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EVALUATION OF GERIATRIC PATIENTS PRESENTING TO EMERGENCY DEPARTMENT WITH TRAUMA

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Abstract

Objective: Elderly people are more open to accidents due to the physical changes brought by ageing, and an accident or falling that may not cause an important problem in a normal healthy adult may lead to significant injury even death in elderly persons.

In this study, we aimed to prospectively determine demographic features, clinical findings, comorbidities, trauma mechanisms and trauma localizations in geriatric patients who presented to our hospital, and to provide contribution to the management of geriatric trauma patients that account for a considerable part of presentations to emergency departments.

Method: This study included a total of 2108 geriatric patients aged 65 years and over, who presented to the emergency department of Sisli Hamidiye Etfal Training & Research Hospital due to trauma between 01/12/2014 and 30/11/2015. Patients' demographic data, the way of arrival to emergency department, body region of trauma, GCS scores at the time of admission, vital findings at the time of admission and scene of the trauma were recorded. All data obtained about the patients were recorded to the prepared forms.

Results: The incidence of geriatric trauma cases was 0.62% among all presentations. The rate of traumas experienced at street by patients aged under 75 years was significantly higher than those experienced at street by patients aged over 75 years ($p < 0.05$). The rate of female patients who presented with complaint of falling was significantly higher compared to male patients with the same complaint. The number of male patients who presented with complaint of assault was significantly higher than female patients.

Conclusion: Geriatric patients group is at high risk for traumas. Studies should be performed on this issue and sensitive scoring systems should be developed.

Keywords: *geriatric, trauma, emergency department, falling.*

Резюме

АНАЛИЗ ПАЦИЕНТОВ ПОЖИЛОГО ВОЗРАСТА, ДОСТАВЛЕННЫХ В ОТДЕЛЕНИЕ НЕОТЛОЖНОЙ МЕДИЦИНЫ ПО ПОВОДУ ТРАВМЫ

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Цель: Пожилые люди более подвержены несчастным случаям из-за физических проблем, вызванных старением. Несчастный случай или падение, которые могут не вызвать серьезных проблем у здорового взрослого человека, могут привести к серьезным травмам и даже смерти у лиц пожилого возраста.

В настоящем исследовании мы предприняли попытку проспективно оценить демографические особенности, клинические проявления, сопутствующие заболевания, механизмы травм и локализации травм у гериатрических пациентов, находящихся на лечении в отделении неотложной медицины, а также определить тактику ведения гериатрических пациентов с травмой.

Материалы и методы. В этом исследовании приняли участие 2108 пациентов в возрасте 65 лет и старше, которые были доставлены в отделение неотложной помощи Учебно-исследовательской больницы им. Шишли Хамидие Этфал в связи с травмой в период с 1 января 2014 года по 30 ноября 2015 года. Были анализированы

демографические данные пациентов, способ доставки в отделение неотложной помощи, локализация травмы, баллы GCS на момент поступления, жизненные показатели на момент поступления и место получения травмы. Все полученные данные о пациентах были занесены в специально разработанные формы.

Результаты: Частота случаев гериатрической травмы составила 0,62% среди всех пациентов. Частота травм, полученных на улице пациентами в возрасте до 75 лет, была статистически значимо выше, чем пациентами в возрасте старше 75 лет ($p < 0,05$). Число пациентов женского пола, которые отмечали падение, было значительно выше по сравнению с пациентами мужского пола. Число лиц мужского пола, которые отмечали нападение, было значительно выше, чем пациентов женского пола.

Заключение: группа гериатрических пациентов подвержена высокому риску травм. Необходимо провести исследования по этому вопросу и разработать чувствительные системы подсчета баллов.

Ключевые слова: гериатрия, травма, отделение неотложной помощи, падение.

