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We would cordially thank the below 2016 term reviewers of our journal who gave valuable constructive criticism to the authors and helped to improve the journal.

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May you always be surrounded by hope. Have a prosperous New Year.

On behalf of the Editorial Board.

Prof. Yesim GOKCE KUTSAL

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INSTRUCTIONS FOR AUTHORS

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A LONG WAY SINCE VIENNA INTERNATIONAL PLAN OF ACTION ON AGEING...
1ST OF OCTOBER, THE INTERNATIONAL DAY FOR OLDER PERSONS...

Dilek ASLAN
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Dramatic change in demography and the situation of the older persons at the global level were highlighted in the Vienna International Plan of Action on Ageing in 1982. Twenty years after the Vienna act, in 2002, the Madrid International Plan of Action in Ageing was announced as the political declaration on the issue. Madrid International Plan enlarged the perspective of ageing with its focus on the prevention of age discrimination, abuse, violence, neglect in all aspect of life including health, work, etc. Both Plans guide almost all regional and national aging related programs for the United Nations (UN) partner countries (1).

United Nations also accepted 1st of October as the "International Day for Older Persons" with a specific theme for every year to increase the awareness of the global community. "Take a stand against ageism" was the theme of 2016 (2) chosen to be addressed which was also a major working title of the Madrid International Plan of Action in Ageing. Ageism is a type of discrimination and it should be avoided as it ends with almost 7.5 years earlier deaths as well as negative health influences increasing morbidity rates (2).

Turkish Geriatrics Society prepares and distributes public hearings on the selected topics of the International Day for Older Persons every year. This year, the global theme was introduced to the Turkish Community via web site of the Society (3).

Ageing related agenda also highlight the need(s) in different aged groups of the older people. As the life expectancy at birth increases, 85 years of older people also increase in number and the needs of this age group are different from the younger aged groups of 65-74, and 75-84. Functional capacity is expected to decrease in the oldest age group which limits the independent living in this age group compared with the younger individuals. New perspective should be improved with the collaborative work between health and other sectors to increase the capacity of older people for surviving independently even in the oldest ages (4).

There is a long way to achieve the goal of eliminating age discrimination globally. Fortunately, age friendly approach can be helpful in this regard (5). Age friendly theme is a public health approach giving priority to the inclusion of aged people in all aspects of life. Many indicators were developed to make this approach more applicable at the community level (6). To combat with aged discrimination, all types of inequalities should be avoided arising from social determinants of health.

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Turkish Journal of Geriatrics

CONTENTS

2016;19(4)

RESEARCHES

- **Is the Course of Pneumonia the Same in Elderly and Older Patients?** 203-210
  İpek ÖZMEN, Elif YILDIRIM, Hamza OGUN, Halil İbrahim YAKAR, Tülay TÖRÜN, Haluk ÇALIŞIR
- **Investigating the Frequency of Dermatological Diseases in the Oldest Old** 211-216
  Ahu YORULMAZ, Başak YALÇIN
- **Factors Affecting Mortality in Geriatric Patients with Head Trauma** 217-222
  Mustafa İÇER, Abdullah ŞEN, Yılmaz ZENGİN, Recep DURSUN Hasan Mansur DURGUN, Mehmet ÜSTÜNDAĞ, Murat ORAK, Cahfer GÜLOĞLU
- **Evaluation of Subconjunctival Hemorrhage in Elderly Individuals** 223-227
  Feride Aylin KANTARCI, M. Nabi KANTARCI
- **Hearing Impairment and Tinnitus Severity in Parkinson's Disease** 228-231
  Sinan ULUYOL, Saffet KILIÇASLAN, Caner BAYDAR, Ufuk ŞENER
- **Perceptions of the Elderly on Elderly Abuse** 232-237
  Işıl KALAYCI, Sercan Özbek YAZICI, Metin ÖZKUL, Ahmet KÜPELİ
- **Legal Awareness of Elderly About Abuse and Neglect** 238-244
  Zeynep ŞİŞLİ, Melahat KIZIL, Nursun ÜSTÜNKARLI, M. İlgi ŞEMİN
- **Ageing in the Rural Area: Quality of Life and Associated Factors in Sivas/Turkey*** 245-252
  Nuran GÜLER, Zühal GÜLER, Doğancan ÖZSEL
- **Attitudes of Surgical Nurses Towards the Elderly** 253-259
  Enes BULUT, Dilek ÇİLİNGİR

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CONTENTS

2016;19(4)

www.turkgeriatri.org

CASE REPORT

➲ **Breast Cancer in A Woman with Guillain–Barré Syndrome: A Reminder to Consider Paraneoplastic Neurological Syndrome** **260-263**

Savaş ŞENCAN, Şehri AYAŞ, Sacide Nur SARAÇGİL COŞAR

Turkish Journal of Geriatrics
2016;19 (4):203-210

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RESEARCH

IS THE COURSE OF PNEUMONIA THE SAME IN ELDERLY AND OLDER PATIENTS?

ABSTRACT

Introduction: Pneumonia is a major mortality and morbidity reason among elderly. Age limit is commonly accepted as 65 years, but actually age definition varies by country.

Objective: In the present study we aimed to evaluate the course of pneumonia in patients age 75 and older as "75-84 years" and "85 and older" patients.

Materials and Method: This is a retrospective cohort study in a chest disease clinic between January 2009 and May 2013. Pneumonia patients aged 75 and older followed in chest disease ward were included in the study. The patients were evaluated in two groups: "75-84 years" and "85 and older". Demographics, CURB65 score, hospital and short term mortality (mortality within 30 days after discharge) were recorded.

Results: A total number of 116 pneumonia patients, 54% male were enrolled. The mean age was 83±5 years. There were 76 patients in "75-84 years" group and 40 in "85 and older" group. The incidence of congestive heart failure/coronary artery disease was significantly higher in "85 and older" patients (P = 0.002). Penicillins and cephalosporins were the most commonly used antibiotics. In both age groups in-hospital and short-term mortalities were similar. The length of hospital stay was similar in both age groups, but "75-84 years" patients were more likely to transfer to intensive care unit than "85 and older" patients (11% vs. 3%, p = 0.13)

Conclusion: The course of pneumonia, LOS, and in-hospital and short-term mortality are analogous among "75-84 years" and "85 and older" patients. Close clinical follow-up, good compliance to guidelines and a good management to comorbidities is required. As multidisciplinary approach and close follow-up is vital for elderly patients, a focus on hospital workforce conditions while planning and organizing is essential.

Key Words: Pneumonia; Aged; Frail Elderly; Aging.

ARAŞTIRMA

YAŞLI VE İLERİ YAŞLI PNÖMONİ HASTALARININ SEYRİ AYNI MIDIR?

ÖZ

Giriş: Dünya nüfusu giderek yaşlanmaktadır. Pnömoni yaşlı nüfus için önemli bir mortalite ve morbidite nedenidir. Yapılan çalışmalarda "yaşlılık" tanımı için 65 yaş ve üzeri kabul edilmektedir. Diğer taraftan "yaşlılık" tanımı ülkeden ülkeye farklılık gösterebilir. Bu çalışmada "75-84 yaş" ve "85 yaş ve üzeri" hasta gruplarında pnömoni seyrinde fark olup olmadığının araştırılması amaçlanmıştır.

Gereç ve Yöntem: Üçüncü basamak göğüs hastalıkları hastanesinde bir göğüs hastalığı kliniğinde Ocak 2009- Mayıs 2013 tarihleri arasında kliniğe yatırılarak tedavi edilen 75 yaş ve üzeri pnömoni hastaları retrospektif olarak incelenmiştir. Hastalar; "75-84 yaş" ve "85 yaş ve üzeri" olarak iki grupta değerlendirilmiştir. Hastaların demografik özellikleri, CURB 65 skoru, hastane ve kısa dönem mortalite (taburculuktan sonraki ilk 30 gün) özellikleri hastane verilerinden kaydedilmiştir.

Bulgular: Çalışmaya yaş ortalaması 83±5 olan toplam 116 hasta alındı. Yetmiş altı hasta "75-84 yaş" grubunda ve 40 hasta "85 yaş ve üzeri" gruptadır. Konjestif kalp yetmezliği/koroner arter hastalığı "85 yaş ve üzeri" hasta grubunda anlamlı olarak yüksek saptandı (P = 0.002). Genel hastane mortalitesi %8, kısa dönem mortalite %11 olarak saptandı. Hastane ve kısa dönem mortalite her iki yaş grubunda da benzer saptandı. Hastane yatış süresi her iki grupta benzerdi, yoğun bakıma nakil "75-84 yaş" gruptaki hastalarda daha fazla idi (%11 vs %3, p=0.13). Her iki yaş grubunda da %18-20 penisilin ve sefalosporin tedavisine makrolit eşlik etmekteydi.

Sonuç: Pnömoni seyri, hastane yatış süresi, hastane ve erken mortalite sonuçları "75-84 yaş" ve "85 yaş ve üzeri" hastalarda benzerdir. İleri yaşlı olan bu hastalarda eşlik eden hastalıkların iyi yönetimi, multidisipliner yaklaşım ve yakın izlem hayati önem taşımaktadır bu nedenle hastane işgücü koşullarına odaklanmak, planlama ve organizasyon gerekmektedir.

Anahtar Sözcükler: Pnömoni; Yaşlı; Kırılgan Yaşlılık; Yaşlanma.

Introduction

The world population is aging; in the elderly population, pneumonia is an important cause of morbidity and mortality (1). Physiological changes that occur in the respiratory physiology and diminishment of the immune system with age are known to create appropriate environment for pneumonia. Increased risk of pneumonia and hospitalisation in the elderly is associated with increased mortality (2,3).

The age limit for the definition of old age is commonly accepted as 65 years, and many studies on pneumonia used this age limit. However, the age definition varies by country. There are studies comparing older and younger patients with pneumonia (2,3). As a result of prolonged human life, elderly population ratio is increasing worldwide and in our country, and a change in the patient profile in hospitals is also expected. However, the course of pneumonia in 75 years and older has not been determined. The purpose of this study was to evaluate the course of pneumonia in 75 years and older patient populations.

Materials and Method

This is a retrospective cohort study in a chest disease clinic in a tertiary hospital for chest diseases between January 2009 and May 2013. The study was approved by the local ethics committee of the hospital in accordance with the Declaration of Helsinki. Because of the retrospective nature of the study design, informed consent was not obtained.

Patients

Patients with community-acquired pneumonia (CAP) aged 75 years and older followed-up in the chest disease ward were included in the study. Patients who required hospitalisation according to the Turkish Thoracic Society consensus on the diagnosis and treatment of CAP were included (4). Figure 1 shows the flowchart of the study.

The patients were evaluated in two groups: "75–84 years" and "85 and older".

Pneumonia Criteria

Pneumonia was defined as acute onset of symptoms suggestive of lower respiratory tract infection and radiographical evidence of a new infiltrate (4,5). Severity of pneumonia was rated by CURB-65 scoring system (6). The CURB-65 uses the following variables: confusion of new onset, blood urea nitrogen greater than 19 mg/dL, respiratory rate of 30 breaths/min or greater, systolic blood pressure less than 90 mmHg/diastolic blood pressure 60 mmHg or less and age 65 years or older (6).

Laboratory Measurements

Complete blood count was determined using a Coulter LH 780 Hematology Analyzer (Beckman Coulter, USA). C-reactive protein (CRP) was assessed using the nephelometry method BN II System (Siemens, Germany). The normal range of CRP is 0–5 mg/L.

Data Recording

Data of pneumonia cases aged 75 years and older followed-up in the chest disease ward were recorded from the hospital data. Demographics; comorbidities, including chronic obstructive pulmonary disease (COPD), diabetes mellitus, coronary artery disease and neurological diseases (Alzheimer's disease, cerebrovascular attack), and use of long-term oxygen therapy (LTOT) were also recorded as were laboratory, radiology and antibiotic therapy data. Arterial blood gas values at the time of admission to the ward, CURB-65 score, length of hospital stay (LOS) and in-hospital and short-term mortality (mortality within 30 days after discharge from hospital) were also recorded.

