

A medicolegal evaluation of geriatric cases with traumatic injuries

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ABSTRACT

BACKGROUND: The morbidity and mortality of traumatic injuries are higher in individuals aged >65 years, which are a population group showing an increase worldwide, compared to other age groups. The aim of this study was to compare the medicolegal aspects, such as abuse of the elderly with the morbidity and mortality rates of injuries resulting from trauma by examining the age, gender, trauma history, type of traumatic injury, clinical progress following injury, elderly abuse, and the care environment of the person in cases aged 65 years and older.

METHODS: In this cross-sectional and descriptive study, a retrospective examination was made of the electronic and physical patient files of patients aged 65 years and older who presented at the Emergency Department of Blacksea Technical University Medical Faculty Farabi Hospital between 2019 and 2020.

RESULTS: Of the 647 patients who presented because of trauma, 384 (59.4%) were male and 263 (40.6%) were female. The leading cause of trauma was a same-level fall in 244 (37.7%) cases, followed by piercing or cutting injuries in 123 (19.0%), and a fall from height in 80 (12.4%) cases. Same-level falls and burns injuries were determined at a statistically significantly higher rate in females ($p<0.001$).

CONCLUSION: Abuse of the elderly and the mechanisms of all traumas, primarily falls as the most common cause of geriatric trauma, are a subject that should be addressed in terms of forensic medicine. Preventative measures against trauma should be implemented and reviewed for the elderly, and health-care personnel should take responsibility for the legal reporting of forensic traumatic injuries.

Keywords: Abuse of the elderly; forensic medicine; traumatic injury.

INTRODUCTION

As in all areas, together with developments in the field of health care, the increased access to health-care services, prevention, and development opportunities have led to longer life expectancy and an increase in elderly population worldwide.^[1] The physiological, anatomic, and social changes occurring in the period defined by the World Health Organization (WHO) as 65 years of age and over, result in health problems often seen in this population.

According to the WHO data, there were 650 million people worldwide aged ≥ 65 years in 2006, and this is predicted to rise to 1.2 billion in 2025 and 2 billion in 2050.^[2]

In countries with a young population structure, the increase in elderly population is more rapid. For example, in countries such as France and Sweden, elderly population has increased from 7% of the total population to 14% in a 100 years, while the same change has occurred in as short time as 20–30 years in countries which currently have a young population such as Thailand, China, and Brazil. It has been estimated that elderly population of 60 million in 2010 in India will increase 4-fold by 2050 and reach 230 million, and in China, the population of 110 million in 2010 will increase 3-fold by 2050, reaching 330 million. In developed countries such as the UK, France, the USA, Japan, Germany, and Sweden, the life expectancy of females in the mid-19th century was 40–50 years, and at the end of the 20th century, it was approaching 90 years.^[3]

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Trauma has been shown to be one of the most frequent causes of disability and death worldwide.^[4,5] It is one of the most important causes of death in developed countries in particular. According to the WHO data, more than 5 million people per year globally lose their lives because of injuries.^[6] Trauma is known to be the most common cause of death in the 1–44 years age group.^[7] The leading causes of death for the whole population in the USA are cardiac diseases, malignancies, and cerebrovascular diseases followed by trauma.^[8] In 2000, traumatic injuries accounted for 11% of global deaths and 13% of disabled life years.^[9]

Trauma and associated injuries are among the leading reasons for presentation at emergency departments. According to data from the USA, approximately 60 million injuries per year are trauma-related and approximately 36 million (60%) cases of these injuries present at emergency departments.^[10] In studies conducted in Turkey in the Emergency Medicine Departments of some universities, it has been reported that 7–20% of presentations at emergency departments are trauma patients.^[11,12]

Traumatic injuries and the associated outcomes are common causes of morbidity and mortality in all societies.^[13,14] To be able to statistically reveal the proportional distribution of traumatic injury types seen in the elderly presenting at the emergency department, the clinical outcomes, and the demographic risk factors, it is important to understand the preventable risk factors of trauma in the elderly.