Түйіндеме

ЖАРАҚАТҚА БАЙЛАНЫСТЫ ЖЕДЕЛ МЕДИЦИНАЛЫҚ КӨМЕК БӨЛІМІНЕ ТҮСКЕН ЕГДЕ ЖАСТАҒЫ НАУҚАСТАР БОЙЫНША МӘЛІМЕТТЕРДІ БАҒАЛАУ

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Мақсаты: Егде жастағы адамдар қартаюдан туындаған физикалық қиындықтар арқасында жазатайым жағдайларға бейім. Ересек адамда қиындықтар туғызбауы мүмкін апат немесе құлдырау түрлері егде жастағы адамдарда ауыр жарақаттарға әкеп соғып, тіпті өлімге әкелуі де мүмкін.

Бұл зерттеуде біз жедел бөлімде емделетін гериатриялық науқастарда демографиялық белгілерді, клиникалық көріністерді, сырқаттанушылықтарды, жарақаттық механизмдерді және жарақаттардың орналасуын перспективті түрде бағалауға тырыстық, сондай-ақ, гериатрлық жарақат алған науқастарды басқарудың тактикасын анықтадық.

Құралдар мен әдістер. Бұл зерттеуге жастары 65 және одан жоғары жастағы 2108 науқас қатысты, олар Этфалдегі Шишли Хамидие оқыту және зерттеу ауруханасының жедел жәрдем бөліміне 2014 жылдың 1 қаңтарынан бастап 30 қарашаға дейінгі кезеңде жарақатқа байланысты қаралған. Науқастардың демографиялық деректері, төтенше жағдайлар бөліміне жеткізу әдісі, жарақаттың орналасуы, қабылдау кезінде GCS баллдары, қабылдау кезінде өмірлік белгілер және жарақаттар орыны талданды. Барлық науқастар туралы алынған деректер арнайы әзірленген нысандарға енгізілді.

Нәтижелер: Барлық науқастарда гериатриялық зақымдану деңгейі 0,62% құрады. 75 жастағы науқастарда көшеде алған жарақаттардың жиілігі 75 жастан асқан науқастармен салыстырғанда статистикалық жағынан айтарлықтай жоғары болды ($p < 0,05$). Құлап жарақаталғаны туралы хабарлаған әйелдер пациенттерінің саны ерлермен салыстырғанда айтарлықтай жоғары болды. Шабуыл нәтижесінде жарақаталған ерлер саны әйелдер науқастарға қарағанда айтарлықтай жоғары болды.

Қорытынды: Гериатриялық науқастар тобында жарақат алу қаупі жоғары. Осы мәселе бойынша зерттеулер жүргізіп, сезімтал есептеу жүйелерін әзірлеу қажет.

Түйінді сөздер: гериатрия, жарақат, жедел көмек бөлімі, құлау.

Библиографическая ссылка:

Serdar Çağlayan, Burak Çelik, Elif Çağlayan, Nazlı Çelik, Derya Öztürk, Ertuğrul Altınbilek, Cemil Kavalci Анализ пациентов пожилого возраста, доставленных в отделение неотложной медицины по поводу травмы // Наука и Здравоохранение. 2019. 3 (Т.21).С. 77-83.

Serdar Çağlayan, Burak Çelik, Elif Çağlayan, Nazlı Çelik, Derya Öztürk, Ertuğrul Altınbilek, Cemil Kavalci Evaluation of geriatric patients presenting to emergency department with trauma. *Nauka i Zdravookhranenie* [Science & Healthcare]. 2019, (Vol.21) 3, pp. 77-83.

Serdar Çağlayan, Burak Çelik, Elif Çağlayan, Nazlı Çelik, Derya Öztürk, Ertuğrul Altınbilek, Cemil Kavalci Жарақатқа байланысты жедел медициналық көмек бөліміне түскен егде жастағы науқастар бойынша мәліметтерді бағалау // Ғылым және Денсаулық сақтау. 2019. 3 (Т.21). Б. 77-83.

Introduction

The World Health Organization (WHO) described elderliness a “decreased ability to adapt to the environmental factors due to continuous reduction in vital functions”, and determined the limit of old age as 60 years (18). However, in general limit of old age is considered as 65 years in the literature. Persons aged between 65-75 years are classified as young old age, between 75-85 as old age, and 85 years and over as very old age (21). Success of the medicine, which has been developed from the second half of the 20th century, and improvements in living conditions by technology have provided increase in number and rate of elderly persons all over the world. According to the data by the World’s Health Organization (WHO), number of persons aged over 60 years worldwide is 650 millions in 2006. It is estimated that, this figure will raise up to 1.2 billions by 2015, and 2 billions by 2050 (19).