Treatment

Empirical antibiotic treatment was initiated following a clinical diagnosis of pneumonia immediately after admission according to national guidelines. Patients were re-evaluated for antibiotic treatment if there was no response to empirical treatment within 72 h (fever >38°C, new onset of pulmonary infiltrates or an increase in oxygen demand) (4,5).

Outcomes

The primary outcome was short-term mortality (mortality within 30 days after discharge), and the secondary outcome was in-hospital mortality.

Statistical Analysis

The Mann–Whitney *U* test and Student's *t* test were used for analysis of continuous variables with non-parametric and parametric values, respectively. The chi square test was applied for categorical variables of survivors and non-survivors. The median and interquartile range was employed for non-parametric continuous variables, and mean ± standard deviation was used for parametric continuous variables. Count and per-

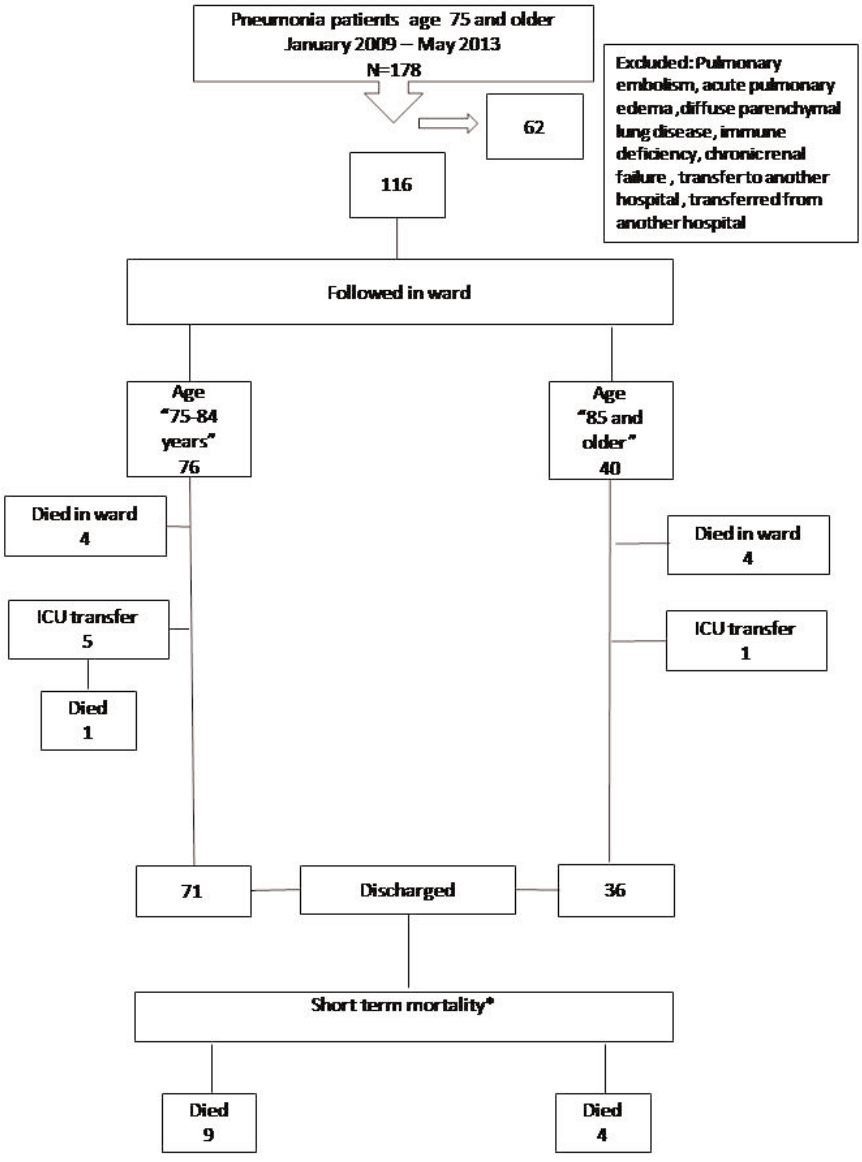


Figure 1— Flowchart of the study.

centage were used when applicable. A p value <0.05 was accepted as statistically significant.

RESULTS

In this study, a total of 116 patients with pneumonia aged 75 years and older were enrolled. The mean age was 83 years (range, 75–99 years). There were 76 patients in "75–84 years" group and 40 in "85 and older" group.

Patient demographics and comorbidities according to age group are summarized in Table 1. COPD/asthma, hypertension and neurological diseases were the most common comorbidities. Twelve (10%) patients were receiving LTOT at home. Table 2 summarizes the laboratory and radiological comparisons of both age groups with pneumonia. The number of patients living in nursing house was higher among "85 and older" group (n = 3, 8%) than "75–84 years" group (n=2, 3%) (p=0.22). The incidence of congestive heart failure/coronary

Table 1— Baseline Characteristics and Comorbidities of the Pneumonia Patients

Number of patients	116
Gender, male n (%)	63 (54.0)
Age, year*	83±5
Smoke history, n (%)	59 (51.0)
Smoking packyear*	35±20
Current smokers, n (%)	14 (12.0)
Living in nursing house n (%)	5 (4.0)
Comorbidities, n (%)	
COPD/Asthma	60 (52.0)
Hypertension	48 (41.0)
Neurological diseases	36 (31.0)
Cerebrovascular accident	16 (14.0)
Alzheimer disease	11 (10.0)
Parkinson's disease	4 (3.0)
DM	19 (16.0)
Congestive hearth failure/Coronary artery diseases	18 (16.0)
Long term oxygen theraphy, n (%)	12 (10.0)

*mean±SD, COPD: Chronic obstructive pulmonary diseases, DM: Diabetes mellitus

artery disease was significantly higher in "85 and older" group (p=0.002). Serum albumin levels significantly lower in "85 and older" group than "75–84 years" group (p=0.016). CURB-65 pneumonia severity score was significantly higher in "85 and older" group (p=0.027). Pneumonia severity of both age groups is shown in Table 3. The majority of patients had CURB-65 scores of 2 and 3, but there was no significant difference in pneumonia severity between two age groups.

Table 4 summarizes laboratory values of elderly and older patients with pneumonia. Hypoalbuminaemia (albumin<2.5 g/dl) and anaemia (haemoglobin <9 g/dl) were more common in "85 and older" patients but not significantly higher. Hypoxic respiratory failure and hypercapnic and hypoxaemic respiratory failure were more frequent in "75–84 years" group.

Radiological characteristics of both age groups were similar. Pneumonia was bilateral in 25% of "75–84 years" and 28% of "85 and older" group. Aspiration history was higher in "85 and older" (n=10, 25%) than "75–84 years" group (n=9, 12%) (p=0.07) but not significantly higher. Tracheal aspiration and fibreoptic bronchoscopy were performed in seven patients with dense secretions, inadequate cough and/or atelectasis on chest x-ray (Figure 2).

In both age groups, penicillins and cephalosporins were the most commonly used antibiotics; macrolides accompanied penicillins and cephalosporins in nearly 18%–20% of each age group. Antibiotic treatment was upgraded in 9 (12%) patients in "75–84 years" and 6 (15%) patients in "85 and older" group (p=0.63).

In-hospital and short-term mortality of patients is shown in Table 5. The overall in-hospital mortality was 8% (n=9) and short-term mortality (mortality within 30 days after discharge) was 11% (n=13). In-hospital and short-term mortalities were similar in both age groups (7% vs. 10% and 12% vs. 10%, respectively). The LOS was not significantly different between age groups. Transfer to intensive care unit were more frequent in "75–84 years" group (11% vs. 3%, p=0.13), but not statistically significant.

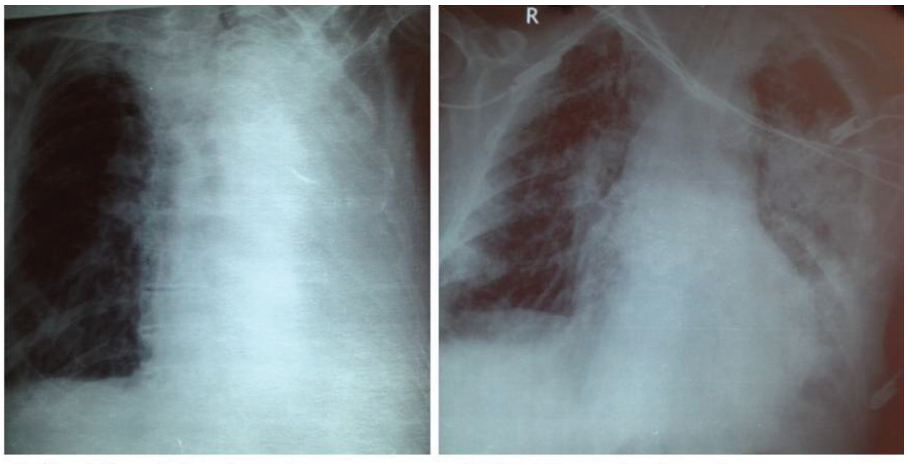


Figure 2— Chest x-ray of pneumonia patient with atelectasis



Table 2— Comparison of the Baseline Characteristics According to Age Groups of Patients with Pneumonia.

	"75–84 years" N=76	"85 and older" N=40	p
Gender, male n (%)	45 (59.0)	18 (45.0)	0.14
Smoking history, n (%)	43 (57.0)	16 (42.0)	0.52
Current smoker, n (%)	9 (23.0)	5 (31.0)	0.53
Long term oxygen theraphy, n (%)	9 (12.0)	3 (8.0)	0.46
Comorbidities n (%)			
COPD/Asthma	43 (57.0)	17 (43.0)	0.15
Hypertension	34 (45.0)	3 (8.0)	0.31
Congestive hearth failure/Coronary artery diseases	6 (8.0)	12 (30.0)	0.002
Diabetes mellitus	15 (20.0)	4 (10.0)	0.18
Neurological diseases	19 (25.0)	17 (43.0)	0.14
Alzheimer disease	6 (8.0)	10 (25.0)	0.012
Cerebrovascular accident	9 (12.0)	2 (5.0)	0.22
Parkinson's disease	2 (3.0)	2 (5.0)	0.52
Total blood count			
Leukocytecount, 109L*	11.7±5.9	12.4±6.9	0.61
Hemoglobin, g/dl*	12±3	12±2	0.33
Hematocrit, %*	37±7	37±6	0.89
Platalet count, 109L*	275±100	285±141	0.71
Biochemistry			
Glucose, mg/dl**	116 (95-157)	123 (84-172)	0.66
BUN mg/dl**	23 (16-33)	25 (20-41)	0.15
Serum creatinine, mg/dl**	0.89 (0.73-1.25)	0.97 (0.73-1.61)	0.36
Serum albumine, g/dl**	3 (2.7-3.4)	2.5 (2.2-3.3)	0.016
AST U/L**	18 (14-28)	23 (15-32)	0.13
ALT U/L**	14 (10-25)	15 (10-20)	0.93
Arterial blood gases analysis on admission			
pH**	7.44 (7.37-7.47)	7.42 (7.35-7.47)	0.64
$PaCO_2$, mmHg*	39±11	41±10	0.72
PaO_2, mmHg*	62±10	65±17	0.37
SaO_2,%**	92 (89-92)	92 (90-95)	0.35
Pneumonia severity			
CURB-65 score**	2 (1-2)	2 (2-3)	0.027
Inflammatory marker			
CRP, mg/dl*	58 (22-140)	84 (54-162)	0.11
Length of hospitalstay, day**	8 (6-10)	8 (6-11)	0.61
Radiological findings, n (%)			
Bilateralinfiltration	19 (25.0)	11 (28.0)	0.77
Atelectasis	2 (3.0)	3 (8.0)	0.22
Pleuraleffusion	16 (21.0)	11 (28.0)	0.43

*Mean ±sd: standart deviation,**IQR: Inter quartile range

BUN:Blood urea nitrogen, AST: Aspartate aminotransferase, ALT: Alanine aminotransferase

CRP was avaible in 97 patients, arterial blood gass was avaible in 60 patients

Table 3— Pneumonia Severity of the Patients with Pneumonia According to Age Groups.

CURB 65 Score	"75–84 years" N=76 n (%)	"85 and older" N=40 n(%)	p
2	55 (72.0)	25 (63.0)	0.28
3	5 (7.0)	7 (18.0)	0.07
4	1 (1.0)	3 (8.0)	0.08
5	1 (1.0)	1 (3.0)	0.64

Table 4— Laboratory Values and Respiratory Failure Data of the Patients With Pneumonia.