In addition to the examination of traffic accidents, assault, firearms injuries, piercing or cutting injuries, and other traumatic injuries which are evaluated as forensic cases in the emergency department, the concept of elderly abuse should also be kept in mind. To avoid missing the clinical presentation of elderly abuse, which is an important public health problem, the frequency, types, clinical status, outcomes, and preventable risk factors of elderly abuse should be addressed.

The aim of this study was to raise awareness of the subject of abuse of the elderly with the morbidity and mortality rates of injuries resulting from trauma by examining the age, gender, trauma history, type of traumatic injury, clinical progress following injury, elderly abuse, and the care environment of the person in cases aged 65 years and older.

The results of the study will reveal the age and gender distribution of the trauma cases, the most common types of injury, the anatomic localization of these injuries, and the forensic dimension of the injuries.

MATERIALS AND METHODS

In this retrospective and cross-sectional study, the electronic patient records were examined of 11,964 patients aged 65 years and older who presented at a University Hospital in 2019 and 2020.

From the patient files, where it was determined that presentation was because of trauma, 647 patients were evaluated in respect of age, gender, whether or not the case was forensic in nature, whether or not there was forensic provision, the form of trauma, the anatomic region of the injury, progress, the clinic to which the patient was admitted, length of stay in hospital, the presence of repeated trauma, and the living environment of the patient.

Data obtained in the study were analyzed statistically using SPSS for Windows v. 15.0 software. Descriptive statistics were presented as number (n) and percentage (%) for categorical variables. Ratios in the groups were compared with the Chi-square test. The alpha significance level was accepted as $p < 0.05$.

Approval for the study was granted by the Scientific Research Ethics Committee of Blacksea Technical University Medical Faculty (decision no: 24237859-39, dated: January 11, 2021).

RESULTS

Evaluation was made of 647 patients who presented because of trauma, comprising 292 (45.1%) patients in the young-old age group, 263 (40.6%) in the middle-old group, and 92 (14.2%) in the oldest-old age group. The gender distribution of the total 647 patients was 384 (59.4%) males and 263 (40.6%) females (Table 1).

A total of 426 (65.8%) patients presented with traumatic injuries not forensic in nature and 221 (34.2%) presented with

Table 1. Distribution of age groups and gender

n=647	n	%
Gender		
Female	263	40.6
Male	384	59.4
Age		
Young-old (65–74 years)	292	45.1
Middle-old (75–84 years)	263	40.6
Oldest-old (85+ years)	92	14.2

Table 2. Forensic cases and forensic provision

	Forensic cases			
	No		Yes	
	n	%	n	%
Forensic Provision				
No	420	98.6	29	13.1
Yes	6	1.4	192	86.9

injuries of a forensic nature, of which forensic provision was made for 192 (86.9%) cases and not for 29 (13.1%) cases. It was determined that forensic provision was made for 6 (1.4%) cases which were not forensic in nature (Table 2).

When the mechanism of trauma was examined in the cases, 244 (37.7%) were same-level falls, followed by piercing or cutting injuries in 123 (19.0%) cases, fall from height in 80 (12.4%), traffic accident within the vehicle in 49 (7.6%), burns in 32 (4.9%), traffic accident outside the vehicle in 22 (3.4%), assault in 13 (2%), firearms injuries in 8 (1.2%), motorbike/ATV accident in 6 (0.9%), and other traumatic injuries in 70 (10.8%).

When the distribution of the mechanism of injury was examined according to gender, same-level falls and burns were determined at a statistically significantly higher rate in females ($p<0.001$). Same-level falls were determined in 130 (49.4%) females and in 114 (29.7%) males, and burns were determined in 19 (7.2%) females and in 13 (3.4%) males. No significant difference was determined between the genders in respect of the other types of injuries.

