



Our Experience with Emergency Surgery in Geriatric Patients

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Research Article

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ABSTRACT

Objective: A significant portion of admissions to emergency departments are made up of elderly patients. We aim to determine the causes of acute abdomen in geriatric patients requiring emergency surgery, evaluate postoperative intensive care needs and mortality rates, and raise awareness about this patient group.

Methods: Patient files of individuals aged 65 and older who were consulted in our hospital's emergency department and subsequently admitted to the general surgery service between 2021 and 2023 were retrospectively reviewed. Data including age, gender, underlying diseases, additional illnesses, duration of stay in the intensive care unit, cause of mortality, and length of hospital stay were extracted from the patient's records. The collected data were analyzed statistically for comparisons.

Results: Data of 27 patients were accessed. These patients, 40.7% (n=11) were female, and 59.3% (n=16) were male. The average age of the patients was determined to be 74.81 years (ranging from 65 to 88). Thirteen patients, comprising 5 males and 8 females, were monitored in the intensive care unit. 6 patients experienced mortality, and all of them were those admitted to the intensive care unit. When comparing mortality rates based on gender, it was 18.8% in male patients and 27.3% in female patients. All 27 patients had at least one comorbidity. Patients who experienced mortality had at least two comorbidities. Twelve patients did not undergo surgery.

Conclusions: In the emergency assessment of geriatric patients, a prompt diagnosis should be made, considering comorbidities after diagnosis, and follow-up and treatments should be adjusted multidisciplinary for patients requiring intensive care or those to be monitored in regular rooms.

Keywords: Geriatric patient, Emergency surgery, Mortality

Geriatrik Hastalarda Acil Cerrahi Tecrübemiz

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ÖZET

Amaç: Acil servislere başvuruların önemli bir kısmını yaşlı hastalar oluşturmaktadır. Acil cerrahi gerektiren geriatrik hastalarda akut karın nedenlerini belirlemeyi, postoperatif yoğun bakım ihtiyaçlarını ve mortalite oranlarını değerlendirmeyi ve bu hasta grubu hakkında farkındalık yaratmayı amaçlıyoruz.

Yöntem: 2021-2023 yılları arasında hastanemiz acil servisine başvuran ve sonrasında genel cerrahi servisine yatırılan 65 yaş ve üzeri bireylerin hasta dosyaları geriye dönük olarak incelendi. Hasta kayıtlarından yaş, cinsiyet, altta yatan hastalıklar, ek hastalıklar, yoğun bakımda kalış süresi, ölüm nedeni, hastanede kalış süresi gibi veriler elde edildi. Toplanan veriler karşılaştırmalar için istatistiksel olarak analiz edildi.

Bulgular: 27 hastanın verilerine ulaşıldı. Bu hastaların %40,7'si (n=11) kadın, %59,3'ü (n=16) erkekti. Hastaların yaş ortalaması 74,81 (65 ile 88 arasında) olarak belirlendi. Yoğun bakım ünitesinde 5 erkek, 8 kadın olmak üzere 13 hasta izlendi. 6 hastada ölüm yaşandı ve bunların tamamı yoğun bakım ünitesine yatırılan hastalardan oluştu. Cinsiyete göre ölüm oranları karşılaştırıldığında erkek hastalarda bu oran %18,8, kadın hastalarda ise %27,3 oldu. 27 hastanın tamamında en az bir komorbidite mevcuttu. Mortalite yaşayan hastaların en az iki komorbiditesi vardı. On iki hasta ameliyat edilmedi.

Sonuç: Geriatrik hastaların acil değerlendirilmesinde, tanı sonrası komorbiditeler göz önünde bulundurularak hızlı tanı konulmalı, yoğun bakım gerektiren veya normal odalarda izlenecek hastalar için takip ve tedaviler multidisipliner olarak ayarlanmalıdır.

Anahtar Kelimeler: Yaşlı hasta, Acil cerrahi, Ölüm

Telif Hakkı



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Introduction

Geriatrics is characterized by a decline in an individual's adaptability to changing environments and a diminishing capacity to maintain a balance between internal and external factors, increasing the likelihood of mortality, as defined by the World Health Organization (WHO).

It is projected that by the year 2050, the global average life expectancy will rise to 77.1 years.¹ The world's population is rapidly aging, with approximately 9% of Turkey's population currently being 65 years and older.² This demographic shift is accompanied by a growing demand for healthcare services for individuals aged 65 and above.