The data by Turkish Statistical Institute (TÜİK) shows a similar tendency in our country. The rate of geriatric population in total population is increasing. According to the TÜİK Address Based Population Registry System (ABPRS), ratio of persons aged 65 years and over was increased from 3.8% in 1935 to 7.2% in 2010 (17). This ratio is predicted to reach 17.6% by 2050 (20).

Injury is physical damage occurring in the body. Accidents are the main reason of injuries, and among the most important causes of premature deaths. Elderly people are more open to accidents because of the physical changes brought by ageing, and an accident or falling that may not cause an important problem in a normal healthy adult may lead to significant injury even death in elderly persons (22). Majority (82%) of accidents in elderly persons occur in homes. With increasing age, elderly persons more commonly have accidents because of the physiologic and pathological changes due to ageing of tissue and organ systems, and become more vulnerable against injuries and accidents (22). Several causes including decreased eyesight and sense of hearing, problems experiences in balance control, use of multiple drugs and gait disorders with ageing put elderly persons at risk for home accidents (16). Most of the accidents experienced in home consisted of falling and slipping (11,22). According to WHO, persons aged over 65 years fall at least once a year, and injuries restricting mobility and independence occur in 20-30% of people who fall (22). Fallings resulted in injury in elderly people, account for about 10% of presentations to emergency departments, and 6% of hospitalizations from emergency departments. Fallings, are the main cause of death among persons aged 65 years and over, and half of the fallings occur in elderly persons’ own homes (5).

Factors affecting morbidity and mortality should be determined, and accordingly systems for approach to patients should be developed.

In this study, we aimed to determine demographic features, clinical findings, comorbidities, trauma mechanism and trauma localizations in geriatric patients who presented to the emergency department.

Material and methods. This prospective study was approved by the ethic committee of SisliHamidiyeEtfal Training and Research Hospital, and included 2108 geriatric patients aged 65 years and over who presented to the emergency department of our hospital due to trauma

between 01/12/2014 and 30/11/2015. Patients were informed about objectives of the study and gave informed written consent. The study was conducted in accordance with the principles of the Declaration of Helsinki.

Patients aged under 65 years and non-traumatic patients aged over 65 years old were excluded from the study.

Geriatric patients’ demographic data (age, gender), the way of arrival to the emergency department, localization of trauma they have exposed, GCS score at the time of admission, medical history, place of living, persons who they were living with, educational status, marital status, trauma mechanism, previous history of trauma, type of trauma (blunt, penetrating), vital findings at the time of admission, scene of the trauma, the imaging methods used in the evaluation, and way of termination were examined. All data obtained about the patients were recorded in the previously prepared forms.

Statistical Analysis

Statistical analysis was performed using SPSS version 22.0 (Statistical Package for Social Sciences, IBM Corp., IL, USA). Descriptive statistics are expressed as mean, standard deviation, median, minimum, maximum, frequency (n) and rate (%). Distribution of the variables was analyzed with Kolmogorov-Smirnov test. Chi-square tests was used in analysis of the data. p<0.05 values were considered statistically significant.

Results. A total of 34791 presentations to the emergency department of SisliHamidiyeEtfal T&R Hospital during the study period were due to traumas, with 2108 of these patients were diagnosed with geriatric trauma. Rate of geriatric traumas was found as 0.62% among all presentations, and 6.05 among all trauma presentations.

Patients included in this study were examined according to the socio-demographic characteristics. Of all patients, 977 (46.3%) were in 65-74 years age range, 779 (37%) in 75-84 years age range, and 352 (16.7%) in 85 years and over age range. Of the geriatric trauma patients, 889 (42.2%) were male and 1219 (57.8%) were female.

When educational level of the patients were examined; 46 (2.2%) were college, 312 (14.8%) high school, 838 (39.8%) primary school graduates, while 912 (43.3%) patients were literate. Of the patients, 1444 (68.5%) were married and 664 (31.5) were single (Table 1).

