.

**Anahtar Kelimeler:** Özofagus kanseri; mide kanseri; demografik özellikler; sağkalım

## Introduction

Esophageal cancer is an increasingly widespread and extremely fatal malignancy [1]. It is the sixth leading cause of death from cancer worldwide [2]. It is common in a wide geography from the southern shores of the Caspian Sea to the east to North China, and covering particular parts of Iran, Central Asia, Afghanistan, Siberia and Mongolia [1]. In Turkey, it is most commonly seen in East and Southeast Anatolia [3].

According to GLOBOCAN 2018 database from the International Agency for Research on Cancer (IARC), gastric cancer is the fifth most common malignancy in the world with about one million new cases in 2018. More than half of these cases occurred in East Asia. Gastric cancer is the third leading cause of cancer-related deaths worldwide in both genders [4]. Gastric cancer is more common in the central, northeastern and eastern parts of Turkey [5,6].

The frequency of early stage gastric cancer is not definite in western countries. The low incidence of early stage gastric cancer in these countries is due to lack of screening programs for this tumor [7]. In a study that analyzed three decades of clinical-pathological trends in gastric cancer in Portugal, the incidence of early stage gastric cancer was reported to increase from 14.5% (1980-1989) to 20.8% (2000-2009) [8].

## Material And Methods

Patients who were histopathologically diagnosed as esophagus or gastric cancer between January 2010 and December 2015 in Atatürk University Faculty of Medicine

were examined using the records of the pathology clinic. The patients who were newly diagnosed with esophageal cancer by endoscopic esophageal biopsy and the patients who were newly diagnosed with gastric cancer by endoscopic gastric biopsy and undergone total/subtotal gastrectomy were included in the study. Data of patients such as demographic characteristics (age, gender, etc.), place of residence, tumor location, pathological evaluation results, radiological findings and presence of metastasis were obtained from the hospital automation system. The information about the survival of the patients and the date of death was obtained by questioning the Turkish Identity Number through the Turkish Ministry of Health Death Notification System (Ölüm Bildirim Sistemi; ÖBS). The total survival time was accepted to be from the time of diagnosis to the moment of death. Staging of patients with gastric cancer was performed using TNM staging system published by the American Joint Committee on Cancer. The study was approved by the Ethical Committee of Atatürk University Faculty of Medicine (04.04.2016/3/19).

## Statistical Analysis

Statistical analysis of the data was performed using the IBM SPSS Statistics for Windows, Version 20.0 (Armonk, NY: IBM Corp). Data were presented as number, percentage, median, mean, standard deviation and standard error. Kaplan-Meier survival analysis was used for survival analysis. Kaplan-Meier survival analysis and Logrank test were used to compare



survival distributions according to parameters such as gender, histopathological type, and tumor location. P values smaller than 0.05 were considered as statistically significant.

## Results

A total of 623 patients (271 with esophageal cancer and 352 with gastric cancer) were included in the study. 267 (98.5%) patients with esophageal cancer were living in East Anatolia. 126 (46.5%) patients with esophageal cancer were male and 145 (53.5%) were female. The male/female ratio was 0.8, and the mean age was  $63 \pm 13.2$  (30-93) years for esophageal cancer. 228 (64.8%) patients with gastric cancer were male and 124 (35.2%) were female. Male/female ratio was 1.8, and the mean age was  $64.6 \pm 11.5$  (24-92) years for gastric cancer. Histopathological examination of patients with esophageal cancer revealed squamous cell carcinoma in 210 (77.5%) patients, adenocarcinoma in 43 (15.9%) patients, adenosquamous carcinoma in 12 (4.4%) patients, neuroendocrine carcinoma in four (1.5%) patients, and other types (granular cell tumor and mesenchymal tumor) in two (0.7%) patients. There was no significant difference between the groups in terms of survival according to histopathological types in patients with esophageal cancer ( $p = 0.6$ ).

326 (92.6%) patients with gastric cancer had adenocarcinoma, 11 (3.1%) had GIST (gastrointestinal stromal tumor), 10 (2.8%) had neuroendocrine tumor, 2 (0.6%) had squamous cell carcinoma, two (0.6%) had other types (yolk sac tumor and lymphoepithelioma-like carcinoma), and one (0.3%) had non-Hodgkin lymphoma. There was no significant difference between the groups in terms of survival according to histopathological types in patients with gastric cancer ( $p = 0.3$ ). When tumor location of patients with esophageal cancer was examined, tumor location of 10 (3.6%) cases could not be determined due to lack of data. Tumor was located at lower third of esophagus in 187 (69%) patients, at middle third of esophagus in 49 (18.1%) patients, and at upper third of esophagus in 11 (4.1%) patients. In 14 (5.2%) patients, tumor was located both at middle and lower third of esophagus. There was no significant difference between the groups in terms of survival according to tumor location in patients with esophageal cancer ( $p = 0.1$ ).