Geriatric patients constitute 23% of all surgical procedures, facing a high risk of morbidity and mortality during both elective and emergency surgeries.³ The increasing geriatric population has resulted in a rise in emergency department visits by elderly patients. Advances in surgical methods and techniques, along with improvements in postoperative care, have contributed to an increased frequency of surgical interventions in the geriatric population.⁴ Aging often comes with associated chronic illnesses, predicting a substantial increase in morbidity, mortality, and the need for intensive care support.

One of the most complex issues in emergency departments is abdominal pain in the geriatric age group.⁵ The accuracy of diagnosis in geriatric patients in the emergency department ranges from 40% to 82%.^{6,7} The difficulty in diagnosis primarily stems from the fact that typical clinical symptoms may manifest differently in geriatric patients. Leukocytosis and fever may occur later in elderly patients, and the degree of fever is lower compared to younger individuals. Medications used by elderly patients can also yield complex results in vital signs.⁸ Clinical presentations are often milder in elderly patients compared to younger ones. Obtaining a thorough medical history may be challenging due to factors such as hearing difficulties and dementia.^{9,10} Moreover, typical examination findings may be absent, and a surgical pathology may be overlooked even when laboratory values are within the normal range.¹¹ Various medications used by elderly patients can also mask acute abdominal symptoms. In addition to the abdominal examination, a systemic examination should be carefully conducted in elderly patients. Furthermore, examinations targeting systemic diseases that could alter abdominal findings should be performed.

In this study, we aim to identify the causes of acute abdomen in geriatric patients requiring emergency surgery, assess their postoperative intensive care needs and mortality rates, and raise awareness about this patient group.

Materials and Methods

Ethical approval for the study was obtained from the non-interventional ethics committee of Cumhuriyet University under approval number 2023-12/43 on December 21, 2023. Following ethical approval, the study commenced. Patient files of individuals aged 65 and older who were consulted in our hospital's emergency department and subsequently admitted to the general surgery service between 2021 and 2023 were retrospectively reviewed.

Data including age, gender, underlying diseases, additional illnesses, duration of stay in the intensive care unit, cause of mortality, and length of hospital stay were extracted from the patient's records. The collected data were analyzed statistically for comparisons. The statistical software tool SPSS 23.0 was used to make statistical comparisons (SPSS Inc., Chicago, IL, USA). The Mann Whitney U test was performed to examine the statistical significance of the difference between the group means after it was found that the variables utilized were not suitable for a normal distribution. To compare categorical variables, the chi-squared test.

Results

Data from a total of 27 patients were obtained for analysis. Of these patients, 40.7% (n=11) were female, and 59.3% (n=16) were male. The average age of the patients was determined to be 74.81 years (ranging from 65 to 88). The average age for male patients was 74, while for female patients, it was 77.45. The difference in average age between genders was not statistically significant ($p>0.05$). Thirteen patients, comprising 5 males and 8 females, were monitored in the intensive care unit. No significant difference was found when comparing patients monitored in the intensive care unit by gender ($p>0.05$).

Among the 27 patients, 6 patients experienced mortality, and all of them were those admitted to the intensive care unit. When comparing mortality rates based on gender, it was 18.8% in male patients and 27.3% in female patients, with no statistically significant difference. The overall mortality rate, irrespective of gender, was found to be 22.2%. The causes of mortality included mesenteric ischemia in 2 patients, pancreatic fistula with associated abscess in 1 patient, intestinal obstruction in 1 patient, and perforation in 2 patients (1 gastric perforation, 1 colon perforation).

All 27 patients had at least one comorbidity [Hypertension (HTN), Diabetes Mellitus (DM), Coronary Artery Disease (CAD)]. Patients who experienced mortality had at least two comorbidities. Twelve patients did not undergo surgery, with reasons including cholecystitis in 3 patients, bowel obstruction in 3 patients, gastrointestinal bleeding in 2 patients, liver laceration due to trauma in 1 patient, diverticulitis in 2 patients, and obstructive jaundice in 1 patient (Table 1).

Table 1. Diagnostic Distribution of Patients

Diagnoses	Number of patients(n=)	Percentage(%)	Exitus
Obstruction	3	11.11	1
Cholecystitis	3	11.11	-
Incarcerated hernia	3	11.11	-
Mesenteric ischemia	3	11.11	2
Gastrointestinal Bleeding	3	11.11	-
Perforation(small bowel+ colon+ p.ulcus)	4	14.8	2
Gastrointestinal Bleeding	2	7.4	-
Acute appendicitis	2	7.4	-
Obstructive jaundice	1	3.7	-
Pancreatic abscess	1	3.7	1
Trauma	1	3.7	-
Volvulus	1	3.7	-
Total	27	100(%)	6

Discussion

Advancements in healthcare worldwide have led to progress in the diagnosis and treatment of chronic diseases such as diabetes, cardiovascular diseases, and lung diseases in the elderly population. Consequently, there is an increasing need for surgical interventions in the aging population, contributing to the extension of human life.¹²

A study by Reiss et al.¹³ demonstrated that gender did not significantly impact mortality, aligning with our findings where the mortality rate was 27.3% in females and 18.8% in males, though not statistically significant.