Table 1. Socio-demographic features of the patients.

		n	%
Age (years)	65-74	977	46.3%
	75-84	779	37.0%
	≥ 85	352	16.7%
Gender	Female	1219	57.8%
	Male	889	42.2%
EducationalStatus	Literate	912	43.3%
	PrimarySchool	838	39.8%
	HighSchool	312	14.8%
	College	46	2.2%
MaritalStatus	Married	1444	68.5%
	Single	664	31.5%

No statistically significant different was found between marital status, and trauma mechanism and previous history of trauma (p>0.05).

When the way of arrival to the emergency department was examined; 1324 (62.8%) patients arrived as ambulatory, 679 (32.2%) patients with a 112 ambulance, and 105 (5.0%) with a private ambulance (Figure 1).

When medical histories of the patients were examined; 417 (19.8%) patients had no a history of chronic disease, while hypertension was found in 398 (18.9%), coronary artery disease in 135 (6.4%), diabetes mellitus in 122 (5.8%), congestive heart failure in 44 (2.1%), chronic renal failure in 41 (1.9%), cerebrovascular disease in 38 (1.8%), and other chronic diseases in 97 (4.6%) patients (Figure 2). While 816 (38.7%) patients had more than one chronic diseases.

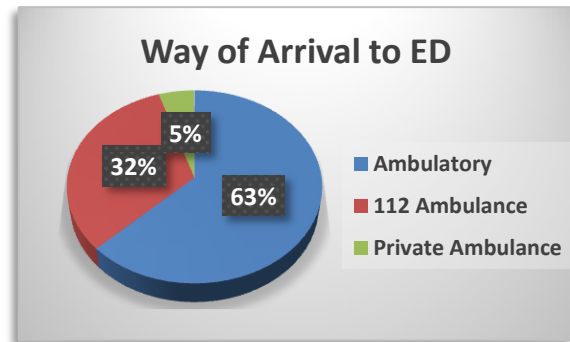


Figure 1. Distribution of the ways of arrivals to emergency department.

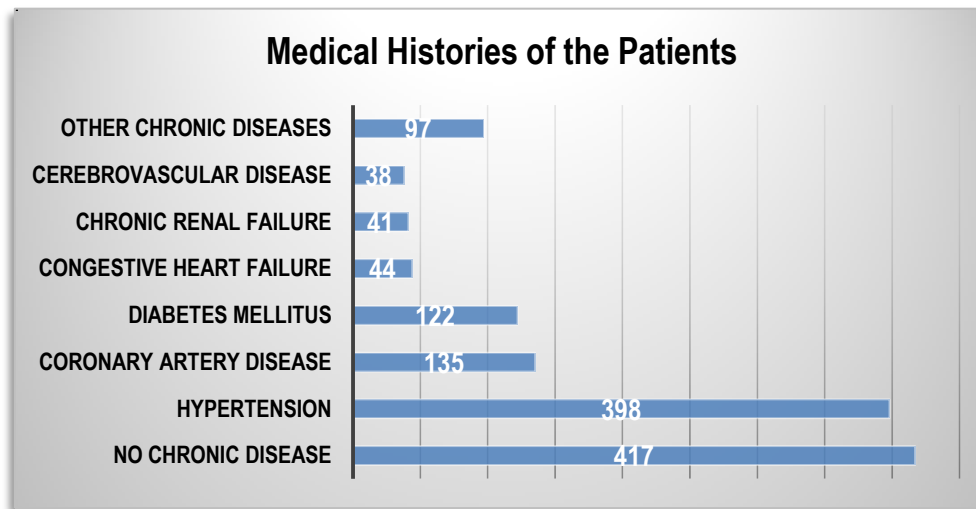


Figure 2. Medical histories of the patients.

When the drugs used by patients were evaluated; 501 (24.2%) patients were not using any drug, while 446 (21.2%) of the patients were using antihypertensive, 123 (5.8%) antidiabetic, 12 (0.6%) antiarrhythmic drugs, while 270 (12.8%) patients were using single drug out of these drug groups. Of the patients, 747 (35.4%) were using more than one drugs (Figure 3).