In 12 (3.4%) patients with gastric cancer, tumor location could not be determined due to lack of data. Tumor was located at corpus in

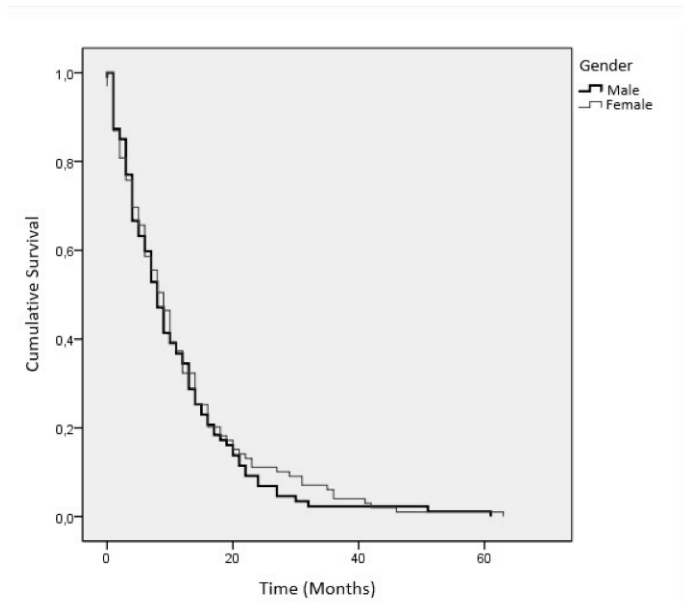
154 (43.8%) patients, at cardia in 72 (20.5%) patients, at antrum in 52 (14.8%) patients, and at pylorus in nine (2.6%) patients. Tumor was located both at cardia and corpus in 26 (7.4%) patients, and both at antrum and corpus in 17 (4.8%) patients. In 10 (2.8%) patients, tumor was located at corpus, cardia, antrum and pylorus with different combinations. Three patients had diffuse involvement (linitis plastica). There was no significant difference between the groups in terms of survival according to tumor location in patients with gastric cancer ( $p = 0.4$ ).

Although not necessarily histopathologically confirmed, patients that reported to have metastatic lesions according to PET and/or CT imaging were considered as metastatic.

Based on imaging modalities, 153 (56.4%) patients with esophageal cancer did not have metastasis and in 65 (23.9%) patients the presence of metastasis could not be determined due to lack of data. 21 (7.7%) patients had lung, 10 (3.7%) patients had liver, four (1.5%) patients had bone, and three (1.1%) patients had adrenal gland metastasis. The remaining 15 (5.5%) patients had different combinations of lung, liver, bone, and adrenal involvement.

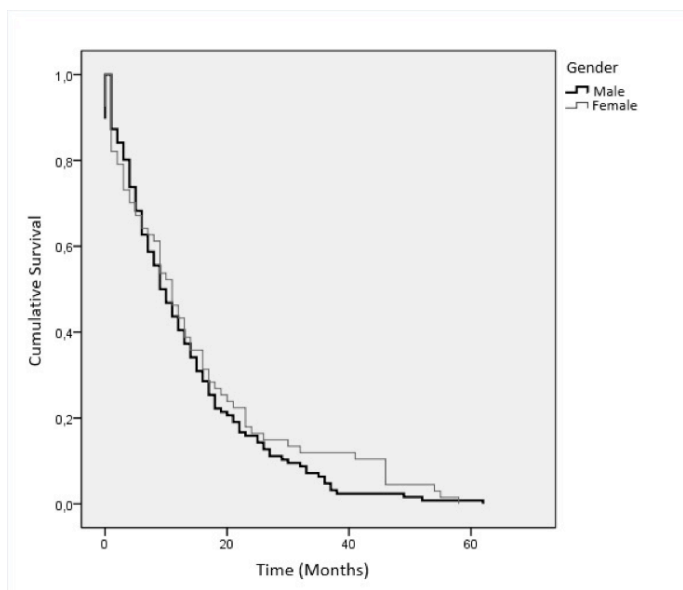
When staging patients with gastric cancer, one patient with pathological diagnosis of non-Hodgkin lymphoma was not included. Due to lack of data, 106 (30.1%) patients with gastric cancer could not be staged. 20 (5.6%) patients with gastric cancer were stage IA, 12 (3.4%) patients were stage IB, five (1.4%) patients were Stage IIA, 25 (7.1%) patients were Stage IIB, 18 (5.1%) patients were stage IIIA, 32 (9.1%) patients were stage IIIB, 68 (19.3%) patients were stage IIIC, and 65 (18.5%) patients were stage IV. In 24 (6.8%) patients with gastric cancer, T stage was T1. In these 24 patients, three of them had reported to have metastasis according to imaging. The remaining 21 patients (5.9%) were accepted as early stage gastric cancer.