Emergency surgical procedures in the geriatric patient group exhibit higher mortality and complication rates compared to elective procedures.¹⁴ In our study group, the mortality rate was found to be 22.8%. Common comorbidities in the geriatric patient group, such as diabetes mellitus (DM), hypertension (HTN), coronary artery disease (CAD), and malignancies, contribute to increased morbidity and mortality rates. The majority of our patients had comorbidities, with hypertension (HTN) at 96.3%, coronary artery disease (CAD) at 55.6%, and diabetes mellitus (DM) at 44.4%. Lyon reported mortality rates ranging from 15% to 34% following emergency abdominal surgery,¹⁵ while Juan found a mortality rate of 22%. Postoperative pneumonia, cardiac complications, and sepsis are well-known contributors to mortality in these cases. In our patient group, the mortality rate was determined to be 22.2%. The presence of an underlying chronic condition in patients undergoing emergency surgery negatively affects prognosis, leading to higher mortality compared to elective surgery.

Diseases causing acute abdomen in geriatric patients differ from those in younger individuals. Reduced physiological capacity has negative effects on the symptoms and signs of the medical condition, leading to delayed diagnosis or a more complex perioperative period. Another challenge in geriatric patients is the difficulty in obtaining sufficient medical history due to issues such as memory loss and hearing impairments.¹⁶

Reviewing the cases, it is noted that the majority involve acute cholecystitis. In this study, the most common causes of acute abdomen were acute cholecystitis and mechanical intestinal obstruction, followed by incarcerated hernias, mesenteric ischemia, and gastrointestinal bleeding, respectively.¹⁶

Acute cholecystitis is a significant cause of abdominal surgery in the geriatric population, leading to high morbidity

and mortality.¹⁷ Surgical treatment is recommended for symptomatic gallstone patients regardless of age. Only one patient in this study underwent emergency surgery, while the other two were electively operated on later. One patient declined elective surgery despite recommendations.

Incarcerated hernia is another common reason for surgery in the geriatric population. Patients with hernias who are not recommended for elective surgery due to accompanying diseases or advanced age may require emergency surgery when presenting with symptoms of incarcerated or strangulated hernias. Desunkami reported a frequency of 14% for gangrenous intestinal necrosis caused by strangulation.¹⁸ In our study, none of the three incarcerated hernia patients required resection, all received intensive care support, and there were no mortalities.

Mechanical intestinal obstruction constitutes 15-20% of all emergency surgical cases in geriatric patients.^{19,20} The incidence of colon cancer increases with age, with those aged 65 and above having about five times higher rates than younger individuals.²¹ Another major cause of mechanical intestinal obstruction is obstruction resulting from postoperative adhesions, constituting 7.4% of all obstruction cases. Sigmoid volvulus, particularly common in the elderly, is the most frequent type of colon volvulus (75-80%).¹⁵ Three patients in our study had developed mechanical intestinal obstruction due to intra-abdominal bridles, and one due to volvulus. None of the bridled patients required surgery and were successfully managed with medical treatment.

Mesenteric vascular occlusions are common in elderly patients, especially those with cardiovascular diseases. Mesenteric ischemia accounts for 10% of indications for emergency acute abdomen in the elderly.²² Mamode reported an 81% mortality rate in mesenteric vascular occlusions.²³ In our study, three patients experienced mesenteric ischemia with a high mortality rate of 66.6%.

Although acute appendicitis is more common in younger patients, it can present less frequently in the geriatric population. Atypical presentation of appendicitis symptoms in geriatric patients may result in delayed diagnosis, potentially leading to perforated appendicitis. Two patients in our study underwent surgery due to appendicitis. Both cases were diagnosed without perforation, treated without complications, and had no postoperative issues.

Our study has limitations, the patient population included in the study is relatively small, and further studies are needed.