The distribution of the types of injuries showed a statistically significant difference between the age groups ($p<0.001$). In the young-old group, same-level falls were seen most in 79 (32.4%) cases followed by piercing or cutting injuries in 72 (58.5%) and other traumatic injuries in 44 (62.9%). A similar order was seen in the middle-old age group with same-level falls in 104 (42.6%) and piercing or cutting injuries in 45 (36.6%) cases. In the oldest-old age group, same-level falls in 61 (25.0%) cases were determined to be at a significantly higher rate than traumatic injuries of other origins (Table 3). When the anatomic regions affected by the trauma were ex-

amined in the whole patient group aged ≥ 65 years, there was determined to be extremity injury in 282 (43.6%) cases, head-neck injury in 155 (24.0%), polytrauma in 87 (13.4%), thorax trauma in 47 (7.3%), abdominal trauma in 6 (0.9%), and pelvic trauma in 2 (0.3%). In 68 (10.5%) of the patients who presented at the emergency department, there was not seen to be any documented injury region after the trauma.

The clinical progress of all the cases was examined. Four hundred and ten (63.4%) patients were discharged on the same day, 195 (30.1%) were admitted to hospital, 17 (2.6%) patients were exitus during treatment in the clinic to which they were admitted, 11 (1.7%) refused treatment and discharged themselves, 7 (1.1%) were transferred, and 7 (1.1%) were exitus on the day of presentation (Table 4).

A statistically significant difference was determined in clinical progress according to the mechanism of trauma ($p<0.001$). Same-level falls were determined to be the injury with the highest rate of discharge ($n=182$, 74.6%). In the cases admitted to any clinic, the highest percentage was formed of 52 (26.7%) cases with same-level falls followed by 39 (30%) cases of a fall from height and 32 (16.4%) cases with piercing or cutting injuries. Mortality within the same day was seen in 4 (57.1%) patients who presented after a fall from height, and in 3 (42.9%) with burns injuries, and as no same-day mortality was seen in the other traumas, the difference was statistically significant. Of the patients who were exitus in the clinic to which they were admitted, the highest rate was 7 (41.2%) cases of fall from height (Table 5).

Traffic accident within the vehicle was the trauma mechanism with the highest rate of transfer. The majority ($n: 6$, 54.5%)

Table 3. The mechanisms of trauma, age, and gender of the cases

Mechanism of trauma	Gender				Age groups					
	Female		Male		Young-old		Middle-old		Oldest-old	
	n	%	n	%	n	%	n	%	n	%
Same-level fall	130	53.3	114	46.7	79	32.4	104	42.6	61	25.0
Fall from height	23	28.8	57	71.3	31	38.8	38	47.5	11	13.8
Assault	6	46.2	7	53.8	10	76.9	3	23.1	0	0.0
Traffic accident outside vehicle	6	27.3	16	72.7	10	45.5	11	50.0	1	4.5
Traffic accident inside vehicle	20	40.8	29	59.2	25	51.0	21	42.9	3	6.1
Motorbike/ATV accident	0	0.0	6	100	3	50.0	3	50.0	0	0.0
Piercing or cutting injuries	34	27.6	89	72.4	72	58.5	45	36.6	6	4.9
Firearms injuries	3	37.5	5	62.5	5	62.5	2	25.0	1	12.5
Burns	19	59.4	13	40.6	13	40.6	12	37.5	7	21.9
Other	22	31.4	48	68.6	44	62.9	24	34.3	2	2.9
P	<0.001				<0.001					

Table 4. Clinical progress, age groups, mechanism of trauma, and anatomic region of injury

