

ANALYSIS OF GERIATRIC PATIENTS' READMISSIONS TO THE EMERGENCY DEPARTMENT WITHIN 72 HOURS

Geriatrik Hastaların 72 Saat İçerisindeki Acil Servis Tekrar Başvurularının Analizi

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ABSTRACT

Objective: This study aimed to investigate the clinical characteristics and outcomes of patients aged 65 years and older who were readmitted to the emergency department (ED) within 72 hours of discharge.

Material and Methods: This retrospective, single-center study included patients aged ≥ 65 years who revisited the ED of a tertiary hospital between January 1, 2022, and December 31, 2024. Patients with incomplete records or scheduled returns were excluded. Demographic data, initial and repeat visit diagnoses, and consultation rates were analyzed.

Results: Of 729,214 total ED admissions during the study period, 93,498 (12.8%) involved patients aged ≥ 65 years. Among these, 377 patients had unscheduled ED readmissions within 72 hours. The most common reasons for both first and second admissions were abdominal pain, dyspnea, and headache. In 63.1% of cases, the second admission was due to the same complaint as the first. While 90.7% of patients were discharged during their first visit, 8.3% were hospitalized during the second. Consultation rates were low, with only 13.5% receiving specialty input during the second visit. Among hospitalized patients, dyspnea, abdominal pain, and cerebrovascular symptoms were the most frequent complaints. The median readmission interval was 20.0 hours.

Conclusion: Short-term ED readmission in older adults is often related to unresolved symptoms and atypical presentations. The low rate of initial consultations and high frequency of same-symptom revisits highlight the need for improved risk-based discharge planning and comprehensive geriatric evaluation in the ED setting.

Keywords: Geriatric patient, emergency department, readmission

ÖZ

Amaç: Bu çalışmanın amacı, taburculuk sonrası 72 saat içinde acil servise (AS) tekrar başvuran 65 yaş ve üzeri hastaların klinik özelliklerini ve sonuçlarını incelemektir.

Gereç ve Yöntemler: Bu retrospektif, tek merkezli çalışmaya, 1 Ocak 2022 ile 31 Aralık 2024 tarihleri arasında üçüncü basamak bir hastanenin acil servisine başvuran ve ≥ 65 yaşında olan hastalar dahil edilmiştir. Eksik kaydı olan veya planlı olarak geri çağrılan hastalar çalışma dışı bırakılmıştır. Hastaların demografik verileri, ilk ve ikinci başvuru tanıları ile konsültasyon oranları analiz edilmiştir.

Bulgular: Çalışma döneminde toplam 729.214 AS başvurusunun 93.498'i (%12,8) ≥ 65 yaş grubundaydı. Bunlardan 377 hasta, 72 saat içinde planlanmamış şekilde yeniden AS başvurusu yapmıştır. İlk ve ikinci başvuruların en sık nedenleri karın ağrısı, nefes darlığı ve baş ağrısı olarak saptanmıştır. Vakaların %63,1'inde ikinci başvuru, ilk başvurudaki şikayetle aynıydı. İlk başvuruda hastaların %90,7'si taburcu edilirken, ikinci başvuruda %8,3'ü hastaneye yatırılmıştır. Konsültasyon oranı düşük olup, ikinci başvurularda sadece %13,5 oranında uzman görüşü alınmıştır. Hastaneye yatırılan hastalarda en sık başvuru nedenleri nefes darlığı, karın ağrısı ve inme belirtileri olmuştur. Medyan tekrar başvuru süresi 20,0 saat olarak belirlenmiştir.

Sonuç: Yaşlı bireylerde kısa süreli AS tekrar başvuruları sıklıkla çözülmemiş semptomlara ve atipik klinik tablolara bağlıdır. Düşük konsültasyon oranı ve aynı semptomla yapılan yüksek orandaki tekrar başvurular, risk temelli taburculuk planlaması ile kapsamlı geriatrik değerlendirmenin acil servis ortamında önemini ortaya koymaktadır.

