




The perioperative outcomes of gastric cancer surgery in octogenarians

Yaşlı hastalarda mide kanseri cerrahisinin perioperatif sonuçlarının değerlendirilmesi


Can Uç¹ 

Tolga Girgin² 

Osman Bozbıyık² 

Taylan Özgür Sezer² 

Özgür Fırat³ 

Sinan Ersin² 

¹ Izmir Democracy University, Buca Seyfi Demirsoy Education and Research Hospital, General Surgery Department, Izmir, Türkiye

² Ege University, Ege University Hospital, General Surgery Department, Izmir, Türkiye

³ Izmir Economy University, Medical Point Hospital, General Surgery Department, Izmir, Türkiye

ABSTRACT

Aim: Gastric cancer is the fifth most common cancer in the world and the third most common cause of cancer-related deaths. Its incidence is also increasing in elderly patients. A patient-based, multidisciplinary treatment approach is required in the evaluation of elderly patients. Surgical resection is the curative method in the treatment of gastric cancer. We aimed to evaluate the early surgical outcomes, mortality and morbidity of patients aged 80 years and older who were operated for gastric cancer.

Materials and Methods: Patients aged 80 years and older who underwent surgery for gastric adenocarcinoma between January 2015 and June 2022 were retrospectively analyzed. Demographic, clinical, and histopathological parameters and postoperative outcomes were evaluated.

Results: Twenty-three patients aged 80 years and older were included in the study. The mean age was 81.95 ± 3.11 (Range 80-96) years. 8 were female and 15 were male. 5 patients were ASA I, 11 patients were ASA II, and 7 patients were ASA III. Three patients received neoadjuvant chemotherapy. Total gastrectomy was performed in 11 patients, distal gastrectomy in 5 patients, and proximal gastrectomy in 7 patients. The mean number of lymph nodes removed was 19.87 ± 12.61 . The mean hospital stay length was 9.34 ± 3.45 days. The mortality rate in the first ninety days of our study was 8.69% and morbidity was 13,04%.

Conclusion: Octogenarians are a special patient group. The treatment plan should be individualized. If possible, all medically fit patients should undergo curative surgery.

Keywords: Octogenarian, gastric cancer, gastric surgery, perioperative outcomes.

ÖZ

Amaç: Mide kanseri dünyada en sık görülen beşinci kanserdir. Toplumun yaşlanmasıyla beraber ileri yaş grubunda da mide kanseri görülebilmektedir. Çalışmamızın amacı 80 yaş ve üstü hastalarda mide kanseri cerrahisinin erken dönem sonuçlarının değerlendirilmesidir.

Gereç ve Yöntem: Ocak 2015 - Haziran 2022 tarihleri arasında mide kanseri nedeniyle opere edilen 80 yaş ve üstü hastalar; klinik, histopatolojik ve erken dönem perioperatif sonuçlar retrospektif olarak değerlendirildi.

Bulgular: Çalışmaya toplam 23 hasta dahil edildi. Hastaların yaş ortalaması 81.9 idi. Hastaların sekizi kadın 15'i erkekti. Üç hastaya neoadjuvant sistemik tedavi uygulanmış idi. On bir hastaya total gastrektomi, beş hastaya distal gastrektomi, yedi hastaya proksimal gastrektomi uygulandı. İlk 90 günde iki hastada (%8,69) eksitus, üç hastada (%13,04) morbidite gelişti.

Corresponding author: Can Uç
Izmir Democracy University, Buca Seyfi Demirsoy Education and Research Hospital, General Surgery Department, Izmir, Türkiye
E-mail: drcanuc@gmail.com
Application date: 09.06.2024 Accepted: 30.10.2024

Sonuç: Yaşlı hasta grubu özel bir hasta grubudur. Tedavi süreci planlanırken hasta bazlı karar verilmelidir. Mümkünse medikal olarak fit hasta grubuna cerrahi rezeksiyon uygulanmalıdır.

Anahtar Sözcükler: Yaşlı hasta, mide kanseri, mide kanser cerrahisi.

INTRODUCTION

With the increase in the elderly population, the need for oncologic surgical intervention is increasing.(1) Advanced age is known to increase surgical mortality and morbidity. Elderly patients require individualized treatment modalities according to their comorbidities and physical performance status. People over 65 years of age have a life expectancy of over 20 years, while those over 80 years of age have a life expectancy of approximately 9 years. In the United States of America (USA), the population over 65 years of age is expected to account for 21% of the total population by 2040, while in Western Europe, the population over 60 years of age is expected to increase to 37% by 2050.(2, 3) As the population ages, the number of surgeries performed on elderly patients has been increasing over the years. While 1.5 million patients over the age of 75 underwent surgery in the UK in 2006-2007, this number increased to 2.5 million in 2015-2016. In the US, 12% of the population is over 65 years of age, while 40% of hospital admissions and 48% of hospitalizations are in patients aged 65 and over (1).