Only 85 patients with esophageal cancer were alive as of September 2016. 69% (87) of male patients and 68.3% (99) of female patients were dead. The mean survival time of patients with esophageal cancer was  $11.2 \pm 10.9$  (0-63) months. The mean survival time was  $10.7 \pm 10.3$  months for males and  $11.6 \pm 11.4$  months for females. There was no significant difference between the genders in terms of survival ( $p = 0.5$ ). Kaplan-Meier survival curve by gender for patients with esophageal cancer can be seen in Figure 1.



**Figure 1.** Kaplan-Meier survival curve by gender for patients with esophageal cancer.

For gastric cancer, 158 patients were alive as of September 2016. Information on the latest status of one patient who came from abroad could not be obtained. 55.2% (126) of male patients and 54% (67) of female patients were dead. The mean survival time of patients with gastric cancer was  $13.5 \pm 13$  (0-62) months. The mean survival time was  $12.8 \pm 11.8$  months for males and  $14.7 \pm 15$  months for females. There was no significant difference between the genders in terms of survival ( $p = 0.3$ ). Kaplan-Meier survival curve by gender for patients with gastric cancer can be seen in Figure 2.



**Figure 2.** Kaplan-Meier survival curve by gender for patients with gastric cancer.

Characteristics of patients with esophageal and gastric is given in Table 1 briefly.

## Discussion

Esophageal cancer is more commonly seen in males than females, and more common above 50 years of age [1]. The importance of gender as a risk factor in esophageal cancer is not clear. Recent studies have shown that hormonal factors may be important [9]. The incidence of gastric cancer increases after 30 years of age and peaks in the seventh decade. The male / female ratio is about 2 [10]. Coşkun et al. reported a male / female ratio of 1.5 in 44 patients with esophageal cancer and a male / female ratio of 2.4 in 157 patients with gastric cancer in a study that they evaluated endoscopy results between 2009 and 2014 in Aydın, Turkey [10]. In another study performed by Albayrak et al. that carried out in Erzurum and evaluated 1007 cases with upper gastrointestinal malignancies that were diagnosed endoscopically between 2010 and 2013, male / female ratio was reported to be 1,3 for both esophageal and gastric cancer [11]. Şahin et al. reported a male / female ratio of 4.2 in a study that evaluated patients operated due to gastric cancer between 2005 and 2009 [12]. In another study that evaluated patients with gastric adenocarcinoma between 1998 and 2008, Sezer et al. reported a male / female ratio of 3 [13].

Although esophageal cancer is known to be more common in males, the male / female ratio for esophageal cancer in our study was 0.8. For gastric cancer, the male / female ratio was 1.8 in our study, which was consistent with the literature.

When gastric cancer survival studies were examined; a study reported that there was no difference in survival between genders [14]. In another study, women had a better prognosis [15]. In our study, there was no significant difference between genders in terms of survival in patients with esophageal and gastric cancer ( $p > 0.05$ ).

The mean age of the patients with upper gastrointestinal malignancies was  $62.18 \pm 12.07$  years in the study performed by Coşkun et al. [10], and  $63 \pm 13$  years in the study performed by Albayrak et al [11]. The mean age of patients with gastric cancer was  $63.7 \pm 10.7$  years in the study performed by Şahin et al. [12], and 58.3 in the study performed by Sezer et al [13]. Even though the minimum age was 33 for esophageal cancer and 24 for gastric cancer in our study, the mean age of the patients ( $63 \pm 13.2$  years for esophageal cancer and  $64.6 \pm 11.5$  years for gastric cancer) was similar to previous studies and was consistent with the literature.