Anahtar Kelimeler: Geriatrik hasta, acil servis, tekrar başvuru



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INTRODUCTION

Hospital readmission within 30 days after discharge imposes a significant burden on the healthcare system.¹ The readmission rate is approximately one in five in the general population, increasing to one in four among individuals over 65 years of age.² Therefore, readmission to the emergency department after hospital discharge is a critical concern, both in terms of healthcare expenditures and workforce utilization. The literature includes various studies aimed at predicting and reducing readmission rates, as well as examining influencing factors. These studies focus on developing disease and admission indexes, establishing machine learning models, monitoring medication use, and assessing healthcare quality.³⁻⁶ Although the primary cause of hospital readmission is underlying health conditions, readmission rates are particularly high among patients whose treatment processes have failed and among certain high-risk populations, such as geriatric patients. While readmission related to treatment failure can be more effectively managed, readmission rates in the geriatric population remain high, reaching approximately 25%.¹

Emergency department (ED) is among the healthcare units with the highest readmission rates. Unlike other healthcare services, the ED manages a wide range of traumatic and non-traumatic medical conditions and operates 24/7, contributing to these high readmission rates. Additionally, factors such as patient anxiety, fear, and panic, along with demographic characteristics like older age, influence ED readmission rates. Peiris et al. reported in their review that ED readmission rates increased significantly during the pandemic and identified older age as a major risk factor.⁷ Gwin et al. found a positive association between comorbidities, the pandemic, and ED readmission in older adults.⁸ Pecorelli et al. demonstrated that minimally invasive surgery reduced ED readmissions. Similarly, Burnett et al. reported that community paramedicine interventions led to a decline in ED readmission rates; however, these rates remained elevated in older adults.^{9,10} While various models and factors influencing ED readmission have been explored in these and similar studies, the evidence consistently indicates that readmission rates are higher among older populations.

Compared to the healthy population, individuals aged 65 and older, or geriatric patients, have higher hospital readmission rates.¹¹⁻¹⁴ The primary reason for this is the presence of multiple health conditions in this population. This leads to increased healthcare costs and places a significant burden on the healthcare system due to frequent geriatric ED readmissions.¹⁴⁻¹⁵ Although several studies have examined ED readmission in geriatric patients, most have focused on 30-day readmissions, while research on readmissions within the

first 72 hours remains limited.^{1,2,16,17} Therefore, this study aims to analyze ED readmission rates in the geriatric population aged 65 and older within 72 hours of discharge.

MATERIALS AND METHODS

Research Model

This study was designed as a retrospective, single-center study. A longitudinal research method was used for data collection. The descriptive research model was applied as the analytical framework to provide a detailed examination of ED admissions among geriatric patients.

Patients

The electronic medical records of patients aged 65 years and older who were readmitted to the Emergency Department of Fatih Sultan Mehmet Training and Research Hospital, University of Health Sciences, within 72 hours between January 1, 2022, and December 31, 2024, were retrospectively reviewed. Patients were eligible for inclusion if they were aged 65 or older and had returned to the emergency department within 72 hours of their initial visit, with complete medical records available in the electronic hospital system.

Patients were excluded from the study if they had incomplete data in their electronic records, were under 65 years of age, or presented to the emergency department solely for consecutive COVID-19 PCR testing or rabies immunoglobulin administration prior to elective procedures or surgeries. Additionally, patients receiving routine intramuscular injections or those recalled to the emergency department for follow-up evaluations—including cardiology consultations, ultrasound examinations, catheter management, re-evaluation of physical findings, or circulation checks—were also excluded.

A flow chart illustrating patient selection and exclusion is provided in Figure 1.