In conclusion, examining the 27 patients included in this study (n=14), it is observed that 51.85% of patients underwent surgery, almost all patients had comorbidities, and among patients requiring intensive care, 77.7% had at least one accompanying comorbidity. In the emergency assessment of geriatric patients, a prompt diagnosis should be made, considering comorbidities after diagnosis, and follow-up and treatments should be adjusted multidisciplinary for patients requiring intensive care or those to be monitored in regular rooms.

References

1. World Population Prospects 2019: Highlights. https://population.un.org/wpp/Publications/Files/WPP2019_10KeyFindings.pdf. (Erişim Tarihi:18.11.2020)
2. TÜİK nüfus projeksiyonları 2018-2080. https://www.tuseb.gov.tr/enstitu/tacese/haber_detay.php?id=72. (Erişim Tarihi:18.11.2020)
3. Çilingir D, Bayraktar N. Günübirlik cerrahi süreci ve hemşirelik bakımı. *Hacettepe Üniversitesi Hemşirelik Yüksekokulu Dergisi* 2006;13:69-81.
4. Blansfield JA, Clark SC, Hofmann MT, et al. Alimentary tract surgery in the nonagenarian: Elective vs. emergent operations. *J Gast Surg*. 2004;8:539-42.
5. Baum SA, Rubenstein LZ. Old people in the emergency room: Age-related differences in emergency department use and care. *J Am Geriatr Soc*. 1987;35(5):398-404.
6. Lewis LM, Banet GA, Blanda M, Hustey FM, Meldon SW, Gerson LW. Etiology and clinical course of abdominal pain in senior patients: A prospective, multicenter study. *J Gerontol A Biol Sci Med Sci*. 2005;60(8):1071-6.
7. Marco CA, Schoenfeld CN, Keyl PM, Menkes ED, Doehring MC. Abdominal pain in geriatric emergency patients: Variables associated with adverse outcomes. *Acad Emerg Med* 1998;5(12):1163-8.
8. Birnbaumer D. Abdominal pain in the elderly patient. <http://www.epmonthly.com/cme/current-issue/abdominal-pain-in-theelderly-patient-/1/> (accessed on March 2013).
9. Hendrickson M, Naparst TR. Abdominal surgical emergencies in the elderly. *Emerg Med Clin N Am*. 2003;21(4):937-69
10. McNamara R. *Abdominal pain in elderly*. In: Tintinalli JE, Kelen GD, Stapczynski JS, (eds). *Emergency Medicine*. 6 th ed. New York: Mc Graw Hill; 2004:501-5
11. Martinez JP, Mattu A. Abdominal pain in the elderly. *Emerg Med Clin N Am*. 2006;24(2):371-88
12. Ağalar F, Özdoğan M, Daphan ÇE, Topaloğlu S, Sayek İ. The results of surgical treatment in the elderly acute abdomen patients. *Turkish Journal of Geriatrics*. 1999;2:1-4.
13. Reiss R, Deutsch AA. Emergency Abdominal Procedures in Patients Above 70. *J Gerontology*. 1985; 40:154
14. Fenyö G. Acute abdominal disease in the elderly: experience from two series in Stockholm. *Am J Surg*. 1982;143(6):751-754.
15. Lyon C, Clark DC. Diagnosis of acute abdominal pain in older patients. *Am Fam Physician*. 2006;74:1537-44.
16. Arenal JJ, Bengoechea-Beeby M. Mortality associated with emergency abdominal surgery in the elderly. *Can J Surg*. 2003;46:111-6.
17. Elwood DR. Cholecystitis. *Surg Clin North Am*. 2008;88(6):1241-52.
18. Adesunkanmi AR, Agbakwuru EA, Badmus TA. Obstructed abdominal hernia at the Wesley Guild Hospital, Nigeria. *East Afr Med J*. 2000;77:31-3.
19. Marco CA, Schoenfeld CN, Keyl PM, Menkes ED, Doehring MC. Abdominal pain in geriatric emergency patients: variables associated with adverse outcomes. *Acad Emerg Med*. 1998;5:1163-8.
20. Rigberg D, Cole M, Hiyama D, McFadden D. Surgery in the nineties. *Am Surg*. 2000;66:813-6.
21. Nursal TZ, Hamaloğlu E. Gastrointestinal surgery in the elderly. *Turkish Journal of Geriatrics*. 1999;2:22-5.
22. Potts FE, Vukov LF. Utility of fever and leukocytosis in acute surgical abdomens in octogenarians and beyond. *J Gerontol A Biol Sci Med Sci*. 1999;54:55-8.
23. Mamode N, Pickford I, Leiberman P. Failure to improve outcome in acute mesenteric ischaemia: seven-year review. *Eur J Surg* 1999;165:203-8.