	Progress												p
	Discharged		Admitted		Transfer		Same-day exitus		Refused treatment		Exitus during inpatient treatment		
	n	%	n	%	n	%	n	%	n	%	n	%	
Age group													
Young-old	186	45.4	90	46.2	3	42.9	4	57.1	4	36.4	5	29.4	0.352
Middle-old	173	42.2	73	37.4	2	28.6	3	42.9	3	27.3	9	52.9	
Oldest-old	51	12.4	32	16.4	2	28.6	0	0.0	4	36.4	3	17.6	
Mechanism of trauma													
Same-level fall	182	44.4	52	26.7	1	14.3	0	0.0	6	54.5	3	17.6	<0.001
Fall from height	27	6.6	39	20.0	1	14.3	4	57.1	2	18.2	7	41.2	
Assault	9	2.2	4	2.1	0	0.0	0	0.0	0	0.0	0	0.0	
Traffic accident outside vehicle	14	3.4	7	3.6	0	0.0	0	0.0	0	0.0	1	5.9	
Traffic accident inside vehicle	24	5.9	21	10.8	2	28.6	0	0.0	0	0.0	2	11.8	
Motorbike/ATV accident	2	0.5	3	1.5	0	0.0	0	0.0	0	0.0	1	5.9	
Piercing or cutting injuries	89	21.7	32	16.4	1	14.3	0	0.0	1	9.1	0	0.0	
Firearms injuries	3	0.7	4	2.1	1	14.3	0	0.0	0	0.0	0	0.0	
Burns	7	1.7	17	8.7	1	14.3	3	42.9	1	9.1	3	17.6	
Other	53	12.9	16	8.2	0	0.0	0	0.0	1	9.1	0	0.0	
Anatomic area of injury													
Head-neck	117	28.5	29	14.9	3	42.9	0	0.0	3	27.3	3	17.6	<0.001
Thorax	20	4.9	25	12.8	1	14.3	1	14.3	0	0.0	0	0.0	
Abdomen	2	0.5	4	2.1	0	0.0	0	0.0	0	0.0	0	0.0	
Pelvis	2	0.5	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	
Extremity	186	45.4	90	46.2	1	14.3	1	14.3	2	18.2	2	11.8	
Polytrauma	18	4.4	46	23.6	2	28.6	5	71.4	4	36.4	12	70.6	
No injury determined	65	15.9	1	0.5	0	0.0	0	0.0	2	18.2	0	0.0	

of the patients who refused treatment and discharged themselves were cases of same-level fall.

Table 5. Clinics to which the study cases were admitted

	n	%
Clinic to which admitted		
Orthopaedics and traumatology	68	10.5
Thoracic surgery	41	6.3
Intensive Care	27	4.2
Burns Unit	24	3.7
Neurosurgery	18	2.8
Plastic surgery	17	2.6
General surgery	3	0.5
Other	11	1.7
Not admitted as inpatient	438	67.7

The clinics to which patients were admitted were examined. It was seen that 438 (67.7%) patients were not admitted to any clinic for inpatient treatment, 68 (10.5%) were admitted to orthopedics and traumatology, 41 (6.3%) to thoracic surgery, 27 (4.2%) to intensive care and reanimation, 24 (3.7%) to the burns unit, 18 (2.8%) to brain and neurosurgery, 17 (2.6%) to plastic, esthetic, and reconstructive surgery, 3 (0.5%) to general surgery, and 11 (1.7%) to other clinical wards (Table 6). In respect of length of stay in hospital, 433 (67.0%) patients were discharged on the same day as presentation, and hospital length of stay was seen to be 1–3 days for 67 (10.4%) patients, 4–30 days for 136 (21.1%), and longer than 30 days for 8 (1.2%).

Information about the living environment of the patients was not available in 641 (99.1%) cases, and 3 (0.5%) patients were living in a residential home, 2 (0.3%) lived alone, and 1 (0.2%) lived with a person related by blood or law (Table 7).