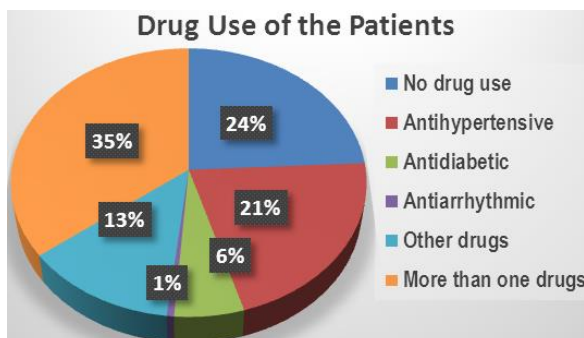


Figure 3. Distribution of the drugs used by the patients.

Living places of the patients were evaluated. Of all patients 2016 (95.6%) were living at home, and 68 (3.2%) in a nursing house. In all age groups, the number of patients living at home was significantly higher than the patients living in a nursing house. The rate of living in a nursing house was significantly higher in patients aged 75 years and over (5.1%, n=58) than the patients aged under 75 years (1.0%, n=10) (p=0.000).

Of all patients, 1273 (60.4%) were living with their spouses, 587 (27.8%) with their children, and 127 (6.0%) alone (Table 2). The scene of trauma was found as street in 1222 (58.0%), and home in 823 (39.0%) patients. In fallings at home, rate of female patients was higher (66.6%, n=548) compared to male patients (33.4%, n=275) (p=0.000). The rate of trauma experienced at home was significantly higher in patients aged 75 years and over (71.7%, n=590), while trauma experienced at street was significantly higher in patients aged under 75 years (74.9%, n=731) (p=0.000).

Table 2.

Distribution of patients according to where they live and the people they live with.

		n	%
Place of living	Home	2016	95.6%
	Nursing House	68	3.2%
	Other	24	1.1%
Persons the patients live with	Alone	127	6.0%
	Spouse	1273	60.4%
	Children	587	27.8%
	Relative	12	0.6%
	Caregiver	109	5.2%

Trauma mechanism was found as falling in 1810 (85.9%), motor vehicle collision in 27 (1.3%), pedestrian struck in 116 (5.5%), assault in 56 (2.7%), and sharp object injury in 99 (4.7%). The rate of patients who presented with

the complaint of falling was significantly higher in female patients than in male patients ($p < 0.05$). Whereas rate of the patients who presented with the complaint of assault was significantly higher in male patients ($p = 0.000$).

Type of trauma was found as blunt in 1987 (94.3%) and penetrating in 121 (5.7%) patients. The rate of exposing to blunt trauma (94.3, $n = 1987$) was significantly higher in both genders compared to assault trauma (5.7, $n = 121$) ($p = 0.000$). The rates of sharp object injury (7.9%, $n = 77$) and assault (4.1%, $n = 40$) were significantly higher in the patients aged under 75 years than in the patients aged 75 years and over ($p = 0.000$) (Table 3).

Table 3. Distribution of the patients according to scene, mechanism and type of trauma.

		n	%
Trauma scene	Home	823	39.0%
	Street	1222	58.0%
	Other	63	3.0%
Trauma mechanism	Falling	1810	85.9%
	Motor vehicle accident	27	1.3%
	Pedestrian struck	116	5.5%
	Assault	56	2.7%
	Sharp object injury	99	4.7%
Trauma type	Blunt	1987	94.3%
	Penetrating	121	5.7%

When vital findings at the time of admission were examined; body temperature was within the normal range in 99.4% ($n = 2094$), and heart rate in 1908 (90.5%) patients. Bradycardia was found in 50 (2.4%) and tachycardia in 150 (7.1%) patients. Systolic blood pressure was between 90-149 mmHg in 1622 (76.9%), ≥ 150 mmHg in 484 (23%) and ≤ 89 mmHg in 2 (0.1%) patients. Oxygen saturation was $\geq 90\%$ in almost all patients. Again, respiratory rate and GCS scores were within normal range in almost all patients.