**Table 1.** Characteristics of patients with esophageal and gastric cancer

Esophageal Cancer				Gastric Cancer			
		Number of Patients (n=271)	%			Number of Patients (n=352)	%
<b>Gender</b>				<b>Gender</b>			
	Male	126	46.5		Male	228	64.8
	Female	145	53.5		Female	124	35.2
<b>Age</b>				<b>Age</b>			
	30-39	13	4.8		20-29	1	0.3
	40-49	30	11.1		30-39	9	2.6
	50-59	64	23.6		40-49	25	7.1
	60-69	69	25.5		50-59	60	17
	70-79	67	24.7		60-69	134	38.1
	80-89	26	9.6		70-79	92	26.1
	90-99	2	0.7		80-89	30	8.5
					90-99	1	0.3
<b>Histopathological Type</b>				<b>Histopathological Type</b>			
	Squamous cell carcinoma	210	77.5		Adenocarcinoma	326	92.6
	Adenocarcinoma	43	15.9		GIST	11	3.1
	Adenosquamous carcinoma	12	4.4		Neuroendocrine tumor	10	2.8
	Neuroendocrine carcinoma	4	1.5		Squamous cell carcinoma	2	0.6
	Other	2	0.7		Other	2	0.6
					Non-Hodgkin lymphoma	1	0.3
<b>Tumor Location</b>				<b>Tumor Location</b>			
	Unknown	10	3.6		Corpus	154	43.8
	Lower 1/3	187	69		Cardia	72	20.5
	Middle	49	18.1		Antrum	52	14.8
	Middle+Lower 1/3	14	5.2		Cardia+Corpus	26	7.4
	Upper 1/3	111	4.1		Antrum+Corpus	17	4.8
					Pylorus	9	2.6
					Unknown	12	3.4
					Other	10	2.8
<b>Metastasis</b>				<b>Stage</b>			
	No metastasis	153	56.4		Unknown	106	30.1
	Unknown	65	23.9		Stage IA	20	5.6
	Lung	21	7.7		Stage IB	12	3.4
	Liver	10	3.7		Stage IIA	5	1.4
	Bone	4	1.5		Stage IIB	25	7.1
	Adrenal gland	3	1.1		Stage IIIA	18	5.1
	Other	15	5.5		Stage IIIB	32	9.1
					Stage IIIC	68	19.3
					Stage IV	65	18.5

In a study performed in China, 64% of the esophageal malignancies were found to be located at distal esophagus [16]. In recent years, frequencies of gastric cancers that are located at antrum and corpus has been reported to decrease, and gastric cancers that are located at cardia has been reported to increase [17]. Coşkun et al. reported that 45.5% of esophageal tumors were located at distal esophagus and 40.7% of gastric tumors were located at the corpus [10]. Albayrak et al. reported the most common location in gastric cancer patients as cardia and fundus [11]. In the study performed by Şahin et al., the rates of gastric cancer involvement of the antrum, corpus, cardia and the whole stomach were 35.7%, 35.7%, 19% and 9.5%, respectively [12]. In the study performed by Sezer et al., the most common site of tumor location was the corpus with a rate of 46.7% [13]. In our study, 69% of esophageal cancers were located at the lower third of the esophagus, and 43.8% of gastric cancers were located at corpus, which was consistent with the literature.

In the study performed by Sezer et al., it was reported that the tumors located at the antrum had the best and the tumors that had spread to the entire stomach had the worst survival rates [13]. In our study, there was no significant difference between the groups in terms of survival according to tumor location in patients with gastric cancer.

According to a study performed in China, the majority of esophageal cancers (82%) are squamous cell carcinomas [16]. Adenocarcinomas are the most common type malignancies of the stomach and constitute 90% of all stomach cancers [18]. In the study performed by Coşkun et al., 84.1% of esophageal tumors were detected as squamous cell carcinomas [10]. In the study performed by Albayrak et al., 75% of esophageal cancers were squamous cell carcinomas and 23.6% were adenocarcinomas, and 87.6% of patients with gastric cancer were reported as adenocarcinoma [11]. In the study performed by Şahin et al., 92.4% of the patients with gastric cancer were reported to be adenocarcinoma [12]. In our study the most common histopathological type in patients with esophageal cancer was squamous cell carcinoma with a frequency of 77.5% and the most common histopathological type in patients with gastric cancer was adenocarcinoma with a frequency of 92.6%, which were consistent with the literature.