Table 6. Repeated trauma

	Repeated trauma (at the same hospital in the same time period)				p
	No		Yes		
	n	%	n	%	
Gender					
Female	259	98.5	4	1.5	1.000
Male	379	98.7	5	1.3	
Age					
Young old (65–74 years)	289	99.0	3	1.0	0.664
Middle old (75–84 years)	259	98.5	4	1.5	
Oldest old (≥85 years)	90	97.8	2	2.2	

Table 7. Living environment of the patients

	n	%
Living environment		
Alone	2	0.3
With a person related by blood or law	1	0.2
Residential home	3	0.5
No information	641	99.1

DISCUSSION

To be able to take medical and social preventative measures against geriatric trauma, which has high morbidity and mortality, it is necessary to examine several parameters of such cases. Therefore, the cases in this study were evaluated in respect of age, gender, mechanism of trauma, anatomic region of injury, clinical progress, clinic to which they were admitted, length of stay in hospital, repeated trauma, the living environment of the patient, and the rate of forensic cases.

The geriatric patients who presented because of trauma and were included in the study comprised 384 (59%) males and 263 (40.6%) females. Similar studies evaluating geriatric trauma have reported rates of 62.4% of males and 37.6% of females and 69.2% of males and 30.8% of females.^[15,16] Although most data show a greater rate of trauma in males, as in the present study, there is a study that reported rates of 59.5% in females and 40.5% in males.^[17] Despite the knowledge that males in all age groups are most exposed to trauma, it would be more useful to examine the trauma mechanism together with gender distribution to understand the etiology.

The patients aged ≥65 years in this study who presented because of trauma were determined to be 45.1% in the young-old group (65–74 years), 40.6% in the middle-old group (75–84 years), and 14.2% in the oldest-old age group (≥85 years).

In a study by Atilla et al.,^[18] geriatric blunt trauma patients were stated in the age ranges as 24.6% aged 65–69 years, 24.1% aged 70–74 years, 22.2% aged 75–79 years, and 29.1% aged ≥80 years.

In a study that examined the forensic reports of geriatric patients, forensic cases in the 65–74 years age range showed the most frequent traumatic injuries and the rate was determined to be significantly greater compared to the middle-old and oldest-old groups.^[19] Presentations at the emergency department because of trauma were examined in another study, and the mean age in the whole sample was determined to be 76.07 years, as 75.01±6.557 in male patients and 76.10±7.353 years in female patients.^[20] When examined generally, the mean age was seen to be consistent with the early old age grade, similar to the results of the present study. The higher rate of trauma in early old age can be explained by the increase in morbidities together with aging and reduced ability to leave the house alone.^[19] When it is considered that trauma is seen most in young adults, that a higher rate is seen in the early grade of geriatric age grouping can be evaluated as an expected result.

When the general distribution of the trauma mechanism was examined, the highest rate was found to be in same-level falls at 37.7%, followed by piercing or cutting injuries, fall from height, traffic accident inside the vehicle, burns, traffic accident outside the vehicle, assault, firearms injuries, and motorbike/ATV accidents.

Similarly, there are many studies in the literature stating that falls are the most common cause of trauma. A previous study reported that falls at the rate of 31%, without stating the level, were the most frequent origin of trauma, followed by traffic accident outside the vehicle at 30%, and traffic accident inside the vehicle at a rate close to 30%.^[15] Akoğlu et al.^[21] showed that falls were the most frequent trauma mechanism (70%) followed by sprain-crush injury, assault, piercing or cutting injuries, and motor vehicle injuries. The rate of low-energy falls was reported as 79.6% in another study.^[18]

The decrease in mobility together with aging, visual and hearing impairments, weakened balance coordination, neurological dysfunctions, and many more factors lay the ground for falls. Other preparatory factors such as extremity weakness, a history of falls, stroke sequelae, and multiple drug use have been associated with falls in old age.^[22,23] In contrast, as traffic accidents are among the leading causes, this young-old age group may be more active in social life participation and may be found in traffic both as drivers and pedestrians, but just as in all trauma types, the anatomic, physiological, and pathological changes related to ageing increase the risk of accidents due to poorer reflexes, musculoskeletal weakness, and visual and hearing impairments.^[24]

Precautions should be taken for the prevention of traumatic injuries which have significant morbidity and mortality in el-

derly population. Precautions to be taken by the individual, or carer, on the basis of rearrangements in the living environment and in social life will provide positive changes in geriatric trauma and the associated outcomes.