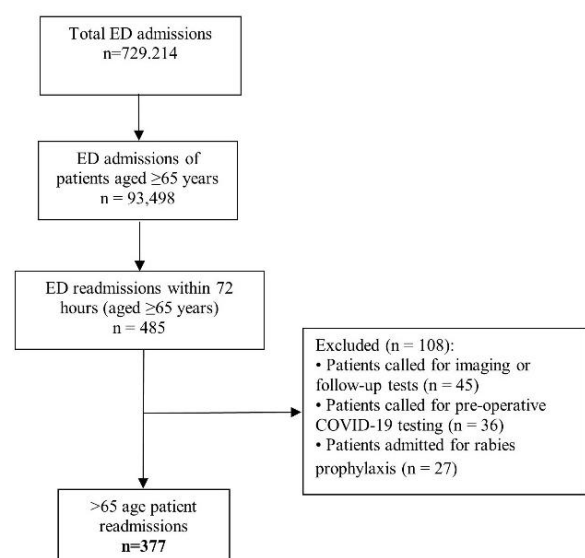


Figure 1: Research flow chart and patients according to years

Data Collection

Initially, patient records of individuals aged 65 and older within the study period were retrieved from the hospital registration system. Among these records, patients who revisited the emergency department within 72 hours were identified and included in the dataset. The collected data included patients' age, gender, and International Classification of Diseases (ICD-10) diagnosis codes recorded at the time of admission. Additionally, the initial and subsequent visit reasons were compared to assess whether the re-admissions were for the same condition. This evaluation was conducted by reviewing diagnosis codes, consultation notes, and discharge summaries in the hospital registration system individually. Records with missing or incorrect information were excluded from the analysis.

Ethical approval was taken from Istanbul Medipol University Non-Interventional Clinical Research Ethics Committee with 23.01.2025 date and 99 number.

Statistical Analysis

Nominal and ordinal data were defined by frequency analysis, while age and reapplication time were defined by mean, standard deviation, median and variation ranges. Kolmogorov Smirnov test was performed for the conformity of age and application time variables to standard normal distribution. Since the distribution of age and application time did not conform to standard normal distribution; Mann Whitney U test was performed for age and application time in the analysis of differences according to years and between the result groups. Chi-Square test was performed for the differences between gender distribution according to years. All analyses were performed in SPSS 25.0 for Windows program, with 95% Confidence Interval and 0.05 significance level.

RESULTS

During the study period, there were 729,214 total emergency department (ED) visits, of which 93,498 (12.8%) were patients aged 65 years and older. Among these, 485 patients were identified as having revisited the ED within 72 hours of discharge. After excluding 36 patients who returned for scheduled COVID-19 testing prior to elective surgery, 45 who were recalled for test or imaging results, and 27 who returned for rabies prophylaxis, a total of 377 unscheduled 72-hour readmissions were included in the final analysis.

Patient age ranged from 65 to 99 years, with a median of 73.0 years. In total, 195 female (51.7%) and 182 male (48.3%) patients 65 and over ages readmitted to ED. Readmission duration ranged from 1 hour to 25 hours with 18.34 ± 4.79 mean value (Table 1).

Table 1: Age, gender and readmission durations and differences between years

Variable	Value
Age, years, median (Min-Max)	73.00 (65.00-99.00)
Females, n (%)	195 (51.7)
Males, n (%)	182 (48.3)
Readmission duration, hours, median (Min-Max)	20.00 (1.00-25.00)

Notes: SD: Standard deviation, Min-Max: Minimum and maximum values.

Abdominal pain was the most common reason for first admission with 10.6% percentage, followed by low back pain (6.6%), headache (5.8%) and dyspnea (5.9%). Abdominal pain was the most reason for second admission with 10.1% percentage, followed by headache (7.7%), dyspnea (7.2%) and CVA sign (6.4%). 63.1% of patients' second admission reasons were same, whereas 36.9% were different (Table 2).

Table 2: Presenting complaints with the highest frequencies at initial and repeat ED admissions.

Complaint	First Admission n (%)	Second Admission n (%)
Abdominal pain	40 (10.6)	38 (10.1)
Headache	22 (5.8)	29 (7.7)
Dyspnea	22 (5.9)	27 (7.2)
CVA sign	25 (6.7)	17 (4.5)
Low back pain	25 (6.6)	20 (5.3)
Hypertension	21 (5.6)	17 (4.5)
Sore throat	20 (5.3)	11 (2.9)
Cough	20 (5.3)	12 (3.2)
Fever	15 (4.0)	19 (5.0)
Rash	15 (4.0)	16 (4.2)
Catheter problems	11 (2.9)	16 (4.2)
Extremity pain	13 (3.4)	15 (4.0)
Chest pain	12 (3.2)	15 (4.0)

Note: This table includes the most frequently reported complaints during initial and repeat emergency department visits, selected based on clinical relevance and observed distribution

90.7% of patients were discharged at first admission, whereas 9.3% of patients were lost to follow-up. At the second admission, 83.6% of patients were discharged, 8.3% were hospitalized, 5.8% were lost to follow-up, and 2.1% were admitted to the ICU (Table 3).