The body region exposed the trauma was found as extremities in 862 (40.9%), head & neck in 395 (18.7%), and thorax in 106 (5.0%) patients. Trauma was occurred in more than one body regions in 727 (34.5%) patients (Figure 4).

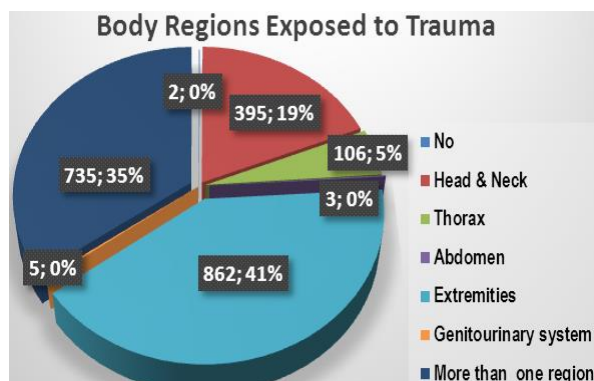


Figure 4. Distribution of the body regions exposed to trauma.

When outcomes of the patients were reviewed; 1772 (84.1%) patients were discharged directly from the emergency department, 10 (0.5%) patients were referred to an outer center, and 6 (0.3%) patients died. Of the patients, 219 ($n = 10.4\%$) were hospitalized in the

orthopedics clinic, and 35 (1.7%) in the neurosurgery clinic, while 6 (0.3%) patients were referred to the intensive care unit (Table 4). Majority (50.5%) of the discharged patients were aged between 65-74 years, while most (41.7%) patients who were referred to the intensive care unit or died were aged between 75-84 years. All of the patients who were referred to the intensive care unit or died ($n = 12$) were brought with a 112 ambulance and traumas in these patients were caused by falling and pedestrian struck ($n = 6$, respectively).

Table 4. Outcomes of the patients.

		n	%
Outcome	Discharged	1772	84.1%
	Leaving without permission	3	0.1%
	Leaving with permission	17	0.8%
	Died	6	0.3%
	Referred to an outer center	10	0.5%
Clinic of Hospitalization	Orthopedics	219	10.4%
	Neurosurgery	35	1.7%
	Neurology	18	0.9%
	Internal medicine	10	0.5%
	Intensive care	6	0.3%
	Others	12	0.6%

Discussion

Studies conducted about presentations of geriatric patients to emergency departments have been reported between 9% and 19% (9,14,16,23). In a study by Mert E. (12), trauma accounted for 5% of geriatric emergency admission. This rate was found as 9.9% in a study by Dede F (7). In our study, we found that rate of geriatric traumas as 0.62% among all presentations, and 6.05% among all trauma presentations.

In a study by Özdoğan et al. (15) conducted in Hacettepe University on 318 patients with geriatric trauma, male/female ratio was found as 1:4, while Mert E. (12) reported this ratio as 1:2. Similarly, in our study also the number of female patients was higher.

The mean age of geriatric patients was found as 76.6 in a study performed in Hacettepe University Medical Faculty, Emergency Department (7). Similarly, mean age of geriatric patients was found as 76.5 in a thesis study by Cesur (2). In our study, 977 (46.3%) patients were in 65-74 years age, 779 (37%) patients in 75-84 years age group, and 352 (16.7%) patients were in ≥ 85 years age group.

In the thesis study by Cesur, it was found that transfer with an ambulance was preferred more in geriatric patients (2). Unlike this study, 1324 (62.8%) presented as ambulatory, while 679 (32.2%) were brought to the emergency department with a 112 ambulance, and 105 (5.0%) with a private ambulance.

It is known that, 90% of the population aged over 65 years had at least one, 35% two, 23% three, and 15% four or more chronic health problems (4). Hypertension (HT) and chronic kidney failure (CKF) were found in 64.3%, diabetes mellitus (DM) in 13.1%, and osteoporosis (OP) in 15.5% (18) of geriatric patients (10). Similarly, in a study by

Abdulahyoğlu evaluating geriatric patients, 95.82% of the patients had a history of at least one disease, and the most common first four underlying diseases were HT by 62.8%, CAD by 21.3%, DM by 20.3%, and OP by 15.2% (1). These rates were similar with a study conducted by Dede F. (14) in 2006. However, there were at least one chronic disease in 80.2%, two chronic diseases in 38.9% and three chronic diseases in 14.8% of the geriatric patients.