In the present study, as reported in the literature and by health associations, although differences seem to be affected by various factors, falls are the most common cause of trauma in the elderly.^[25] The vast majority of falls occur in the home. The high rate of same-level falls shows that age-related changes play an important role. Changes and weakness in the functions of the visual, hearing, neurological, and musculoskeletal systems, diseases which disrupt balance coordination, and the use of multiple drugs are some of the patient-related factors creating a risk of falls. External factors of negative conditions in the living environment include slippery surfaces, poor ventilation and lighting, unfamiliar stair and floor coverings, objects on the floor, and the absence of grab rails in the toilet and bathroom.

The present study findings that there was a statistically significantly higher rate of females than males with trauma caused not only by falls but also by burns are supported by data in literature. Guliyev et al.^[26] determined a higher rate of burns trauma in females than males (58% vs. 42%). In another similar study that examined trauma in the elderly, there were reported to be 15 females and five males with burns injuries. Other literature data have shown burns origin trauma in 12% of females and 4.9% of males.^[27]

To be able to prevent abuse of the elderly which may cause traumatic injuries, it is first necessary not to overlook this type of abuse. It is estimated that the data in literature represent a very small proportion of actual abuse cases. Although physical abuse comes to mind first as abuse, other types must be kept in mind. In a previous study, it was reported that neglect is most common (49%), followed by emotional/psychological abuse (35%), physical abuse (30%), economic abuse (26%), and sexual abuse (1%), and neglect was associated with high mortality rates.^[28] There are studies in literature that have named this abuse “geriatric syndrome.” Abuse of the elderly causes high rates of morbidity and mortality.^[29] Non-reporting by the individual for reasons such as hesitation, fear, embarrassment, and other factors causes delays in both forensic and medical procedures, and can result in repeated abuse and even death of elderly person.^[30]

In the USA and some European countries, there are institutional structures to prevent abuse of the elderly.^[31] In Turkey, apart from the existence of the General Directorate of Disabled and Elderly Services of the Ministry of Family and Social Policies, to which residential nursing homes fulfill the duty of protecting and taking care of the individual after the abuse is detected, the existence of institutional structures specifically aimed at preventing abuse is not known.

The medical records obtained from the archives were examined in this study and the data of only medical history, physical examination, and tests were not sufficient to evaluate the cases as elderly abuse. The findings obtained were not sufficient to be able to evaluate the traumatic injuries, primarily those of assault and burns as elderly abuse. It was seen that none of the medical records of the patients reported as a forensic case and/or for whom forensic provision was made were reported in the concept of elderly abuse. Moreover, there was no information available that could differentiate the reason for the clinician reporting forensic cases (34.2%) because of it being a forensic trauma case or because of the suspicion of elderly abuse.

A significant difficulty in determining the trauma origin of elderly individuals injured as a result of physical abuse and/or neglect can be overcome with an accident history.^[32] To be able to evaluate injuries thought to be deliberate injuries as elderly abuse, even in forensic cases, information is required of the continuation of the forensic process with forensic documents. Despite the difficulties in analyzing physical abuse, it was planned that elderly patients in the present study with medical history and the physical examination findings strongly suggesting sexual abuse would be evaluated as the sexual abuse group. As a result of the findings of elderly patients presenting because of trauma, no case of sexual abuse was determined in this study.