	"75–84 years" N=76	"85 and older" N=40	p
Hypoalbuminemia, n(%) (Alb < 2.5g/dl)	29 (38.0)	19(47.0)	0.33
Anemia, n(%) (Hb < 9 g)	9 (12.0)	15 (13.0)	0.91
Hypoxemic respiratory failure*, n(%)	9 (12.0)	3 (8.0)	0.46
Hypercapnic and hypoxemic respiratory failure**, n(%)	27 (36.0)	13 (33.0)	0.74

*Hypoxic respiratory failure: Partial arterial oxygen pressure in inspired fractionated oxygen (PaO_2/FiO_2) was < 300 and partial arterial carbon dioxide pressure ($PaCO_2$) was < 45 mmHg.

**Hypercapnic and hypoxemic respiratory failure: $PaCO_2$ > 45 mmHg and PaO_2/FiO_2 < 300.

Table 5— Hospital and Short Term Mortality of the Pneumonia Patients.

	"75–84 years" N=76	"85 and older" N=40	p
Length of hospital stay (day)*	8 (6-10)	8 (6-11)	0.61
Transfer to ICU, n(%)	8 (11.0)	1 (3.0)	0.13
Hospital mortality, n(%)	5 (7.0)	4 (10.0)	0.51
Short term mortality, n(%)	9 (12.0)	4 (10.0)	0.76

*Mortality within 30 days after discharge.

Discussion

In this study, we showed that the course of pneumonia, LOS, and in-hospital and short-term mortality among "75–84 years" and "85 and older" patients are similar.

According to the United Nations definition, a country's population is 'aged' when the percentage of the elderly population in the country is between 8% and 10%, whereas 'very elderly' means that this percentage is greater than 10% (7). According to the population projections, elderly population ratio in Turkey will rise from 7.7% to 10.2% by 2023 (7). The number of hospitalised patients and the number of elderly patients admitted to chest disease clinics are expected to increase because of growing of the elderly population in number.

Age is reported to be an independent risk factor for pneumonia (8). The physiological changes in the body that occur with old age produce an easy environment for pneumonia. In a population-based study in England, individuals aged 85–89 years had seven times more CAP episodes than individuals aged 65–69 years (9). Besides that, there are studies supporting that age does not represent an increased risk for mortality (10,11). Respiratory muscle weakening and reduction in lung elasticity result in decreased functional residual capacity, which causes air trapping and reduction in mucociliary clearance and disrupts the ability of coughing to clear the bronchial system. This situation creates the most common risk environment for oropharyngeal aspiration causing pneumonia (2,3).

In this study, the overall mortality (8%) was less than the overall in-hospital mortality that has previously been reported (12,13). There is no significant difference in in-hospital and short-term mortality between "75–84 years" and "85 and older" patients, but the lower overall mortality can be attributed to strict daily clinical evaluation, adherence to guidelines and a good approach to comorbidities.

Here, antibiotic therapy was initiated empirically in concordance with national guidelines for CAP [4]. In both age groups, penicillins and cephalosporins were the most commonly used antibiotics, accompanied by macrolides in 18%–20% of patients. We did not compare the cost effectiveness of the antibiotic regimens, but both penicillins and cephalosporins are low-cost medicines. The adherence to guidelines in elderly CAP patients treated in the ward is also reported to be cost effective (14).

Here, aspiration history in "85 and older" patients was more common than in "75–84 years" patients, these patients had Alzheimer's disease, cerebrovascular attack and Parkinson's disease causing aspiration during feeding. Inadequate cough and dense secretion, even causing atelectasis, required fiberoptic bronchoscopy in seven patients. The Japanese Study Group for Aspiration Pulmonary Disease reported the incidence of aspiration pneumonia to be 80% among hospitalized

patients aged 70 years and older (15). Because of decreased mucociliary activity and silent aspirations during feeding, clinicians should always be alert for aspiration pneumonia and lung atelectasis. Dehydration and drug overdose are important risk factors for aspiration pneumonia in elderly patients (16,17,18). Aspiration is also a factor for readmission and recurrent pneumonia (19). To prevent aspiration, educating both health care workers and patients' family is essential. In addition, improving oral care might help to reduce oropharyngeal pathogens (3).

Elderly patients with pneumonia are more likely to be hospitalised as they have more comorbidities than younger patients (16,20). Congestive heart failure that is risk factor for pneumonia was significantly higher in "85 and older" patients. Pneumonia in these patients cause impairment in cardiac function, electrolyte imbalance, feeding problems, immobility and often references to hospital. Additional conditions imposed by ageing, such as hypoalbuminaemia and anaemia, may require supportive therapy. Here, anaemia and hypoalbuminaemia were higher in "85 and older" patients. We can attribute this to additional diseases and malnutrition linked to comorbidities in older patients, which create a risk factor for pneumonia. On the other hand, albumin plays a role as a negative acute phase reactant.

In this study, we evaluated the severity of pneumonia patients with CURB-65 scoring system, score 3 and over illustrates the course of a severe illness. Here, most of the patients had score of 2 and 3 indicating moderate and severe pneumonia, however CURB-65 doesn't cover comorbid diseases that has an important place in the course of the disease.

Here, like previously reported data, admission to the ICU was 11% in "75–84 years" patients and 3% in "85 and older" patients (12). This can be explained by existing comorbiditites, severity of pneumonia, advanced age and selection of patients for ICU (21).

There are studies emphasizing that age alone is not a factor for severity of pneumonia (22). Myint et al. (23) noted the difficulty of defining the severity of pneumonia in an elderly population and mentioned the need for new age-related weight markers for a scoring system for the severity of pneumonia in elderly patients.

In the present study, pleural effusion was present, and pneumonia was bilateral in one-quarter of the patients. El Solh et al. described slow radiographic resolution in patients with comorbidity, multilobar involvement and enteric Gram-negative bacilli pneumonias (24).

Due to additional disease, older patients are expected to have longer LOS, although in this study both age groups had similar LOS besides comorbidities. Hypoalbuminemia, anaemia and respiratory failure are not rare in both age groups and require appropriate time for replacement, which is as important as antibiotic therapy affecting LOS. The mean LOS was lower than reported in previous studies (25).

There are some limitations of the present study. Because this is a retrospective study, all the required data may not be available. Identification of specific bacteriologic aetiology data is missing in the study; only a few patients' data were available, the study was carried out in a single centre there can be limited generalization of the data. The small sample size also limits the ability to detect small but potentially significant associations. The strength of this study lies in the data related to patients with pneumonia aged 75 years and older; most studies use a lower age limit of 65 years.

In conclusion, the course of pneumonia, LOS, ICU need, in-hospital and short-term mortality in "75–84 years" and "85 and older" patients are alike. This vital disease in this population can be well managed if close clinical follow-up, good compliance to guidelines, early detection and a good approach to comorbidities. The older age profile of patients, who require a multidisciplinary approach and close follow-up, should be taken into consideration while planning and organising workforce conditions.

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RESEARCH

INVESTIGATING THE FREQUENCY OF DERMATOLOGICAL DISEASES IN THE OLDEST OLD

ABSTRACT

Introduction: As life expectancy increases worldwide, the global incidence of age-related diseases is likely to grow. Although cancer, cardiovascular diseases and neurological diseases are regarded as major age-related diseases, dermatological disorders have also been linked to significant morbidity in geriatric patients. This retrospective study aimed to investigate the frequency of dermatological diseases in patients aged ≥85 years, the so-called "oldest old".

Materials and Method: Descriptive statistics were computed for means, standard deviations and frequencies. The chi-square test or Fisher's exact test was used for statistical analysis, with a significance threshold of $p<0.05$.

Results: A total of 1255 consecutive patients [males, 623; females, 632; mean age, 87.65±2.97 years (range, 85–113 years)] were retrospectively enrolled in the study. Pruritus/pruritic dermatoses was the most frequently recorded dermatological disease group (26.8%, n=383), and xerosis/asteatotic dermatitis was the most frequent disease (14.5%, n=208). There was no statistically significant relationship between age and type of dermatological disease. There was also no statistically significant relationship between sex and type of dermatological disease, except for dermatoses resulting from physical factors, which were found to occur more frequently in males (61.1% vs. 38.9%, $p=0.034$).

Conclusion: The world is ageing and several age-related diseases are on the rise. Not only ageing populations but also healthcare professionals have to face new challenges of longevity. Further studies such as the present investigation are required to determine the epidemiology of dermatological diseases in the elderly and the oldest old.

Key Words: Frail Elderly; Skin Diseases/Epidemiology; Skin Diseases, Bacterial/Epidemiology; Skin Diseases, Viral/Epidemiology.

ARAŞTIRMA

İLERİ YAŞLILARDA DERMATOLOJİK HASTALIKLARIN SIKLIĞININ ARAŞTIRILMASI

ÖZ

Giriş: Küresel düzeyde yaşam beklentisi arttıkça, yaşla ilişkili hastalıkların insidansı da artmaktadır. Her ne kadar malignansi, kardiyovasküler ve nörolojik hastalıklar yaşla ilişkili temel hastalıklar olarak görülse de, dermatolojik hastalıklar da geriatrik olgularda ciddi morbidite nedeni olabilir. Bu retrospektif çalışma 'ileri yaşlı' olarak da adlandırılan 85 yaş ve üzeri olgularda dermatolojik hastalıkların sıklığını ortaya koymayı hedeflemiştir.

Gereç ve Yöntem: Çalışmada ortalama, standart sapma ve frekans değerleri için betimsel analiz yapıldı. İstatiksel karşılaştırmalarda ki-kare veya Fisher kesin ki-kare test kullanıldı. $p<0.05$ olan değerler istatistiksel olarak anlamlı kabul edildi.

Bulgular: Bu çalışmada 1255 ardışık hasta [623 erkek, 632 kadın; ortalama yaş, 87.65±2.97 yıl (dağılım=85-113 yıl)] retrospektif olarak değerlendirildi. Pruritus/pruritik dermatozlar en sık saptanan hastalık grubu iken (%26.8, n=383), kserozis/ asteatotik dermatit en sık tespit edilen hastalıktı (14.5%, n=208). Yaş ile tespit edilen hastalık grupları arasında istatiksel bakımdan anlamlı bir ilişki yoktu. Ayrıca, erkeklerde daha sık saptanan (erkek, %61.1; kadın %38.9; $p=0.034$) fiziksel nedenlerle oluşan dermatozlar dışında, cinsiyet ile ilişkisi istatiksel bakımdan anlamlı olan herhangi bir hastalık grubu da yoktu.

Sonuç: Dünya nüfusu yaşlanmakta ve yaşla ilişkili çok sayıda hastalık da günden güne artmakta. Uzun yaşam süresinin getirdiği sorunlar yalnızca yaşlanan popülasyon tarafından değil, sağlık çalışanları tarafından da göğüslenmeli. Bu çalışmaya benzer nitelikteki çalışmalara, yaşlı ve ileri yaşlı olgulardaki dermatolojik hastalıkların epidemiyolojisinin ortaya konması açısından ihtiyaç vardır.

Anahtar Sözcükler: İleri Yaşlı; Dermatolojik Hastalıklar/Epidemiyoloji; Dermatolojik Hastalıklar, Bakteriyel/Epidemiyoloji; Dermatolojik Hastalıklar, Viral/Epidemiyoloji.

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Introduction

Aging has been characterized as a complex and multifactorial phenomenon. Although several theories have been proposed to explain the fundamentals of ageing, the underlying mechanism of ageing is considered to have both genetic and environmental components (1). Given the marked increase in the number of older individuals worldwide (2,3), studies investigating the diseases in the elderly population are on the rise (4,5). Moreover, a growing number of studies are specifically concerned with diseases in the oldest old (3-7). In this retrospective single-centre study, we attempted to investigate the frequency of dermatological disorders in the oldest old, who are defined as individuals aged ≥85 years (8).