Notes: The table presents patient outcomes following the first and second emergency department readmissions. "Lost to follow-up" refers to patients who declined diagnostic or therapeutic interventions and left the ED voluntarily. No statistical comparison was conducted.

In the first admission, the consultation rate was 9.3%, while in the second admission, this rate slightly increased to 13.5%. In the first admission, the most frequently consulted departments were otolaryngology (2.7%), general surgery and urology (2.4% each), and

neurology (1.9%). In the second admission, general surgery (4.2%) and neurology (3.7%) were the most commonly consulted departments, followed by internal medicine and orthopedics and traumatology (2.1% each).

Table 3: Outcomes of Patients at First and Second Emergency Department Readmissions

First admission Outcome	n (%)	Second admission Outcome	n (%)
Discharge	342 (90.7)	Discharge	315 (83.6)
Lost to follow-up	35 (9.3)	Hospitalized	32 (8.2)
		ICU admission	7 (2.1)
		Lost to follow-up	22 (5.8)
		Exitus	1 (0.3)
Total	377 (100.0)	Total	377 (100.0)

Notes: SD: Standard deviation, Min-Max: Minimum and maximum values.

Second admission outcomes of hospitalized patients are summarized in Table 4. The most common presenting complaint was dyspnea (23.7%), followed by abdominal pain and CVA signs, both observed in 18.4% of hospitalized cases. The age of these patients ranged from 66 to 88 years, with a median of 73.5 years; the readmission interval ranged from 7 to 24 hours, with a median of 17.5 hours. During the second admission, the most frequently consulted departments were anesthesiology and general surgery (each in 18.4% of patients), followed by infectious diseases, pulmonology, neurology, and internal medicine (each in 13.2%).

Table 4: Characteristics and complaints of hospitalized patients upon second admission

Second admission reason	n (%)
Dyspnea	9 (23.7)
Abdominal pain	7 (18.4)
CVA sign	7 (18.4)
Fever	2 (5.3)
Headache	2 (5.3)
Diarrhea	2 (5.3)
Rectal bleeding	2 (5.3)
Vomiting	2 (5.3)
Neck pain	1 (2.6)
Epistaxis	1 (2.6)
Visual loss	1 (2.6)
Hypertension	1 (2.6)
Syncope	1 (2.6)
Total	38 (100)

Additional characteristics of hospitalized patients

Age, years	73.50
Median (Min-Max)	(66.00-88.00)
Readmission duration, hours	17.50
Median (Min-Max)	(7.00-24.00)

Consulted departments

Anesthesiology (7), General Surgery (7), Infectious Diseases (5), Pulmonology (5), Neurology (5), Internal Medicine (5), Neurosurgery (1), Neurology + Neurosurgery (1), Neurology + Internal Medicine (1), Otolaryngology (1) Internal Medicine (8), Neurology (5), Cardiology (3), General Surgery (2), Others (4)

DISCUSSION

In this study, we analyzed 72-hour emergency department readmissions among patients aged 65 and older. The observed early readmission rate was 0.40%, notably lower than previously reported rates in the literature, such as 6.0% by Aslaner et al. and 3.6% within 24 hours in the study by İncesu et al.^{18,19} Han et al.'s integrative review identified 72-hour revisit rates between 1.9% and 6.19%, reinforcing the notion that elderly individuals represent a high-risk population for early unplanned ED returns.²⁰ The lower rate observed in our study may reflect stricter inclusion criteria—

excluding scheduled follow-ups and non-clinical revisits—and institutional practices related to discharge and documentation.

Abdominal pain emerged as the most frequent complaint for both initial and repeat visits, followed by headache, dyspnea, and low back pain. Notably, 63.1% of patients returned with the same complaint, suggesting either persistent or inadequately resolved symptoms. This aligns with earlier reports showing high symptom consistency in geriatric revisits.¹⁹ One likely explanation is the high prevalence of atypical presentations in this age group. Abdominal conditions, in particular, can present with subtle clinical signs and nonspecific laboratory findings in elderly patients, often delaying diagnosis.^{21,22} Blunted febrile responses and vague pain descriptions may lead to an initial underestimation of disease severity, with clinical deterioration prompting a second, more urgent visit. These delays are not inconsequential; older adults with abdominal pain face mortality rates up to six to eight times higher than younger patients, highlighting the need for increased diagnostic vigilance.²¹