The distributions of the trauma mechanism showed statistically significant differences between the age groups in the present study ($p < 0.001$). In the young-old age group, same-level falls were seen to be most common, followed by piercing or cutting injuries, other traumatic injuries, and assault. In the middle-old age group, the order was the same, while in the oldest-old age group, same-level falls were determined to be significantly higher than the other trauma origins in the same age group. As continuation of working life and being in traffic as a driver or pedestrian will decrease together with ageing, there is expected to be a decrease in trauma mechanisms such as traffic accidents and workplace accidents.^[33,34] Age-related changes become more evident with advancing age, and there are seen to be more reductions and losses in system functions.^[35,36]

The anatomic region affected by the trauma was examined in the patients aged ≥ 65 years in this study. Extremity injury was seen at the highest rate (43.6%), followed by head-neck injuries (24.0%), polytrauma (13.4%), thorax trauma (7.3%), abdominal trauma (0.9%), and pelvic trauma (0.3%). In 10.5% of the patients, no injury of traumatic origin was detected. In the findings of many studies which have examined trauma in the elderly, extremity injuries have similarly taken first place.^[15,20] In a study which examined traumatic injuries in all age groups, the extremities were reported to generally be the most affected regions in all age groups.^[21]

A statistically significant difference was determined between clinical progress and the mechanism of trauma in the present study cases ($p < 0.001$). Cases who presented following a same-level fall were found to be the group that could be discharged at the highest rate (74.6%). Of the cases admitted to any clinic, the highest percentage was of cases with a same-level fall (26.7%) followed by fall from height (20%) and piercing or cutting injuries (16.4%). That falls were the trauma mechanism resulting in the most admissions has also been shown in another study.^[27]

It was determined that clinical progress was significantly affected by the anatomic region of the injury ($p < 0.001$). Patients with extremity trauma were most often discharged on the same day followed by admission to any clinic. The rate of admission to any clinic of thoracic trauma and polytrauma cases was found to be significantly higher than the other markers of progress. The number of patients with polytrauma who were exitus on the same day as presentation or in the clinic to which they were admitted was determined to be higher than patients with injuries in other anatomic regions.

When the clinics to which the cases were admitted were examined, it was seen that the highest rate of patients was those not admitted to any clinic (67.7%). The clinics to which cases were admitted were seen to be primarily orthopedics and traumatology (10.5%), followed by thoracic surgery, intensive care and reanimation, burns unit, and other clinics. Similar studies have also reported that orthopedics is the clinic with the most admissions and from which the most consultations are requested for patients not admitted as inpatients.^[19,20] In another study, general surgery was in first place.^[37] These results can be attributed to the fact that the most injured region in geriatric trauma is the extremities.

Trauma in elderly population leads to disruption of the body integrity, function losses, sequelae, limitations in mobility, and functional impairments in several systems. An individual predisposed to injury because of age-related changes is at risk of repeated trauma with the effect of pathologies remaining after the initial trauma.^[18]

The rates were examined of repeat presentation because of trauma within the same time period of 2019–2020 at Farabi Hospital Emergency Department, where the sampling of this study was made. The limited amount of information accessed from the electronic and physical archive records was thought to be due to the patients having presented at another health-care center in the same time period and/or the time period being narrow. According to the findings obtained, the rate of repeat trauma was determined in 1.5% of females and 1.3% of males. When this was evaluated in the age groups, the highest rate of 2.2% was in the oldest-old age group followed by 1.5% in the middle-old group and 1% in the young-old group. Although the rate of repeated trauma was seen proportion-

ately more often in females and at increasing ages, the differences between gender and age groups were not statistically significant.

Information about the living environment of the patients was not available in 641 (99.1%) cases, and it was determined that 3 (0.5%) lived in a residential nursing home, 2 (0.3%) lived alone, and 1 (0.2%) was living with a person related by blood or law. When the medical records and available demographic data were examined, that there was no information about the living environment of the patients, and that it was a retrospective study with no questionnaire or prospective examination prevented examination of this parameter.

Conclusion

Trauma is seen to be one of the most important causes of death and disability worldwide and causes high rates of morbidity and mortality in elderly population. For elderly individuals, who already have an increased risk of exposure to trauma, a more difficult process is expected than for other age groups. Although there is variability in the rates of the effect of many factors, from demographic characteristics to the type of injury, it is known that death and disability are seen more in the elderly hospitalized after trauma.