Type of trauma was blunt in 94.3% and penetrating in 5.7% of the patients. The rate of exposing to blunt trauma was significantly higher than penetrating trauma in both genders ($p=0.000$). This may be attributed to that, causes of geriatric trauma are rather due to fallings. Sharp object injury and assault rates were significantly higher in patients aged under 75 years compared to the patients aged 75 years and over ($p=0.000$). This may be explained by that, the rate of exposing to forensic trauma.

In the study by Abdulahyoğlu, 58% of trauma patients were using at least one, and 45.6% were using two or more drugs (1). In our study, 75.8% of the geriatric patients were using at least one drug, and 35.5% two or more drugs.

In the study by Cesur, rate of trauma exposure at street was higher. In addition, exposing to trauma at home was significantly higher in patients in the geriatric age group compared to the other patients (2). Whereas in our study, 58% of the geriatric patients were exposed to trauma at street and 39% at home. Majority of the patients who experienced trauma at home were aged 75 years and over. The rate of being exposed to trauma at street was higher in patients aged under 75 years ($p=0.000$).

In our study, the rate of patients who presented due to falling was significantly higher in female than in male patients. Similarly, in a study conducted in the USA in 2006 the rate of female patients who presented due to falling was 70.2%, while this rate was 29.8% in male patients (11). This may be attributed to that women spends more time in the house.

In a study by Özdoğan et al. on forensic trauma cases; causes of trauma were found as traffic accidents in 91.2%, fallings in 3.5%, and assault in 5.3% of the patients (15). In a study by Abdulahyoğlu, the first three causes of presentations due to geriatric trauma were found as falling by 81.2%, traffic accidents by 9%, and burn in 4.2% (1). In the present study, geriatric patients presented to the emergency department due to falling by 85.9%, motor vehicle accident by 1.3%, pedestrian struck by 5.5%, assault by 2.7%, and sharp object injury by 4.7%.

In previous study show that, majority of the patients were exposed to extremity and head traumas (2,3,6). In a study by Güneypete et al. in Uludağ University Medical Faculty in 2008, extremity trauma was found by 38.7% and head trauma by 35.3% (10). Similarly, in our study also the most common two body region exposed trauma were the extremities and head.

In our study, when outcomes of the patients were evaluated; 84.1% of the geriatric patients were discharged. The most common two clinics of hospitalization were found as orthopedics and neurosurgery. There are similar studies in the literature (13). Majority of the discharger patients were in 65-74 years age range, while the patients who died or were referred to the intensive care units were in 75-84

years age range. This suggest that an advanced age is a risk factor for trauma cases.

Conclusion

Geriatric patient group is at a high risk for traumas. In case of presentation of geriatric patients to emergency departments, several characteristics of the cases such as patients' comorbidities, drug use, socidemographic features, and trauma mechanism should be examined in details and the necessary attention should be paid. Further population based studies should be performed in order to prevent traumas in geriatric patients.

References:

1. *Abdulahyoğlu E.* Hacettepe Üniversitesi Erişkin Acil Servisi'ne Başvuran Geriatrik Travma Olgularının Analizi, Hacettepe Üniversitesi 2011, Ankara. p.48-49
2. *Cesur F.* Geriatrik Travma Hastalarının Prospektif Analizi, Ege Üniversitesi İzmir. 2012; p.68-78
3. *Champion H.R., Sacco W.J.:* The trauma score as applied to penetrating injury // *Ann Emerg Med* 1984; 13:6
4. *Champion H.R., Copes W.S., Sacco W.J.* The Major Trauma Outcome Study // *J Trauma* 1990;30:1356
5. *Chang T.T., Schechter W.P.* Injury in the elderly and end-of-life decisions // *Surg Clin North Am.* 2007;87(1):229-45.
6. *Copes W.S., Champion H.E., Sacco W.J., Lawnick M.M., Keast S.L., Bain L.W.* The injury severity score revisited // *J Trauma* 28: 1988;69-77
7. *Dede F.* Hacettepe Üniversitesi Erişkin Acil Polikliniği'ne Ocak 2005 - Aralık 2005 Tarihleri Arasında Başvuran 65 Yaşve Üzerindeki Hastaların Epidemiyolojik İncelenmesi. Hacettepe Üniversitesi; Ankara. 2006. p.18-19.
8. *Dunbar H.* The medicine and surgery of Homer // *Br Med J* 1880;1:48-51
9. *Gökçe-Kutsal Y., Yorgancı K., Kadioğlu N.* In: Doğan R, Taştepe Aİ, Liman ŞT, eds. *Travma*. Ankara: MN Medikal& Nobel Yayınevi; 2006:789-802
10. *Güneytepe Ü.İ., Aydın Ş.A., Gökgez Ş., Özgüç H., Ocakoğlu G., Aktaş H.* Yaşlı Travma Olgularında Mortaliteye Etki Eden Faktörlerve Skorum Sistemleri, Uludağ Üniversitesi Tıp Fakültesi Dergisi 2008;34:15-19.
11. *Mattox K.L., Bickell W., Pepe P.E., Burch J., Feliciano D.* Prospective MAST studyin 911 patients // *The Journal of Trauma.* 1989; 29:1104-11.
12. *Mert E.* Emergency Service Use of Geriatric Patients // *Turk J Geriatr.* 2006;9(2):70-4.
13. *Moreau M., Gainer P., Champion H.R., Sacco W.J.* Application of the trauma score in the prehospital setting // *Ann Emerg Med.* 1985;14:1049
14. *Owens P.L. (AHRQ), Russo, C.A. (Thomson Reuters), Spector, W. (AHRQ) and Mutter, R. (AHRQ).* Emergency Department Visits for Injurious Falls among the Elderly, 2006.HCUP Statistical Brief #80. October 2009. Agency for Healthcare Research and Quality, Rockville, MD. <http://www.hcup-us.ahrq.gov/reports/statbriefs/sb80.pdf>.
15. *Özdoğan M., Agalar F., Daphan C.E., Topaloglu S., Cakmakcı M., Sayek I.* Factors effecting mortality and morbidity in theTrauma in Elderly Patient // *UlusTravmDerg.* 1999;5:189-93
16. *Schwab C.W., Kauder D.R.* Trauma in the geriatric patient // *ARCH Surg.* 1992;127:701-6

17. TOBB Economic Report 2017. 74th General Assembly.

<https://www.tobb.org.tr/Documents/yayinlar/2018/EkonomikRapor2017.pdf> last available date: 27.05.2019

18. *Tufan İ.* Birinci Türkiye Yaşlılık Raporu. Akdeniz Ü.G.B. Geroyay, Antalya, 2007;1-177.

19. Türkiye'de Yaşlıların Durumu ve Yaşlanma Ulusal Eylem Planı.

<http://ekutup.dpt.gov.tr/nufus/yaslilik/eylemplan.pdf>. last available date: 15.10.2009; p.5-7.

20. Türkiye İstatistik Kurumu Adrese Dayalı Nüfus Kayıt Sistemi. <http://www.tuik.gov.tr/PreHaberBultenleri.do>;

[jsessionid=6nBrRJ1SmG5T4W82jYrmKDMr4s31LYLm2bd9HqqvblZ72j2dVLp!365014209?id=13425&as_fid=v7EdCP6oHYIUaJzQQF/C](https://www.tuik.gov.tr/PreHaberBultenleri.do). last available date: 27.05.2019.

21. World Health organization. World Health Statistics 2012. http://www.who.int/gho/publications/world_health_statistics/EN_WHS2012_Full.Pdf. Last available date:15.12.2013

22. *Yaman H., Akdeniz M.* Etkin Yaşlanma: Birinci Basamak Sağlık Hizmetlerinde Yaşlı Sağlığına Yeni Bir Bakış Açısı STED. 2008;17:6-9

23. *Yorgancı K.* Travma. In: Gökçe-Kutsal Y, ed. Temel Geriatri. Ankara: Güneş Tıp Kitapevleri; 2007:1335-9

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