Materials and Method

We retrospectively reviewed the medical records of all patients aged ≥85 who were admitted to our outpatient clinic between June 2011 and June 2016. The study was conducted in accordance with the Declaration of Helsinki and was approved by the medical ethical committee of Ankara Numune Training and Research Hospital, Turkey (Protocol no: 2016-1178). The following clinical and demographic data were obtained from the records: age, sex and clinical diagnoses of dermatological diseases. Dermatological diseases were categorized into 15 groups: dermatoses resulting from physical factors, pruritus/pruritic dermatoses, infections, papulosquamous and eczematous dermatoses, urticarias and drug reactions, neoplastic changes, cutaneous lymphomas, blistering dermatoses, cutaneous vascular diseases, leg ulcers, pigmentary disorders, oral mucosal diseases, nail diseases, hair disorders, photodermatoses. Patients were classified to different groups based on age (with 10-year increments) (Group 1, 85–94 years; Group 2, 95–104 years; Group 3, 105–114 years).

Statistical analysis was performed using SPSS software, Version 16 (SPSS Inc., Chicago IL, USA). Frequencies were calculated for variables related to demographic and clinical patient characteristics. Age was analysed as a continuous variable and described as mean±standard deviation and range. Chi-square test or Fisher's exact test was used to determine if there were statistical associations between disease groups and age and disease groups and sex. $p<0.05$ was accepted as "statistically significant".

Results

A total of 1255 consecutive patients [males, 623 (49.6%); females, 632 (50.4%); mean age, 87.65±2.97 years (range, 85–113 years)] were enrolled in the study. Majority of the patients were in Group 1 (97.7%, $n=1226$), while 2.1% ($n=26$) were in Group 2 and 0.2% ($n=3$) were in Group 3. At least one dermatological diagnosis was confirmed in each patient. Two kinds of dermatological diseases were diagnosed in 11.6% of patients ($n=145$), three kinds in 1.6% ($n=20$) and four kinds in 0.5% ($n=6$). The most frequently recorded dermatological disease group was pruritus/pruritic dermatoses (26.8%, $n=383$). The second most frequent disease group was infectious diseases, with an incidence rate of 24.5% ($n=351$), and neoplastic changes was the third most frequent disease group, with an incidence rate of 19.5% ($n=279$). Xerosis/asteatotic dermatitis was the most frequent disease (14.5%, $n=208$) (Table 1). There was no statistically significant relationship between age and type of dermatological diseases (Table 2). Regarding the association between sex and disease group, a statistically significant relationship was established only for dermatoses resulting from physical factors, which were significantly more likely to occur in males (61.1% vs. 38.9%, $p=0.034$) (Table 2).

Discussion

Life expectancy has increased worldwide. The oldest old, who are defined as people ≥85 years, have been the fastest growing part of the ageing population, especially in developed countries. As this population is more susceptible to age-related changes, the overall frequency of diseases in them has also increased (2). Several studies have focussed on diseases in the oldest old (3-7). However, to the best of our knowledge, there are no studies on the frequency of dermatological disorders in the oldest old.

In our study, we reviewed the medical records of 1255 patients over a period of 5 years. The most frequently recorded dermatological disease group was pruritus/pruritic dermatoses, and the most frequent disease was xerosis/asteatotic dermatitis, which was categorized in this disease group. Dry skin (xerosis) is one of the most common dermatological conditions and is the most common cause of pruritus in geriatric patients. Although the exact aetiology of xerosis is not fully understood, both intrinsic and extrinsic factors have been suggested to influence the development of xerosis in geriatric patients. Xerosis results from not only decreased water content and sebum production of the skin but also increased number and size of corneocytes, which are the primary cell type of the stratum corneum, the outermost part of the epidermis. Environmental factors, such as dry and cold weather, low humi-



Table 1— Frequencies of Dermatological Diseases in the Study Group.

Disease	n	%
Dermatoses resulting from physical factors	**90**	**6.3**
Traumatic lesions, friction blisters, thermal injuries, callosities	67	4.7
Pressure sores (decubitus ulcers)	23	1.6
Pruritus/pruritic dermatoses	**383**	**26.8**
Xerosis/Asteatotic dermatitis	208	14.5
Pruritus	86	6.0
Pruritus ani/scroti/vulvae	27	1.9
Scalp pruritus/dysesthesia	25	1.7
Glossodynia	6	0.4
Neurocutaneous dermatoses (lichen simplex chronicus, prurigo nodularis, neurotic excoriation)	31	2.2
Infections	**351**	**24.5**
Bacterial infections (impetigo/folliculitis, erythrasma, cellulitis/erysipelas)	92	6.4
Viral infections	47	3.3
Herpes simplex virus infection, human papillomavirus infection	3	0.2
Herpes zoster	44	3.1
Fungal infections	212	14.8
Onychomycosis	54	3.8
Tinea pedis/cruris/corporis	98	6.8
Candidiasis, pityriasis versicolor	43	3.0
Infestations (Pediculosis, scabies, insect bite reactions)	17	1.2
Papulosquamous and eczematous dermatoses	**97**	**6.8**
Inflammatory dermatoses	27	1.9
Psoriasis	11	0.8
Lichen planus	3	0.2
Rosacea	7	0.5
Vasculitis	6	0.4
Eczematous reactions	70	4.9
Nummular eczema	7	0.5
Seborrheic dermatitis	19	1.3
Contact dermatitis	27	1.9
Gravitational eczema	17	1.2
Urticarias and drug reactions	**29**	**2.0**
Urticaria	13	0.9
Cutaneous drug reactions	16	1.1
Neoplastic changes	**279**	**19.5**
Benign	188	13.2
Seborrheic keratosis	47	3.3
Cysts (epidermoid, trichilemmal, milium)	37	2.6
Others (xanthelasma, gouty tophus, calcinosis cutis, keratoacanthoma, chondrodermatitis nodularis helicis, sebaceous hyperplasia, cherry angioma, keloid, lipoma, skin tag, senile comedone)	104	7.3
Premalignant/malignant	91	6.3
Actinic keratosis/cheilitis	40	2.8
Bowen's disease	6	0.4
Cutaneous horn	5	0.3
Basal cell carcinoma	18	1.3
Squamous cell carcinoma	12	0.8
Lentigo maligna/melanoma	4	0.3
Kaposi sarcoma	4	0.3
Cutaneous metastases	2	0.1

(Continued)

Table 1— Frequencies of Dermatological Diseases in the Study Group. *(Continued)*

	n	%
Cutaneous lymphomas (Mycosis fungoides)	**6**	**0.4**
Blistering dermatoses (Bullous pemphigoid)	**15**	**1.0**
Cutaneous vascular diseases	**25**	**1.7**
Chronic venous insufficiency/thrombosis	14	1.0
Senile purpura	9	0.6
Pigmented purpuric dermatosis	2	0.1
Leg ulcers	**10**	**0.7**
Venous ulcers	2	0.1
Neuropathic ulceration	8	0.6
Pigmentary disorders (Vitiligo)	**8**	**0.6**
Oral mucosal diseases	**51**	**3.5**
İrritated fibroma, frictional hyperkeratosis, aphthous ulcer, sublingual varices, venous lake	15	1.0
Oral candidiasis	29	2.0
Glossitis	7	0.5
Nail diseases	**41**	**2.8**
Infections of the nail and nail folds	6	0.4
Nail deformities and dystrophies/traumatic lesions (onychocryptosis, subungual hematoma, onycholysis, onychogryphosis)	35	2.4
Hair disorders (Senile alopecia)	**9**	**0.6**
Photodermatoses	**37**	**2.6**
Solar lentigo, poikilodermic changes	31	2.2
Cutis rhomboidalis nuchae, Favre-Racouchot syndrome	6	0.4

Table 2— Relationship of Sex and Age with Diseases.

Disease	Age	Sex
	p	*p*
Dermatoses resulting from physical factors	0.057	0.034*
Pruritus/pruritic dermatoses	0.895	0.226
Infections	0.731	0.469
Papulosquamous and eczematous dermatoses	0.076	0.053
Urticarias and drug reactions	0.841	0.267
Neoplastic changes	0.511	0.455
Cutaneous lymphomas	0.931	0.687
Blistering Dermatoses	0.836	1.000
Cutaneous vascular diseases	0.769	0.440
Leg Ulcer	0.888	1.000
Pigmentary disorders	0.909	0.726
Oral mucosal diseases	0.937	0.168
Nail diseases	0.938	0.786
Hair disorders	0.898	1.000
Photodermatoses	0.921	0.533

dity and drying agents, generally trigger and aggravate the condition. Asteatotic dermatitis, characterized by dry cracked eczematous lesions, is a consequence of xerosis (9-12). Several epidemiological studies have reported a high incidence of pruritus and xerosis/asteatotic dermatitis in geriatric patients (11,13-18). Our study has demonstrated for the first time that pruritus/pruritic dermatoses is the most common disease category and xerosis/asteatotic dermatitis is the most common



dermatological condition in the oldest old, with frequency rates of 26.8% and 14.5%, respectively.

Infectious diseases was the second most common dermatological disease category in our patients. Several studies on the frequency of dermatological disorders in the elderly have also reported infections as one of the most common disease groups (13,15,16). Our study results have revealed that within this group, fungal infections constitute the largest proportion and infestations the smallest. In our study, although viral infections was third in order of frequency (3.3%), herpes zoster, one of the diseases categorized in this group, had a high overall frequency of 3.1%. As the cell-mediated immunity specific for varicella-zoster virus, responsible for herpes zoster, diminishes physiologically with the ageing process, the incidence of herpes zoster increases significantly with advancing age. The exact incidence and prevalence of herpes zoster in the oldest old are not known. Herpes zoster has been reported to affect 20%–30% of individuals in the general population at some point in their lifetime, and up to 50% of those are older than 80 years (19). However, these statistics reflect the lifetime risk of developing herpes zoster, and because our study shows the frequency of the disease, we suggest that these results should not be misconceived. Further, to the best of our knowledge, this is the first study to have focussed on the frequency of dermatological disorders in the oldest old.

Another disease category investigated in this study was neoplastic diseases. It is assumed that rapid growth of the geriatric population will result in a marked increase in the number of subjects with malignancies (20). Individuals with skin malignancies will represent a non-negligible fraction of this population. The major risk factors for skin malignancies are sun exposure, family history and skin type. Ageing is another primary determinant in the genesis of skin cancers because of the increased cumulative effect of sun exposure and carcinogens and deteriorating DNA repair capacity with the ageing process (21). We have assessed the frequency rates of both benign and malignant neoplastic changes. However, at least for this time period, these results may be considered as beyond the discussion of this work, since this is the first study evaluating these particular frequencies in the oldest old.

There are other disease categories reviewed in this study, such as papulosquamous and eczematous dermatoses, urticarias and drug reactions, cutaneous vascular diseases, oral mucosal diseases and nail diseases. We have also considered these diseases as beyond the discussion of this work, since our study is the first study investigating the frequencies of these diseases and there are not any study in the literature allowing for a conclusive comparison. On the other hand, if we take the example of psoriasis, which is one of the most common dermatological disorder with a reported prevalence as high as 4.8%, it has been recognised as a non-geriatric disease, having a bimodal distribution of age of onset with peaks at the second and the fifth decades (22). In a study on elderly-onset psoriasis, Kwon et al. have reported that 3.2% of all psoriasis patients have disease onset in the geriatric age group older than 60 years. In this study the percentage of patients whose age onset was above 80 constituted 0.1% of the study population. Moreover, Kwon et al. have also suggested that the elderly-onset group demonstrated lower psoriasis area severity index scores, less extensive body surface involvement, and milder activity of individual lesions compared with early- and middle age-onset groups (23). As seen, it was not possible to make an overall comparison for each particular disease because of the limited amount of data in the literature.

Other major aims of this study were to determine the relationships of age and sex with the type of dermatological diseases. This study found a statistically significant correlation only between dermatoses resulting from physical factors and sex. These results suggest the need to investigate these associations with a larger population of the oldest old, especially centenarians. The study covered a period of 5 years and reviewed the medical records of 1255 patients. However, the majority of the patients (97.7%) were aged between 85 and 94 years, 2.1% between 95 and 104 years and only 0.2% between 105 and 114 years. Because of small number of patients in age groups between 95 years and above, statistical analysis yielded speculative results. The association of dermatoses resulting from physical factors with sex should be further investigated based on our preliminary results. In conclusion, we emphasize the importance of studies on the epidemiological aspects of dermatological diseases in the oldest old considering the increase in the elderly population (2,3).