Domestic accidents and falls constitute a significant proportion of injuries in the elderly. Especially, injuries which are not high energy but may have severe clinical outcomes can be prevented with precautions taken in the living environment by the individual, their career, or family. It is also very important to take precautions against the mechanisms of traumatic injuries, which can be listed as traffic accidents, falls from height, and many other groups.

Elderly abuse is one of the most important issues of advancing age but hesitation in reporting makes it difficult for healthcare personnel to make a diagnosis and forensic report. Informative programs for elderly population and education of those in the living environment of elderly person are extremely important not only to overcome abuse but also to prevent repeated abuse. Findings of abuse, primarily physical and sexual, must not be overlooked in individuals aged ≥ 65 years presenting for whatever reason not only at the emergency department but also at any unit, and with appropriate management of the clinical process and timely forensic reporting, repeated abuse and severe outcomes, even as far as death, can be prevented.

In cases of geriatric trauma, all health-care personnel, including the team providing transport to the health-care center, should be knowledgeable, aware, and attentive on the subject of trauma characteristics in the elderly, and it must not be forgotten that there is a legal and moral responsibility to report trauma of a forensic nature.

Ethics Committee Approval: This study was approved by the Blacksea Technical University Clinical Research Ethics Committee (Date: 11.01.2021, Decision No: 2020/360).

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ORİJİNAL ÇALIŞMA - ÖZ

Travmatik yaralanmalı geriatrik olguların medikolegal yönden değerlendirilmesi

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AMAÇ: Dünya genelinde sayıca artış gösteren 65 yaş üzeri, travmatik yaralanmaların morbidite ve mortalitesi diğer yaş gruplarına göre daha yüksektir. Çalışmamızda, 65 yaş ve üzeri olguları, cinsiyet, yaş, travma öyküsü, travmatik yaralanmanın türü, yaralanma sonrası klinik progres, yaşlı istismarı ve kişinin yaşadığı ortam bakımından inceleyerek, travma sonucu yaralanmaların morbidite ve mortalite düzeyleri ile yaşlı istismarı gibi medikolegal yönleriyle irdelemek amaçlanmaktadır.

GEREÇ VE YÖNTEM: Araştırmanın yapısı kesitsel tanımlayıcı bir çalışma niteliğinde olup, Karadeniz Teknik Üniversitesi Tıp Fakültesi Farabi Hastanesi Acil Sevisi'ne 2019-2020 yılları arasında başvuru yapmış 65 yaş ve üzeri hasta dosyalarının elektronik ve fiziki ortamda geriye dönük olarak incelenmesi ile yapılmıştır.

BULGULAR: Travma nedeniyle başvuran 647 hastadan 384 hastanın (%59.4) erkek, 263 hastanın (%40.6) kadın olduğu görüldü. Travma oluş şekillerinde; 244 (%37.7) olgu ile kendi seviyesinden düşme ilk sırada görülürken, delici kesici alet yaralanması 123 (%19.0) ve yüksekten düşme 80 (%12.4) olgu ile takip etti. Kendi seviyesinden düşme ve yanık kadın cinsiyette istatistiksel olarak anlamlı yüksek saptandı ($p<0.001$).

TARTIŞMA: Geriatrik travmanın en sık nedeni olan düşmeler başta olmak üzere tüm travma oluş mekanizmaları ve yaşlı istismarı, adli tıbbi açıdan ele alınması gereken bir konudur. Travmayı önleyici tedbirler yaşlılar için düzenlenmeli ve gözden geçirilmeli, adli travmatik yaralanmalarda sağlık personeli adli bildirim yükümlülüğünü yerine getirmelidir.

Anahtar sözcükler: Adli tıp; travmatik yaralanma; yaşlı istismarı.

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