Dyspnea was also a prominent reason for repeat visits and may similarly be under-recognized during initial evaluation. Communication barriers, cognitive impairment, and the overlapping nature of geriatric comorbidities can limit the ability of elderly patients to clearly express respiratory distress. Meanwhile, cardiopulmonary pathologies may present insidiously, with mild or atypical symptoms at first contact.²³⁻²⁵ This combination of subtlety in both patient expression and clinical presentation may lead to under-triage and premature discharge. These findings support previous literature identifying frailty, cognitive decline, and polypharmacy as key predisposing factors for early readmission in elderly patients.²⁶⁻²⁸

Another notable finding in our study was the high discharge rate during the initial ED visit—over 90% of patients were not hospitalized. While this may suggest clinical stability, it also raises concerns about early discharge decisions, particularly in light of the high same-complaint revisit rate. Previous studies indicate that inadequate discharge planning, especially in

patients with multiple comorbidities or atypical symptoms, may increase the risk of rapid return.²⁶⁻²⁸ The limited use of specialty consultations during the first visit (85.7% without any consultation) further suggests a systemic challenge. Specialist involvement—especially geriatrics, neurology, or general surgery—can improve diagnostic precision and care coordination, particularly for older adults with complex presentations.¹¹⁻¹² The underutilization of such input may partially explain diagnostic oversights or missed opportunities for early intervention.

Subgroup analysis revealed distinct clinical patterns. Among patients who required hospitalization during their second ED visit, abdominal pain, stroke symptoms, and dyspnea were leading complaints—conditions frequently associated with delayed or difficult diagnosis in the elderly.²¹⁻²⁵ On the other hand, patients who self-discharged after refusing further evaluation or treatment often presented with similarly high-risk complaints, including dyspnea, chest pain, and abdominal discomfort. This group's slightly longer readmission interval and relatively younger mean age suggest a complex interplay of clinical and social factors. Literature has shown that self-discharge in elderly patients may reflect a mismatch between perceived and actual risk, communication failures, or unmet care expectations, and is often associated with worse clinical outcomes.²⁹

Overall, our findings contribute real-world data to a topic that has received relatively limited attention in short-term revisit analyses. While much of the existing literature focuses on 30-day hospital readmissions, our study highlights the diagnostic and system-level challenges occurring within the first 72 hours post-discharge. The high frequency of repeat visits for the same symptoms, particularly in the absence of early consultation or structured geriatric input, underscores the need for improved initial risk stratification. Future research should prioritize the development of validated screening tools to predict early ED readmission risk in older adults and explore the potential impact of comprehensive geriatric assessments, frailty scales, and multidisciplinary care models in reducing preventable revisits.^{26-28,30} Our results support the urgent need to tailor ED care to the physiological and communicative complexities of the aging population.

This study has some limitations. Its retrospective and single-center design may restrict the generalizability of the findings. Additionally, important geriatric-specific variables—such as frailty status, nutritional condition, medication adherence, or caregiver support—were not available in the hospital database, which may have influenced both admission decisions and revisit risk. Despite these limitations, our findings provide a foundation for future studies that should aim to validate

early risk prediction tools and investigate the role of structured geriatric assessment, frailty scales, and multidisciplinary care approaches in reducing short-term emergency department readmissions. This study examined the clinical characteristics and outcomes of geriatric patients who were readmitted to the emergency department within 72 hours of discharge. Our findings highlight the complexity of managing older adults in acute care settings, especially when common symptoms such as abdominal pain and dyspnea may conceal serious underlying pathology. The high rate of repeat visits for the same complaint and the low rate of initial consultations suggest potential gaps in early assessment and care planning. By drawing attention to diagnostic uncertainties, clinical trajectories, and risk profiles in the elderly, this study contributes to the growing body of literature on geriatric emergency care. Future studies should focus on improving risk-based discharge decisions and integrating comprehensive geriatric assessments into emergency workflows, while also aiming to clearly define risk factors for short-term readmissions among older adults.

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Data Collection: FSD, CAT;
Writing: BAK, FSD, CAT;
Critical Review: FSD, BAK, ME;
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Ethics Committee Approval: The study protocol was approved by the Istanbul Medipol University Non-Interventional Clinical Research Ethics Committee (Date: 23.01.2025, Number: 99).

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