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RESEARCH

FACTORS AFFECTING MORTALITY IN GERIATRIC PATIENTS WITH HEAD TRAUMA

ABSTRACT

Introduction: With aging, the anatomy and physiology of the body undergo changes. This leads to a change in the body's capabilities in response to trauma, resulting in increased trauma-induced morbidity and mortality.

We aimed to investigate the factors influencing the prognosis and mortality of geriatric patients with head trauma.

Materials and Method: A total of 1060 patients aged 65 and above who presented with head trauma within a three-year period were studied. The patients' collected data included gender, age, trauma presentation, Glasgow Coma Scale, Revised Trauma Score, cranial physical examination findings, localisation of the fracture in the cranial regions, cranial pathology, additional organ injury and survival/death status.

Results: Of the 1060 geriatric patients enrolled in the study, 500 (47%) were male and 560 (53%) were female. Of these patients, 1005 (94.8%) survived and 55 (5.20%) died. Among the deceased patients, 37 (37.3%) were male and 18 (32.7%) were female. The most common presentation was observed in the young old group (aged 65–75) with 513 patients. According to the causes of trauma, the most common cause was due to falling. The male gender was found to be at risk of mortality in all patients aged 65 and above. According to the computed tomography findings; intracranial haemorrhage, contusion, subarachnoid haemorrhage, epidural hematoma, subdural hematoma and intracranial edema were factors associated with increased mortality.

Conclusion: Males and cranial pathologies are associated with a higher mortality in geriatric patients with head trauma.

Key Words: Geriatric; Craniocerebral Trauma; Mortality.

ARAŞTIRMA

GERİATRİK KAFA TRAVMALI HASTALARDA MORTALİTEYİ ETKİLEYEN FAKTÖRLER

ÖZ

Giriş: Yaşlılıkla birlikte vücut anatomisinde ve fizyolojisinde değişiklikler olur. Buna bağlı travmaya karşı cevap yetenekleri değişmekte buda travmaya bağlı morbidite ve mortaliteyi arttırmaktadır.

Geriatrik yaş grubundaki kafa travmalı hastalarda prognoza ve mortaliteye etki eden faktörleri tespit etmeyi amaçladık.

Gereç ve Yöntem: Üç yıllık sürede kafa travması sebebiyle başvurmuş olan 65 yaş ve üstü 1060 hasta incelendi. Hasta verileri cinsiyet, yaş, travmanın oluş şekli, Glasgow Koma Skalası, Revize Travma Skoru, kraniyal fizik muayene bulguları, kafa kemiklerindeki kırık lokalizasyonu, kraniyal patoloji, ek organ yaralanması, yaşam ve ölüm durumu idi.

Bulgular: Çalışmaya alınan 1060 geriatrik kafa travmalı hastanın 500'ü (%47) erkek, 560'ı (%53) bayandı. Hastaların 1005'i (%94.8) yaşadı. Hastaların 55'i (%5.20) öldü. Ölen hastaların 37'si (%67.3) erkek, 18'i (%32.7) kadındı. En çok başvuru toplamda 513 hasta ile 65-75 yaş olarak tanımlanan erken yaşlılık grubundaydı. Travma oluş sebeplerine göre en sık basit düşme vardı.65 yaş ve üzeri tüm hasta gruplarında erkek cinsiyette olmanın mortalite için bir risk faktörü olduğu görüldü. Bilgisayarlı tomografi görüntülerine göre intrakraniyal kanama, kontüzyon, subaraknoid hemoraji, epidural hematom, subdural hematom ve intrakraniyal ödem mortaliteyi arttıran bulgulardı.

Sonuç: Geriatrik kafa travmarında erkek cinsiyet ve kraniyak patolojiler yüksek mortalite ile ilişkilidir.

Anahtar Sözcükler: Geriatri; Kafa travması; Mortalite.

Introduction

The increasing elderly population and opportunities for elderly people to lead a healthy and active life has enhanced the number of geriatric trauma patients.

Every year more than 80 000 people who are aged 65 years and over visit the emergency services due to traumatic brain injury. Three quarters of them are hospitalized. In geriatric patients, the rate of hospitalization of non-fatal traumatic brain injuries is twice fold higher than the general population. The main reasons for this situation are increased cerebrovascular atherosclerosis, increased adherent to the skull of the dura with aging and increased cerebral atrophy, decreased of free radicals clearance rate, used of aspirin and anticoagulants due to chronic diseases (1).

The most common head traumas in the elderly occur due to traffic accidents, falling and assaults. Numerous studies have reported falling as the most frequent etiological factor of head traumas, with the most common type of injury being laceration and cuts in the scalp. Although rare, intracranial pathologies may also be seen (2).

The mortality rates are two to five times higher in patients aged 65 and above than in younger patients who have similar Glasgow Coma Scale (GCS) and intracranial pathologies (3). The mortality rate in elderly patients with intracranial bleeding due to a traumatic brain injury ranges between 30% and 85% (1). Patients with GCS ≤ 8 at presentation have poor prognosis (3). The mortality rate is 38% in young patients with a serious cerebral injury (GCS <8), while this rate raises to 80% in patients aged over 55 years (4).

In this study, we aimed to examine the clinical features and factors affecting mortality in geriatric patients with head trauma who were admitted to the Emergency Department (ED) of our hospital.

Materials and Method

In this study, 1060 patients aged 65 years and above, presented to the Diyarbakır Dicle University Medical Faculty, Emergency Department due to head trauma within a three-year period between the 1st of January 2013 and the 31st of December 2014, and whose medical records we could access, were examined. Patient screening was retrospectively performed according to the ICD-10 code set in the 'Probel' program, which is used at our hospital as a hospital information management system. The exclusion criteria consisted of patients whose data could not be reached, age was under 65 years, or those who were aged 65 or older with no history of head trauma. All of those patients were excluded from this study. Patients' data were recorded on prepared standard forms, with parameters including gender, age, cause of trauma (e.g., gunshot wounds, sharp object injury, vehicle traffic accident, non-vehicle traffic accident, fall from a height, simple fall, beating and other accidents), GCS, Revised Trauma Score (RTS), cranial physical examination findings, localisation of a fracture in the cranial region, intracranial pathology, additional organ injuries and mortality status.

This study received a 26/12/2014 dated and 09 numbered approval from the Dicle University Medical Faculty Ethics Committee.

When evaluating mortality, the patients were divided into two groups as surviving (n=1005) and died patients (n = 55). The parameters that we thought might be effective for evaluating mortality included gender, the cause of trauma, trauma scoring systems, cranial physical examination findings, localisation of a fracture in the cranial regions, intracranial pathology and additional system injuries were examined among both patient groups.

The data obtained from this study were analysed utilizing Statistical Package for the Social Sciences 18.0 software, and $p < 0.05$ values were considered to be statistically significant. In the statistical evaluation of the data obtained, categorical data are expressed as frequency (n) and percentage (%), while continuous data are summarised as the mean ± standard deviation. A univariate statistical analysis was performed using a Chi-square test for categorical variables and a Student's t-test for continuous variables. P values < 0.05 were considered to be statistically significant.

Results

Out of the 1060 geriatric patients enrolled in this study, 500 (47%) were male and 560 (53%) were female. Of these patients, 1005 (94.8%) survived and 55 (5.20%) died. Among died patients, 37 (37.3%) were male and 18 (32.7%) were female. The male gender was found to be among the factors affecting mortality (Table 1).

Regarding age, our patients were distributed between 65 and 99 years old. The most common presentation was observed in the young old group (aged 65-75 years) with 513 patients. The least common presentation was observed in patients aged 85 and above, by 193 admissions. The mean age was found to be 75.17 ± 7.56 years in the males and 77.03 ± 8.22 years in the female patients. Given the distribution of the pa-



Table 1— Effects of Gender and Age Groups on Mortality in Geriatric Head Traumas.

Characteristics	Died n (%)	Survived n (%)	Total n (%)	p
Gender				
Male	37 (67.3)	463 (46.1)	500 (47.2)	0.002
Female	18 (32.7)	542 (53.9)	560 (52.8)	
Age groups				
65-74	23 (41.8)	490 (48.8)	513 (48.4)	0.335
75-84	18 (32.7)	336 (33.4)	354 (33.4)	1.000
85 and older	14 (25.5)	179 (17.8)	193 (18.2)	0.153

tients according to age groups, the highest number of deaths was found in 23 (41.8%) of died patients in the 65–74 age group, whereas the lowest number of deaths occurred in the 85 years and older age group with 14 (25.5%) died patients. No statistically significant difference was found between the age groups regarding mortality ($p>0.05$) (Table 1).

When the patients were examined according to trauma presentation, the most common cause of the trauma was falling, with a total of 734 (69.2%) admissions. Considering the effect of the cause of trauma, non-vehicular traffic accidents and fall from height have a significant effect on mortality ($p<0.05$) (Table 2).

The effect of the trauma scoring systems in the determination of mortality was analysed, with the mean GCS value found to be 8.67 ± 4.96 and the mean RTS value to be 5.25 ± 2.41 in died patients. These values were found to be 14.92 ± 0.60 and 7.82 ± 0.22 in the surviving patients, respectively. Low values of the mean GCS and RTS were significant in regards to mortality ($p<0.05$) (Table 3).

When our patients were demographically assessed according to the localisation of the fractures in the cranial bones, no fractures were identified in the cranial bones of 952 (89.8%) patients. The most common localisation of a fracture was found in the orbitonasal region. In evaluating the effect of the localisation of a fracture in the cranial bones on mortality in geriatric patients with trauma, fractures in the frontal, parietal, occipital and temporal bones were found to be statistically significantly related to mortality. The absence of a a fracture in the cranial bone was observed to be significant regarding survival ($p<0.05$) (Table 4).

When intracranial pathologies of our patients were examined with radiological imaging methods, no intracranial pat-

Table 3— Effect of GCS and RTS Scorings on Mortality in Geriatric Head Traumas.

Trauma Scoring System	Died mean+sd	Survived mean+sd	p
GCS	8.67±4.96	14.92±0.60	<0.001
RVS	5.25±2.41	7.82±0.22	<0.001

GCS:Glasgow Coma Scale, RTS:Revised Trauma Score.

Table 2— Effect of Trauma Presentation on Mortality in Geriatric Head Traumas.

Trauma Presentation	Died n (%)	Survived n (%)	Total n (%)	p
GWs[1]	2 (3.60)	12 (1.20)	14 (1.30)	0.162
SOI[2]	0 (0)	2 (0.20)	2 (0.20)	1.000
VTA[3]	4 (7.30)	67 (6.70)	71 (6.70)	0.782
NVTA[4]	16 (29.1)	56 (5.60)	72 (6.80)	<0.001
Fall from height	11 (20.0)	67 (6.70)	78 (7.40)	0.001
Simle fall	19 (34.5)	725 (72.3)	744 (70.4)	<0.001
Beating	0 (0)	34 (3.40)	34 (3.20)	0.253
Other accidents[5]	3 (5.50)	42 (4.20)	45 (4.20)	0.503

[1]: Gunshot wounds, [2]: Sharp object injury, [3]: Vehicle traffic accident, [4]: Non-vehicle traffic accident, [5]: animal kicking, burns, falling from stairs, syncope.

Table 4— Effects of the Localization of Cranial Fractures, Intracranial Pathology and Additional System Injuries on Mortality in Geriatric Patients With Head Trauma.