Esophageal cancer can spread in three ways; direct invasion, lymphatically, and hematogenously. In a study performed by Türkyılmaz et al. that evaluated 50 esophageal cancer patients with hematogenous distant metastasis, liver was reported to be the most common distant metastasis organ with a rate of 38.7%, and lung was reported to be the second with a rate of 33.9% [19]. In our study, 19.5% of patients with esophageal cancer did have metastases, although in 23.9% of patients presence of metastasis could not be determined due to lack of data.

One of the reasons of poor prognosis in gastric cancer patients is the diagnosis of the disease in the late stage [20]. In Japan, more than 40% of gastric cancer can be caught at an early stage [21]. In the study performed by Şahin et al., a large number of patients (76.2%) were in late stage [12]. In the study performed by Sezer et al., 10.5% of the cases were stage I, 44.2% were stage II, 9.9% were stage III and 35.4% were stage IV, and the patients with lymph node metastasis had a lower five-year survival [13]. In a study performed by Selçukbiricik et al. that evaluated gastric cancer patients between 2000 and 2011, 24.5% of the patients were stage III and 49.3% were stage IV [22]. In another study that evaluated 120 patients diagnosed with non-metastatic gastric cancer, the most common stage was reported to be stage III with 71%, and late stage has been shown to decrease survival while no significant relationship was found between age and survival [23]. In a study performed by Koç et al. that evaluated 1006 patients diagnosed with gastric cancer and underwent surgery, 5.4% of the patients had early stage gastric cancer [24].

In our study, early stage gastric cancer was detected in 5.9% of gastric cancer patients. As in previous studies, the majority of our patients were stage III (33.5%) and stage IV (18.5%).

Most patients with esophageal cancer die within one year of diagnosis, and their five-year survival is only 8-20%. Metastases are the primary cause of death in most of these patients [25]. In the study performed by Türkyılmaz et al. that evaluated esophageal cancer patients with hematogenous distant metastasis, the mean survival time was reported to be 7.3 months [19]. In a study performed by Kotan et al. that evaluated patients who had been operated for esophageal cancer, mortality rate was found to be 10.5% [26]. In our study, survival of patients with esophageal cancer was investigated regardless of whether they were operated or metastatic. The overall mortality rate was found to be 68.6% and the mean survival time was  $11.2 \pm 10.9$  (0-63) months.

Gastric cancer has a poor prognosis and is unlikely to cure when it is detected in late stages [27]. In the study performed by Sezer et al., it was reported that 46.6% of the patients had a mean survival time of less than one year [13]. In our study, the mean survival time of patients with gastric cancer was  $13.5 \pm 13$  (0-62) months.

It is clear that a significant number of patients have been diagnosed in late stages since only 5.9% of patients with gastric cancer have early stage gastric cancer. More effective studies can be done to raise awareness of the community, especially primary health care workers, in terms of understanding the risk factors for esophageal and gastric cancers and recognizing the symptoms that may suggest malignancy. It is important for early diagnosis to include patients with risk factors to scanning programs.

Although not investigated in our study, future studies that

will investigate the blood type, helicobacter pylori status and smoking status of the patients with esophageal and gastric cancer can provide more detailed information.

## Conclusion

National screening programs for early diagnosis of esophageal and gastric cancers can be considered. As in Japan, the detection of these cancers at an early stage with endoscopic mass screening will significantly reduce the cancer deaths which are common in our country.

## Declaration of conflict of interest

The authors received no financial support for the research and/or authorship of this article. There is no conflict of interest.