Although major abdominal surgical procedures are becoming more common with optimized multidisciplinary approaches, advances in surgical techniques and improved perioperative care for the elderly, advanced age remains a risk factor. Comorbidities such as cardiovascular disorders, respiratory diseases and renal failure, advanced disease at the time of diagnosis, sarcopenia, limited physical capacity and higher incidence of chemotherapy toxicity are factors that complicate treatment in elderly patients.(2-5)

Gastric cancer is the fifth most common cancer in the world and the third most common cause of cancer-related deaths. Its incidence is also increasing in elderly patients. A patient-based, multidisciplinary treatment approach is required in the evaluation of elderly patients. Surgical resection is the curative method in the treatment of gastric cancer. In the literature, we have limited data on surgical outcomes in elderly patients. According to some surgical traditions, advanced age is a contraindication for surgical treatment of gastric cancer (6, 7). In our study, we aimed to

evaluate the early surgical outcomes, mortality and morbidity of patients aged 80 years and older who were operated for gastric cancer.

MATERIALS and METHODS

The study was initiated after ethics committee approval number 23-11T/31 (Date: 02.11.2023) was obtained from Ege University Medical Research Ethics Committee.

Patients who underwent surgery for gastric cancer between 2015 and 2022 were evaluated retrospectively. Patients aged 80 years and older were included in the study. Patients with pathology other than gastric adenocarcinoma, surgeries performed for emergency cases such as bleeding and perforation, and patients under 80 years of age were excluded. Patients aged 80 years and older who were operated under elective conditions with a pre-diagnosis of gastric cancer were included in the study. Data was transferred from the prepared case report forms to the database created in Excel file. Age, gender, ASA-PS Score (8) (American Society of Anesthesiologists, Physical Status Classification System), comorbidities, tumor location and surgical procedure, pathology results (TNM staging according to AJCC 8th edition was used (9)), perioperative morbidity and mortality data in the first ninety days, and re-admissions to the hospital within ninety days were analyzed by descriptive statistical methods. Morbidity and mortality data were presented using the Clavien-Dindo Classification (10).

RESULTS

23 patients, eight females and 15 males, were included in the study. The mean age of the patients was 81.95 (\pm 3.11) years (min: 80, max: 96). Five patients (21%) were ASA-PS 1, 11 patients (47%) were ASA-PS 2, and seven patients (30%) were ASA-PS 3. Comorbidities of the patients are shown in Table-1.

Three locally advanced patients received neoadjuvant systemic treatment. When tumor localization was evaluated, 7 patients had tumor localization in the proximal stomach and 16 patients had tumor localization in the distal and corpus junction. 11 patients underwent total

gastrectomy, 7 patients underwent proximal gastrectomy, and 5 patients underwent distal gastrectomy. The mean number of excised lymph nodes was 19.87 ± 12.61 and the mean number of metastatic lymph nodes was 9.22 ± 9.82 . The pathologic examination results of the patients are shown in Table-2.

The mean hospital stay length was 9.34 ± 3.45 days. One patient who underwent total gastrectomy developed anastomotic leakage, which was managed by endoscopic stenting, however the patient died on postoperative day 23 due to sepsis. In a patient who underwent proximal gastrectomy, sudden cardiac arrest developed on postoperative day 3 and the patient

died. The mortality rate in the first ninety days of our study was 8.69%.

Aspiration pneumonia developed in one patient and the patient was discharged on postoperative day 15 with medical treatment. Three patients were readmitted to the hospital due to nausea and vomiting. One patient's complaints resolved with intravenous fluid therapy. Two patients underwent an upper GI endoscopy. One patient had stenosis at the anastomosis line, balloon dilatation was performed. There was no pathology observed in the other patient. Clinical complaints were resolved with IV hydration. The patient was discharged on the 5th day of follow-up.

Table-1. Comorbidities.

Comorbidity	Number
Coronary Arterial Disease	6
Hypertension	12
Diabetes Mellitus	5
Cerebrovascular Disease	1
Hearth failure	3
Chronic Kidney Failure	1
Chronic Obstructive Lung Disease	1
Parkinson Disease	1

Table-2. Pathological Features.