Characteristics	Died n (%)	Survived n (%)	Total n (%)	p
Fracture localization				
Non -fracture	29 (52.7)	923 (91.8)	952 (89.8)	<0.001
Frontal	15 (27.3)	10 (1.0)	25 (2.40)	<0.001
Parietal	19 (34.5)	8 (0.80)	27 (2.50)	<0.001
Occipital	15 (27.3)	13 (1.30)	28 (2.60)	<0.001
Temporal	3 (5.50)	6 (0.60)	9 (0.80)	0.009
Orbitonasal	3 (5.5)	51 (5.10)	54 (5.10)	0.756
Intracranial pathology				
ICH	26 (47.3)	15 (1.50)	41 (3.90)	<0.001
Contussion	17 (30.9)	16 (1.60)	33 (3.10)	<0.001
SAH	29 (52.7)	18 (1.80)	47 (4.40)	<0.001
EDH	1 (1.80)	2 (0.20)	3 (0.30)	0.148
SDH	8 (14.5)	9 (0.90)	17 (1.60)	<0.001
Pneumocephalus	10 (18.2)	7 (0.70)	17 (1.60)	<0.001
Shift	3 (5.50)	3 (0.30)	6 (0.60)	0.002
Edema	5 (9.10)	6 (0.60)	11 (1.0)	<0.001
Non- pathology	23 (41.8)	948 (94.3)	971 (91.6)	<0.001
Additional system injury				
Thorax	27 (49.1)	103 (10.2)	130 (12.3)	<0.001
Abdomen	13 (23.6)	30 (3.00)	43 (4.10)	<0.001
Upper Extremity	19 (34.5)	259 (25.8)	278 (26.2)	0.158
Lower Extremity	29 (52.7)	389 (38.7)	418 (39.4)	0.047
Pelvis	9 (16.4)	53 (5.30)	62 (5.80)	0.003
Vertebrae	7 (12.7)	72 (7.20)	79 (7.50)	0.179
Maxillofacial	6 (10.9)	43 (4.30)	49 (4.60)	0.037
Non- system injury	6 (10.9)	166 (16.5)	172 (16.2)	0.348

ICH: Intracranial hemorrhage, SAH: Subarachnoid hemorrhage, EDH: Epidural hemorrhage, SDH: Subdural hemorrhage.

hology was detected in 971 patients (%91.6). The least common intracranial finding was an epidural hematoma (EDH). Findings of an intracranial haemorrhage (ICH), contusion, subarachnoid haemorrhage (SAH), subdural hematoma (SDH), pneumocephalus, shift and edema were found to be statistically significant regarding mortality due to intracranial pathology. In contrast, patients exhibiting no intracranial pathology were found to be significant regarding survival ($p<0.05$) (Table 4).

Given system injuries which accompanied head trauma in our patients, the most common additional injury was found to be lower extremity trauma, which was observed in 418 patients. The least additional injury was found to be abdominal trauma, which was detected in 43 patients. When the effect of the additional system or organ injuries on mortality in geriatric patients with head trauma was assessed, the experience of thoracic, abdominal, lower extremity, pelvic, or maxillofacial trauma were found to have a statistically significant association ($p<0.05$) (Table 4).

Discussion

The elderly population (65 years and older) is gradually increasing in developing countries. The mortality rate due to geriatric head trauma is high, with this rate ranging from 24% to 89% in geriatric traumatic brain injuries (5,6). Rates of traumatic brain injury and mortality were lower in the present study because only mild head trauma was observed in 1003 patients, no fracture was found in the cranial bones of 952 patients, and no intracranial pathology was identified in 971 patients.



In the evaluation of geriatric head trauma regarding gender, several studies have reported that the incidence of trauma is two- times higher in men than in women, the male to female ratio is 3:1 and the mortality rate is four times higher in men than in women (7). Tieves et al. (8) reported similar rates and underlined the male gender as a risk factor. In a retrospective study by Mirzai et al. (9) from Turkey, the majority of cases were found to occur in male patients. In contrast, in the present study, the female ratio was slightly higher among geriatric patients with head traumas. We also found that mild head traumas are more common among women in our region, while men are exposed to higher-energy traumas. Indeed, upon looking into the mortality rates, deaths occurred in male patients twice as frequently compared to female patients. The higher mortality rate in the male patients in our study is consistent with the literature.

In a study performed by Wofford et al. (10), among geriatric age groups, the rate of trauma presentation was found to be 45.3% in the 65–74 years age group, 37.4% in the 75–84 years age group and 17.2% in the 85 years and older age group. In another study from Turkey, the distribution of trauma was found to be 48% in the 65–74 years age group, 40.8% in the 75–84 years group and 11.2% in the 85 years and older age group (11). Although some studies report that age is not a significant factor for mortality, Knudson et al. (12) argued the significance of age on mortality. In line with the literature, we found that more than half of the patients were in the 65–74 years age group, while the lowest rate of presentation was observed in the 85 years and above age group. This could be explained given the population distribution in Turkey, in which the rate of the 'young old' population is higher. However, we found that there was no significant difference between the age groups regarding mortality.

In evaluating the causes of trauma, Özdoğan et al. (13) found that 91.2% of the cases were due to traffic accidents, 3.5% were due to falls and 5.3% were due to beatings. In a study by Nakamura et al. (14), motor vehicle accidents and falls were associated with a poor prognosis. In our study, the most common cause of trauma presentation was falling. Non-vehicle traffic accidents and falling from a great height also have significant effects on mortality. This is consistent with the causes of geriatric trauma as described by Smith et al. (15).

Although, currently numerous scoring systems are used in the presentation assessment, diagnosis, treatment planning and prediction of prognosis in patients with head trauma, the most commonly utilised method is GCS (16). GCS is a valid scoring system used in head traumas and for the determination of cerebral functions and coma severity since 1974 (17). In the literature, patients with lower RTS values were found to have higher rates of mortality (10,13). Of the patients included in a study by Özdoğan et al. (13), the GCS and RTS values of died patients were lower than those of the survived patients. There is a strong correlation between a low GCS value and mortality (18). Similarly, in the present study, the GCS and RTS values were found to significantly affect mortality.

Macpherson et al. (19) reported that linear fractures are more significantly associated with an epidural and subdural hematoma than with compression fractures in patients with acute head traumas. Another study reported similar rates of cranial fracture, cerebral contusion, subarachnoid haemorrhage (SAH), subdural hematoma, pneumocephalus, edema, epidural hematoma and intracerebral hematoma (20). Mirzai et al. (9) highlighted that the most common pathology was found to be an epidural hematoma among 46 patients detected via computed tomography. Previous studies have reported that the presence of cranial fractures increases the risk for formation of an intracranial lesion (21). In the present study, no cranial bone fracture was detected in about 90% of the patients. The orbitonasal region was the most common localisation of the fractures. The higher rate of orbitonasal region fractures could be attributed to the fact that falling cases occur more commonly in the geriatric age group because of decreased reflexes as well as reduced vision and hearing abilities. Moreover, these patients experience trauma more frequently because they are unable to adequately protect themselves.

The head and extremities are the most commonly injured regions following trauma (22). In a study performed by Owens et al. (23), falling-related injuries were found to be 41% fractures, 22.6% superficial contusion injuries and 21.4% open wounds. Pathologies accompanying head trauma have been analysed in a study conducted by Fırat University from Turkey, in which the most common pathology was found to be upper extremity injuries, with the highest rate of hospitalisation attributed to be caused by low extremity traumas (24). In our study, the rate of system injuries accompanying head traumas is consistent with the literature.

In a study by Tokutomi et al. (25), intracranial mass lesions and systemic injuries were associated with a poor prognosis. In the present study, cranial fractures and intracranial pathologies (e.g., ICH, contussion, SAH, SDH, pneumocephalus, shift and edema), as well as abdominal, thoracic, pelvic and maxillofacial traumas have an effect on mortality.

In conclusion; the most common presentation of trauma was observed in the 65-74 years age group which we define as

'young old' in this study. The most common cause of trauma was due to falling, and the most common fractures were detected in the orbitonasal bones; the most common intracranial pathology was SAH, and the most common additional accompanying injuries were lower extremity injuries. The male gender, non-vehicle traffic accidents, falling from a great height, low scores of GCS and RTS, fracture in the cranium, ICH, contusion, SAH, SDH, pneumocephalus, shift and edema are the factors associated with an increased mortality. Furthermore, additional thoracic, abdominal, pelvic and maxillofacial trauma were also found to increase mortality. Geriatric head traumas are cases associated with a high mortality and require a rapid and multidisciplinary approach from the time of first admission.

Conflict of Interest

Authors declare no conflict of interest.

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RESEARCH

EVALUATION OF SUBCONJUNCTIVAL HEMORRHAGE IN ELDERLY INDIVIDUALS

ABSTRACT

Introduction: To evaluate the clinical and demographic characteristics of elderly patients with subconjunctival haemorrhage

Materials and Method: We evaluated 47 patients >60 years of age with subconjunctival haemorrhage who were admitted to our clinic. Various parameters were recorded, including age, gender, affected eye, haemorrhage localization, subconjunctival haemorrhage recurrence, presence of systemic and heart diseases, previous ocular surgery, drug use and presence of additional symptoms.

Results: Among the 47 patients, 27 (57.4%) were male and the mean age was 67.96 ± 6.71 (range, 60–88) years. The left eye was affected in 23 cases (48.9%) and the right eye in 22 cases (46.8%). In total, 26 patients were taking antithrombotic medications associated with an increased risk of subconjunctival haemorrhage. Among these patients, 15 (57.7%) were taking aspirin, ten (38.5%) were taking warfarin and one (3.8%) was taking clopidogrel. Symptoms capable of inducing haemorrhage were observed in 23 cases (48.9%). These comprised itchiness, which can cause minor ocular trauma (19 cases, 82%), coughing (three cases, 13%) and constipation (one case, 4.35). Hypertension was the most commonly observed condition in the study population. Subconjunctival haemorrhage most frequently presented in the nasal region of the eye (51.1%). Recurrence of subconjunctival haemorrhage was not significantly associated with systemic disease, concurrent medication or itchiness.

Conclusion: The majority of elderly patients with non-traumatic subconjunctival haemorrhage were males, and non-traumatic subconjunctival haemorrhage was most frequently observed in the nasal region of the eye. The parameters most frequently associated with subconjunctival haemorrhage were hypertension and aspirin use.

Key Words: Conjunctiva; Eye Hemorrhage; Fibrinolytic Agents; Geriatrics; Hypertension.

ARAŞTIRMA

YAŞLI BİREYLERDE GÖRÜLEN SUBKONJONKTİVAL HEMORAJİNİN DEĞERLENDİRİLMESİ

ÖZ

Giriş: Yaşlılarda görülen subkonjonktival hemorajinin klinik ve demografik özelliklerinin değerlendirilmesidir.

Gereç ve Yöntem: Kliniğimizde subkonjonktival hemoraji görülen 60 yaş üstü 47 olgu değerlendirildi. Olguların yaşı, cinsiyeti, etkilenen gözü, hemorajinin lokalizasyonu, tekrarlama öyküsü, sistemik hastalık varlığı, geçirilmiş göz cerrahisi, kapak hastalık varlığı, hemorajiye neden olabilecek ilaç kullanımı ve ek semptom varlığı incelendi.

Bulgular: Olguların 27'si (%57.4) erkek olup yaş ortalaması 67.96±6.71 yıl (60-88) idi. Olguların %49'unda sol göz, %47'sinde sağ göz etkilenmişti. Olguların 26'sında hemorajiye neden olabilecek ilaç kullanmaktaydı. On beş olgu (%57,7) antitrombotik ilaç asetilsalisilik asit, 10 olgu (%38,5) antikoagulan warfarin, 1 olgu antitrombotik ilaç Klopidogrel hidrojen sülfat kullanmaktaydı. Hemorajiye neden olabilecek semptomlar 23 olguda (%48,9) görüldü. Bunlardan 19 olguda (%82) gözlerde kaşıntı, 3 olguda (%13) öksürük, 1 olguda kabızlık mevcuttu. Eşlik eden sistemik hastalıklardan en çok hipertansiyon görüldü. Subkonjonktival hemoraji en sık nazal kadranda izlendi. Kanama tekrarlarına göre ilaç kullanımı, sistemik hastalık ve göz kaşıntısı varlığı arasında anlamlı farklılık saptanmadı.

Sonuç: Yaşlılarda travmatik olmayan subkonjonktival hemoraji daha çok erkeklerde ve nazal alanda izlendi. En sık hipertansiyon beraberliği ve antitrombotik ilaç aspirin kullanımı izlendi.

Anahtar Sözcükler: Fibrinolitik Ajanlar; Geriatri; Göz Hemorajisi; Hipertansiyon, Konjonktiva.