## References

1. Mayer RJ. Upper Gastrointestinal Tract Cancers. In: Kasper DL, Fauci AS, Hauser SL, Longo DL, Jameson JL, Loscalzo J (eds). *Harrison's Principles of Internal Medicine*. 19th ed. New York: McGraw-Hill; 2015: 532-7.
2. D'Journo XB, Thomas PA. Current management of esophageal cancer. *J Thorac Dis* 2014; 6: 253-64.
3. Tuncer İ, Uygan İ, Kösem M, et al. The demography and histopathologic characteristics of upper gastrointestinal cancers appeared in Van and its vicinity. *Van Med J* 2001; 8: 10-3.
4. Bray F, Ferlay J, Soerjomataram I, et al. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin* 2018; 68: 394-424.
5. Tuncer İ, Topçu N, Uğraş S, et al. The distribution of gastrointestinal cancers in region of lake Van. *T Klin J Gastroenterohepatol* 2003; 14: 161-6.
6. Yalcin S. Gastric cancer in Turkey—a bridge between West and East. *Gastrointest Cancer Res* 2009; 3: 29-32.
7. Bollschweiler E, Berlth F, Baltin C, et al. Treatment of early gastric cancer in the Western World. *World J Gastroenterol* 2014; 20: 5672-8.
8. Faria GR, Pinto-de-Sousa J, Preto JR, et al. Three decades of clinical-pathological trends in gastric cancer: prospective data from a Portuguese hospital. *Int J Surg* 2013; 11: 472-6.
9. Mathieu LN, Kanarek NF, Tsai HL, et al. Age and sex differences in the incidence of esophageal adenocarcinoma: results from the Surveillance, Epidemiology, and End Results (SEER) Registry (1973–2008). *Dis Esophagus* 2014; 27: 757-63.
10. Coşkun A, Borazan S, Yükselen V, et al. Features of upper gastrointestinal tract malignancies in Aydın region. *Endoscopy Gastrointestinal* 2015; 23: 67-9.
11. Albayrak F, Ozturk Y, Dursun H, Albayrak Y. Should every region use the same gastric cancer scanning and treatment approaches? Let's reconsider: a northeastern Turkey example. *BMC Gastroenterol* 2016; 16: 120.
12. Şahin M, Tanrıku Y, Erel S, et al. Our experience of gastrectomy for gastric cancer. *Bidder Tıp Bilimleri Dergisi* 2010; 2: 20-6.
13. Sezer TÖ, Tosun S, Görgün M, et al. Surgical treatment of gastric cancer: retrospective analysis of 172 patients. *Tepecik Eğitim Hast Derg* 2010; 20: 70-6.
14. Siewert JR, Böttcher K, Stein HJ, Roder JD. Relevant prognostic factors in gastric cancer: ten-year results of the German Gastric Cancer Study. *Ann Surg* 1998; 228: 449-61.
15. Maehara Y, Watanabe A, Kakeji Y, et al. Prognosis for surgically treated gastric cancer patients is poorer for women than men in all patients under age 50. *Br J Cancer* 1992; 65: 417-20.
16. Liu S-Z, Wang B, Zhang F, et al. Incidence, survival and prevalence of esophageal and gastric cancer in Linzhou city from 2003 to 2009. *Asian Pac J Cancer Prev* 2013; 14: 6031-4.
17. Kısaoğlu A, Özoğul B, Yıldırğan Mİ, et al. Surgery in the gastric cancer: 504 cases. *Abant Med J* 2014; 3: 220-5.
18. Turner JR, Lingen MW. Oral Cavity and Gastrointestinal Tract. In: Kumar V, Abbas AK, Aster JC (eds). *Robbins Basic Pathology*. 9th ed. Philadelphia: Elsevier/Saunders; 2013: 551-602.
19. Türkyılmaz A, Eroğlu A, Aydın Y, et al. Survival in esophageal cancer patients with hematogenous distant organ metastases. *Turk J Med Sci* 2009; 39: 415-21.
20. Kama NA, Atlı M, Dağlar G, et al. Surgical treatment of gastric cancer: 11-year experience. *Türkiye Klinikleri J Med Sci* 2005; 25: 538-45.
21. Noguchi Y, Morinaga S, Yamamoto Y, Yoshikawa T. Is there a role for nontraditional resection of early gastric cancer? *Surg Oncol Clin N Am* 2002; 11: 387-403.
22. Selcukbiricik F, Tural D, Bilici A, et al. Clinicopathological features and localization of gastric cancers and their effects on survival in Turkey. *Asian Pac J Cancer Prev* 2013; 14: 553-6.
23. Kaçan T, Babacan NA, Kılıçkap S, et al. Prognostic factors in patients with non-metastatic gastric cancer. *Cumhuriyet Med J* 2013; 35: 326-31.
24. Koç HO, Sari YS, Bektaş H, et al. Do we adequately diagnose early gastric cancer in Turkey. *Turk J Gastroenterol* 2011; 22: 255-9.
25. Türkyılmaz A, Aydın Y. Diagnostic techniques in esophageal diseases. *Toraks Cerrahisi Bülteni* 2011; 2: 242-53.
26. Kotan Ç, Kisli E, Sönmez R, et al. Our experiences in surgical treatment of esophageal cancer: Analysis of 57 cases. *Van Med J* 2001; 8: 54-60.
27. Erikoğlu M, Yol S, Tavlı Ş, et al. Gastric cancers: Our fifteen years experiences. *Genel Tıp Derg* 2005; 15: 71-5.