T		%
1	2	8,69
2	3	13,04
3	4	17,39
4	14	60,86
N		
0	4	17,39
1	3	13,04
2	5	21,73
3	11	47,82
Subtype		
Tubular	9	39,13
Mucinous	2	8,69
Poorly Cohesive	8	34,78
Mixed	4	17,39
Lymphovascular Invasion	15	65,21
Perineural Invasion	11	47,82

Table-3. Morbidity and Mortality within 90 days.

Patient No	Clavien – Dindo Classification	
1	5	Sudden Cardiac Arrest PO 3 rd
2	5	Anastomotic leakage, managed with endoscopic stent, mortality was occurred due to sepsis, on PO 23 th day
3	2	Aspiration Pneumoniae – managed with IV Antibiotics, discharged on PO 15 th day
4	2	Readmission with nausea and vomiting, managed with IV fluid therapy
5	3	Readmission with nausea and vomiting, upper GI endoscopy revealed no pathology, managed with IV fluid therapy
6	3	Readmission with nausea and vomiting, upper GI endoscopy revealed anastomotic stenosis, managed with balloon dilatation.

DISCUSSION

There is no clear definition for the term "elderly patient" in literature. While the definition of "geriatric patient" can be used for patients over 65 or 70 years of age, the definition of "octogenarian" refers to patients 80 years of age and older. We preferred to include octogenarians in this study. Although it is known that age increases surgical mortality and morbidity, patients in the same age group do not carry the same surgical risk. Patients have different comorbidities and physical performance status. Different assessment models have been developed for these (11).

Gastric cancer prevalence increases in elderly patients (12). Some studies suggest that older patients may not have the same chance of curative treatment compared to younger patients due to the general belief that older patients have a worse prognosis regardless of surgery (13, 14). Due to advanced age and comorbidities, perioperative complications and mortality rates are more common in elderly patients than in younger patients; however, with the advancement of surgical and anesthesia techniques and improvements in postoperative patient care, perioperative morbidity and mortality have decreased and surgical outcomes of elderly patients have improved (15).

Advanced age and high ASA score are associated with mortality and morbidity. Perioperative mortality rates in elderly patients have been reported between 0-10% in the literature; in our study, the perioperative mortality rate was 8.6% (16, 17). Fujiwara et al. compared the mortality and morbidity of patients aged 80 years and older with those aged 79 years and younger; mortality rate was 4.3% vs. 0.9% and respiratory complication rates were 6% vs.

2.1%.(18) In contrast to this study, Konishi et al. reported 0 mortality and 30% morbidity in a series of 134 cases in patients aged 85 years and older, and suggested that curative surgery with D2 lymphadenectomy should be performed even in elderly patients (19). Schendel et al. reported 10% mortality in a series of 130 cases aged 57 years and older; however, they showed that disease-free survival was longer with surgery alone (20). Fujisaki et al. argued that laparoscopic gastrectomy can also be performed in patients aged 75 years and older (21).

Gagniere et al. published a meta-analysis of 13 research articles published between 2008 and 2017, including a total of 2544 patients, investigating the outcomes of CRS and HIPEC in elderly patients. It was found that advanced age did not affect 30-day postoperative morbidity, anastomotic leakage rate, reoperation, hospital readmission and length of hospital stay, but increased 90-day postoperative mortality. In subgroup examinations, it was found that the rate of Grade 3 and higher complications according to the Clavien-Dindo Classification increased above the age of 70 years. Although the authors did not set a clear age limit in the study, they emphasized that morbidity increased above the age of 70 years (22).

The immune system and respiratory function decline in elderly patients, which may lead to an increase in complications such as pneumonia and sepsis (23, 24). One of the reasons for the weak immune response of elderly patients is vitamin and mineral deficiency (25). Gastric cancer causes cachexia, vitamin and mineral deficiency, which can lead to a reduced immune response. Elderly patients and patients with gastric cancer should be evaluated as a multidisciplinary team in terms of nutritional

status - necessary nutritional support should be provided (26).

The most important limitation of our study is its retrospective nature. Since elderly patients are not included in randomized controlled trials, there is no strong evidence to confirm the efficacy of any treatment in this age group. When high-quality evidence from randomized trials is not available, we can benefit from methodologically well-planned retrospective studies. However, it is obvious that the elderly patients included in retrospective studies are selected patients and do not reflect the general elderly patient population. Therefore, unintentional bias in this article and in the literature is inevitable.

CONCLUSION

Octogenarians are a special patient group. This study showed that gastric cancer surgery can safely be performed in octogenarians. The treatment plan should be individualized. If possible, all medically fit patients should undergo curative surgery.

Conflict of interest: Statement and Authorship Contributions

All the authors are in agreement with the content of the manuscript.

All the authors have no conflict of interest.

The manuscript has not been published previously and is not under consideration.

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