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Introduction

Subconjunctival haemorrhage (SCH) is a common eye disorder, localised bleeding under the conjunctiva (1,2). It is clinically defined as a benign condition and typically does not require treatment. SCH typically resolves within a few weeks, and the condition is not associated with long-term defects in visual function (2). However, when a haemorrhage persists or recurs, it is important to investigate the underlying cause (1).

Subconjunctival haemorrhage can result from systemic or ocular conditions, drugs or trauma (3). Ocular conditions associated with SCH include acute conjunctivitis, local ocular trauma, conjunctival tumours, ocular amyloidosis, contact lens usage, ocular surgery and ocular adnexal tumours. Systemic conditions associated with SCH include systemic vascular diseases, sudden severe venous congestion, haematological dyscrasias, systemic trauma, acute febrile systemic diseases, drug use, carotid cavernous fistulas, menstruation and delivery in newborns. Subconjunctival haemorrhage can also result from the use of anticoagulant or antiplatelet medications (4).

In a previous study of 8726 patients, the incidence of SCH was 2.9%, and SCH was not associated with patient age or gender. In addition, SCH in older patients were frequently presented with systemic hypertension (5). Mimura et al. reported that the primary risk factors for SCH in younger patients are trauma and contact lens-induced injury, whereas hypertension is the primary risk factor in older patients (2).

The majority of SCH cases spontaneously arise. The reported prevalence of hemostatic alterations in patients with recurrent, spontaneous SCH is similar to the general population. Haemostatic screening or second level blood clotting tests cannot effectively predict SCH recurrence (6,7).

In this study, we aimed to evaluate the clinical and demographic characteristics of elderly patients with SCH.

Materials and Method

Individuals older than 60 years of age with diagnosed SCH were consecutively enrolled from our outpatient clinic over a 12-month period. This study was conducted in accordance with the tenets of the Declaration of Helsinki, and written informed consent was obtained from all participants. This study was approved by the ethics committee of the Department of Ophthalmology, Medipol University, Istanbul, Turkey.

Individuals with a history of ocular surgery, infectious conjunctivitis and trauma to the eye or brain within seven days of subconjunctival haemorrhage diagnosis were excluded from the study. All study participants underwent a detailed ocular evaluation, which included administration of the Snellen visual acuity chart, intraocular pressure measurements and examination of the anterior segment and dilated fundus.

The diagnosis of SCH was made by inspection and slit-lamp examination. Participants were asked to report their history of systemic diseases (hypertension, diabetes, cardiovascular abnormalities, collagen vascular diseases, jaundice, bleeding disorders or drug use), ocular trauma and Valsalva manoeuvre (coughing, straining, heavy lifting or vomiting).

We recorded various demographic and clinical parameters, including age, gender, affected eye, haemorrhage location, disease recurrence, systemic disease, valvular heart disease, previous eye surgery and drug use.

In cases of spontaneous SCH with no history of systemic disease, blood pressure monitoring and routine laboratory tests (fasting blood glucose, blood count and biochemistry) were performed. Hypertension was defined as the use of medications for hypertension or blood pressure values ≥140/90 mmHg at two different time points. Patients previously treated for haemorrhage were excluded from the study. Patients were informed about SCH and were clinically monitored.

Statistical Analysis

Descriptive statistics (mean, standard deviation, median, frequency, rate, minimum and maximum), Yates Continuity Correction and Fisher's exact test were used qualitatively to analyse the data. Statistical analyses were conducted using Number Cruncher Statistical System 2007 and Power Analysis and Sample Size 2008 Statistical Software (Utah, USA). Values of p <0.05 were considered statistically significant.

Results

A total of 47 patients were enrolled in the study. Twenty participants (42.6%) were females and 27 (57.4%) were males. The mean age of study participants was 67.96 ± 6.71 years (range: 60–88 years). The left eye was affected in 23 cases (48.9%) and the right eye in 22 cases (46.8%). Two participants (4.3%) presented with bilateral involvement. 12 patients (25.5%) had previously undergone eye surgery (Table 1).

Clinical conditions implicated in SCH (itchiness, cough and constipation) were reported in 23 cases (48.9%). Among this group of patients, 19 (82.6%) reported itchiness, which can induce minor eye injury. Three patients (13%) reported



Table 1— Clinical Characteristics of the Participants.

Parameter		n	%
Eye involvement	Left eye	23	48.9
	Right eye	22	46.8
	Bilateral	2	4.3
Previous ocular surgery		12	25.5
Ocular surface disease		20	42.6
Additional symptoms	No	24	51.1
	Yes	23	48.9
	Itchiness	19	82.6
	Constipation	1	4.3
	Cough	3	13.0

Table 3— Clinical Features of Subconjunctival Haemorrhage.

		n	%
Recurrence	No	30	63.8
	Yes	17	36.2
	Twice	11	64.7
	Three times	6	35.3
Frequency according to SCH location	Inferior	5	10.6
	Nasal	24	51.1
	Temporal	8	17.0
	Temporal-nasal-inferior	1	2.1
	Temporal-superior-inferior	1	2.1
	Four quadrants	8	17.0

SCH, subconjunctival haemorrhage.

cough and one (4.3%) reported constipation; both conditions can cause Valsalva retinopathy (Table 1). Among the total study population, 17 participants (36.2%) experienced SCH recurrence. SCH was most commonly observed in the nasal region of the eye (24 cases, 51.1%) (Table 1).

26 (55.3%) participants were taking antithrombotic medications associated with an increased risk of haemorrhage. Among this group, 15 patients (57.7%) were taking aspirin (acetylsalicylic acid), ten (38.5%) the anticoagulant warfarin and (3.8%) clopidogrel (Table 2).

A total of 40 participants (85.1%) had a systemic disease. Among them, 14 patients (35%) had hypertension, seven (17.5%) had heart disease and hypertension and seven (17.5%) had heart disease in the absence of hypertension (Table 2).

Table 2— Systemic Disease and Drug Use of the Participants.

Parameter		n	%
Drug Use	No	21	44.7
	Yes	26	55.3
	Aspirin	15	57.7
	Warfarin	10	38.5
	Clopidogrel	1	3.8
Systemic disease		40	85.1
	Hypertension (HT)	14	35
	Cardiac disease and HT	7	17.5
	Cardiac disease	7	17.5
	Cerebrovascular occlusion disease and HT	4	10
	Diabetes mellitus and HT	3	7.5
	Chronic asthma	2	5
	Chronic kidney disease	2	5
	Bleeding abnormalities	1	2.5

SCH recurrence was not significantly associated with drug use, systemic disease or itchiness ($p>0.05$) (Table 3).

Discussion

Subconjunctival haemorrhage is a common clinical condition frequently treated at outpatient eye clinics. Although SCH can resolve spontaneously, the appearance of the haemorrhage can be worrisome to patients. SCH is typically a benign disorder and can be caused by a variety of factors (8).

Hu et al. reported that the incidence of non-traumatic SCH was lowest in individuals ten to 19 years of age (25.2 cases per 10,000 individuals) (9). In addition, in patients 20 years and older, the incidence of non-traumatic SCH gradually increased as the occurrence of thrombocytopenia, hypertension and antithrombotic medication use increased. In this study, the incidence of SCH reached a peak of 1.36 new cases per 100 subjects in individuals 60 to 69 years of age (9).

Fukuyama et al. reported that the incidence of SCH was 2.9% in a study population of 8726 patients and systemic hypertension was strongly associated with SCH in older patients (5). In a study of 6843 patients published by Kaimbo et al [10], SCH was reported in 61 eyes from 58 patients (0.8%). Among these patients, 30 (51.7%) were diagnosed with traumatic SCH and 28 (48.3%) with spontaneous SCH. Similar to the findings reported by Fukuyama et al., hypertension (14.3%) was the condition most frequently reported by patients with spontaneous SCH [10]. Sahinoglu et al. [1] conducted a study of 50 patients with SCH in Turkey. They reported that 34 patients (68%) with SCH had traumatic SCH

Table 4— Relationship Between Subconjunctival Haemorrhage Recurrence and Drug Use Systemic Disease and Itchiness.

		Recurrence (-) (n=30)	Recurrence (+) (n=17)	p
Drug use	No	16 (53.3%)	5 (29.4%)	0.201[a]
	Yes	14 (46.7%)	12 (70.6%)	
Systemic disease	No	5 (16.7%)	2 (11.8%)	1.000[b]
	Yes	25 (83.3%)	15 (88.2%)	
Itchiness	No	16 (53.3%)	12 (70.6%)	0.396[a]
	Yes	14 (46.7%)	5 (29.4%)	

[a]Yates's Continuity Correction; [b]Fisher's Exact Test.

and 16 patients (32%) had spontaneous SCH. Consistent with previous reports, the condition most frequently observed in patients with spontaneous SCH was hypertension (1). Mimura et al. reported that the primary risk factor for SCH was hypertension (47.5%) in patients aged 61–94 years of age (8).

We evaluated the clinical and demographic characteristics of geriatric patients with SCH. Consistent with previous reports, the majority of patients (85.1%) with SCH had a systemic disease, of which hypertension was the most common. In this study, SCH was more frequently observed in men than in women. Hu et al. (9) and Kaimbo et al. (10) reported that the incidence of SCH in the general population was significantly higher in women than in men. In a study published by Sahinoglu et al. (1), the majority of patients with spontaneous SCH (68.8%) were female, whereas the majority of patients with traumatic SCH (70.6%) were male. By contrast, Fukuyama et al. did not detect a significant association between SCH and gender or age (5).

Unilateral SCH was observed in 95.7% of cases. In a study by Kaimbo et al., 90% of SCH cases were unilateral, and 36.1% and 26.2% of cases were observed in the temporal (36.1%) and nasal (26.2%) region, respectively (10). Mimura et al. reported that SCH predominantly presents in the inferior region of the eye, and that traumatic SCH most frequently presents in the temporal region (11). In a study by Sahinoglu et al., SCH most frequently localised to temporal areas and presented with equal frequency in the right and left eyes (1).

Previous studies have suggested that the use of aspirin, clopidogrel or warfarin is a risk factor for spontaneous SCH (4,8,9). In this study, 55.3% of participants were taking antithrombotic medication. Of these patients, 15 (57.7%) were taking aspirin and 38.5% were taking the anticoagulant warfarin. Hu et al. reported that non-traumatic SCH was significantly associated with the use of aspirin, compared to warfarin and clopidogrel (9). Other studies have also observed a correlation between aspirin and SCH (12-14).

Previous studies have demonstrated that warfarin is associated with hyphema, bloody tears and subconjunctival, vitreous, retinal and choroidal haemorrhages (15-17). Finh et al. (17) investigated bleeding complications in 3702 patients taking warfarin. Bleeding events occurred in 2376 patients and 15% of first bleeding events were minor (nosebleed, bruising and mild haemorrhoid). The most common site for serious bleeding events was the genitourinary tract (24%), followed by the gastrointestinal tract (22%) and skin/soft tissues (19%) (17).

In this study, clinical factors capable of inducing SCH, including itchiness, cough and constipation, were observed in 48.9% of the study population. SCH recurrence was observed in 36.2% of cases. Recurrent SCH was not significantly associated with systemic disease and eye itchiness or medication use.

A sudden increase in intrathoracic pressure resembling a Valsalva manoeuvre, such as sneezing, coughing, vomiting or constipation can trigger SCH, especially in elderly individuals, who have more sensitive conjunctival blood vessels (1,10,18,19).

In conclusion, SCH is a benign ocular disorder that resolves spontaneously within two to three weeks. In some cases, SCH may be recurrent or cause permanent blood-staining (8). In rare cases, SCH is associated with serious or even life-threatening conditions, such as leukaemia (19,20), bleeding abnormalities (21), cavernous haemangioma of the conjunctiva (22) and ocular adnexal lymphoma (23).

It should be considered that there may be serious underlying causes in cases with recurrent SCH. The most important approach in identifying serious causes is to take a careful and detailed history. It is recommended to take detailed medical and ocular history including any ocular trauma, ocular sur-



gery, contact lens wear, drugs, and hereditary conditions. First, it is important to make a detailed slit-lamp examination to exclude any ocular trauma and other ocular causes that may be caused by SCH.

The systemic evaluation is important after ocular factors are knocked out. Blood pressure should be measured routinely, particularly in elderly patients with SCH. Necessary investigations should be made in terms of bleeding disorders in recurrent cases. The cases with persistent or recurrent SCH must be referred to an internal medicine clinic for detailed systemic evaluation. Patients should be informed about the clinical presentation and symptoms of SCH.

Conflicts of Interest

The authors declare that they have no competing interests.

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RESEARCH

HEARING IMPAIRMENT AND TINNITUS SEVERITY IN PARKINSON'S DISEASE

ABSTRACT

Introduction: Our main objective in this study was to evaluate hearing impairment and the severity of tinnitus in patients with Parkinson's disease as well as to compare the results with healthy controls.

Materials and Methods: This study involved 43 patients with Parkinson's disease and a control group of 45 healthy age- and sex-matched individuals. Audiological examination was conducted using pure-tone audiometer and tinnitus severity was assessed by tinnitus severity index. Air conduction thresholds and tinnitus severity index scores were compared statistically.

Results: Compared with the control group, the Parkinson's disease group had significantly elevated pure-tone audiometer thresholds in 6000 and 8000 Hz, but there were no significant differences at other frequencies. The tinnitus severity index scores were significantly higher in the Parkinson's disease group than the control group ($p<0.001$).

Conclusion: The increased prevalence of hearing loss at higher frequencies and the greater severity of tinnitus among patients with Parkinson's disease were the most notable findings. We recommend that these patients be monitored more closely for auditory dysfunction, and appropriate therapy should be provided. Our results show that auditory dysfunction may be considered a non-motor symptom of Parkinson's disease.

Key Words: Hearing Loss; Tinnitus; Parkinson Disease; Presbycusis.

ARAŞTIRMA

PARKİNSON HASTALIĞINDA İŞİTME AZLIĞI VE KULAK ÇINLAMASI ŞİDDETİ

ÖZ

Giriş: Bu çalışmanın temel amacı, Parkinson hastalarında işitme bozukluğu ve kulak çınlaması şiddetini değerlendirmek ve elde edilen sonuçları sağlıklı kontrollerle karşılaştırmaktır.

Gereç ve Yöntem: Çalışmaya, Parkinson hastalığı tanısı almış 43 hasta ile benzer yaş ve cinsiyette 45 sağlıklı gönüllü alındı. Odyolojik değerlendirme saf ses odyometrisi ile, kulak çınlaması şiddeti tinnitus şiddet indeksi ile değerlendirildi. Hava yolu eşikleri ve kulak çınlaması şiddet skorları istatistiksel olarak karşılaştırıldı.

Bulgular: Parkinson hastalarında, 6000 ve 8000 Hz saf ses odyometrisi eşiklerinde belirgin yükselme saptanırken diğer frekanslarda anlamlı bir fark yoktu. Parkinson hastalarında kulak çınlaması şiddet skoru kontrol grubuna göre anlamlı olarak yüksek bulundu ($p<0.001$).

Sonuç: Çalışmada en dikkat çekici bulgu Parkinson hastalarında, yüksek frekanslarda saptanan işitme kaybı ve daha şiddetli kulak çınlamasıdır. Parkinson hastaları işitsel bozukluklar açısından izlenmeli, bu hastalara gerekli ve uygun tedavi sağlanmalıdır. Bu sonuçlar, işitsel disfonksiyonun Parkinson hastalığının non-motor belirtilerinden biri olabileceğini göstermektedir.

Anahtar Sözcükler: İşitme Azlığı; Kulak Çınlaması; Parkinson Hastalığı; Presbiakuzi.

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INTRODUCTION

Parkinson's disease (PD) is a degenerative disorder of the central nervous system that mainly affects motor function. Mostly affecting the elderly, PD usually begins between the ages of 50 and 65, and its major symptoms result from loss of dopamine-secreting cells in the pars compacta region of the substantia nigra (1,2). However, cell degeneration in PD is not only restricted to the substantia nigra and locus ceruleus but also occurs in thalamus, cerebral cortex, autonomic nervous system and auditory system (3).

Dopamine also suppresses spontaneous and sound-evoked activity in the cochlear nerve fibers and helps to protect cochlea from noise-induced damage. Thus, dopamine deficiency can lead to damage to the cochlea and consequently to hearing loss and tinnitus (4,5), both of which are important conditions affecting the elderly. These phenomena can, in turn, lead to communication problems, insomnia, loneliness and decrease in social activities (6). Tinnitus, which is the perception of sound within the human ear or head when no external sound is present, affects about 15% of the world population and 33% of the individuals older than 60 years (7). Many aspects of the pathophysiology of tinnitus are still unclear. However, it has been postulated that damage to, or irregularities of, the cochlear hair cells and neural and central auditory pathways may be causative (8). To date hearing impairment in PD has received little attention, while to our knowledge, the severity of tinnitus in PD has never been investigated.

The aim of the present study was to evaluate the hearing impairment and tinnitus severity in patients with PD, and to compare the results with healthy age and sex-matched controls.

MATERIALS AND METHOD

This study was performed in accordance with the Helsinki Declaration of the World Medical Association. Informed consent was obtained from all participants, and the study was approved by the Research Ethics Committee of our tertiary referral center (no. 2016/4).

This cross-sectional study involved 43 consecutive patients diagnosed with PD, and a control group of 45 healthy age- and sex-matched individuals. All patients with PD were required to have stage II or III disease according to the Hoehn and Yahr classification system (Table 1), which is a widely used clinical rating scale that defines broad categories of motor function and disease progression in PD (9). Of the 43 Parkinson's patients in the study, 26 patients were showing mild symptoms. 15 of these patients were taking rasagiline (monoamine oxidase-B inhibitor) treatment, other 11 were taking lower doses of dopamine agonists. The remaining 17 patients had mild symptoms of PD with mild walking impairment, they were taking combination therapy of rasagiline and a dopamine agonist. Patients with PD did not receive any treatment of levodopa in the study. The exclusion criteria were as follows: hearing loss other than sensorineural loss; otitis media or middle ear effusion in the previous 4 weeks; acoustic trauma or barotrauma in the previous 6 months; otologic surgery; neurological disorders consistent with a diagnosis of atypical parkinsonism, such as multiple system atrophy, progressive supranuclear palsy, multiple sclerosis, and corticobasal degeneration; and systemic conditions known to negatively affect hearing and neurological functions, such as thyroid disease, diabetes, hypertension, renal failure, hyperlipidemia, and chronic obstructive pulmonary disease. Patients who could not adapt to testing by audiometry were also excluded.

Table 1— Parkinson's Disease Severity According to the Hoehn and Yahr Staging System

Stage	Definition
1	Unilateral disease
2	Bilateral disease with recovery on the pull test
3	Mild-to moderate bilateral disease with postural instability; physically independent
4	Severe disability; still able to work or stand independently
5	Wheelchair bound or bedridden unless aided

Detailed investigation was performed in all subjects by a neurologist and otolaryngologist. Data were collected by individualized follow-up, telephone calls, and reference to our hospital database. We performed full clinical otorhinolaryngological examination followed by assessment using pure-tone audiometer (PTA) and the tinnitus severity index (TSI). PTA was performed with an AC40 clinical audiometer (Interacoustics, Middelfart, Denmark), and we determined air conduction thresholds at 500, 1000, 2000, 4000, 6000 and 8000 Hz. The PTA in the better-hearing ear was used for subsequent analyses. TSI is an assessment questionnaire consisting of 12 questions and a rating system that scores each question from 0 to 5, giving a maximum possible score of 60 points. Scoring boundaries were as follows: 1-12 points was classified as very mild, 13-24 as mild, 25-36 as moderate, 37-48 as severe, 49-60 as catastrophic (10).

Table 2— Pure-tone Audiometer Thresholds (decibel) of the Control and Parkinson's Disease Groups.

Pure-tone Audiometer Thresholds (Decibel)	Control Group (n=45)	Parkinson's Disease Group (n=43)	p
500 Hz	19±9.1	22±10.8	0.11
1000 Hz	18 ±8.7	21±9.3	0.18
2000 Hz	28±9.8	30±11.4	0.35
4000 Hz	30±11.3	33±13.2	0.27
6000 Hz	36±13.4	49±18.3	0.038
8000 Hz	49±17.4	65±21.5	0.015

Values are mean±sd

Data were analyzed using IBM SPSS for Windows, Version 23 (IBM Corp., Armonk, NY, USA). Continuous variables were presented as means±standard deviation and categorical variables as percentages. Hearing thresholds at each frequency and the TSI scores among the control and PD groups were compared using two-tailed t-test. A p-value<0.05 was taken to indicate statistical significance.

Results

In the PD group, 20 patients were female and 23 were male, and the mean age was 63±7.9 years (range, 54–88). In the control group, 22 participants were female and 23 were male, and the mean age was 59±7.1 years (range, 51–82). The age and sex distributions in PD and control groups were comparable.

Compared with the control group, patients with PD showed significant elevations in PTA thresholds at 6000 and 8000 Hz (both, p< 0.05), but there were no significant differences at 250, 500, 1000, 2000, or 4000 Hz (all p > 0.05) (Table 2).

The TSI scores in the control and PD groups were 14.8±5.4 (range: 0-32), 31.4±11.2 (range: 8-60), respectively. The mean TSI score in PD group was significantly higher than that in the control group (p<0.001).

Discussion

Auditory function has previously been investigated in patients with PD. Previous studies reported that patients with PD have worse hearing than age-matched control subjects (11) they also suggested prolonged latencies in auditory brainstem response (12,13). In a study, it was reported that hearing loss correlates with an increased risk of PD in the elderly (14). In addition, although PD has been shown to be associated with significantly high PTA thresholds at 4000 and 8000 Hz, but not at thresholds of 250, 500, 1000, or 2000 Hz (13), other research has found no significant difference in PTA results between the frequencies 500 and 8000 Hz when comparing patients with PD and healthy subjects (15).

Our data are consistent with the research showing significant hearing impairment at 6000 and 8000 Hz in patients with PD when compared with controls. Similarly, tinnitus severity was significantly higher in patients with PD. Together, these results show that auditory dysfunction could be a non-motor symptom of PD. Indeed, Vitale et al. (11) have previously emphasized that auditory dysfunction should be included among the sensory symptoms of PD. To understand the pathophysiology of cochlear damage that causes hearing impairment and tinnitus to be more severe in PD, it is essential to review the molecular mechanisms.

The prevalence of sensorineural hearing loss and tinnitus are increasing worldwide, mainly because of ageing and increased exposure to noise, degenerative disorders, and cardiovascular risk factors (6,16). Several studies have investigated the mechanisms underlying the primary causes of impaired hearing and tinnitus, including the damage and loss of auditory hair cells; however, very little is known the pathophysiology at a molecular level or of the protective mechanisms (17). Glutamate is the main afferent neurotransmitter within the cochlear hair cells, and massive glutamate release may result in excitotoxicity, irreversible cell death, and neurotoxicity. Dopamine, by contrast, is an inhibitory transmitter that reduces the stiffness of the outer hair cells, increases their motility and protects the cochlea from excitotoxicity. Thus, excitatory glutamatergic transmission is under the inhibitory control of dopamine (5,18-20). Because the modulation of these molecular interactions is important to both the regulation and protection of cochlear and auditory pathways, their metabolic alterations that occur in PD could profoundly increase the likelihood of damage to cochlear auditory cells. In our study, the loss of dopaminergic inhibition may have led to increases in



glutaminergic activity and inevitable cochlear damage. In these patients, the cochlear damage may have caused presentation with clinical signs that were more severe than simple presbycusis (age-related hearing deterioration). Our results indicate that PD affects cochlear and auditory pathways. In the present study, PD patients were at early stage (stage II or III according to the Hoehn and Yahr classification), thus they were receiving lower doses of monoamine oxidase inhibitor and/or a dopamine agonist, none was taking levodopa treatment. Therefore, we did not have the opportunity to determine whether dopamine treatment caused a positive or negative effect on cochlear functions.

Hearing loss and severe tinnitus may contribute to communication deficits, insomnia, loneliness and decrease in social activities among patients with PD. These patients therefore require appropriate therapy to prevent functional decline, which is typically by multidisciplinary evaluation and early intervention, including specific audiological rehabilitation programs, hearing devices, tinnitus masking devices and drug therapy. A comprehensive approach could significantly improve the quality of life of PD patients. We contend that including auditory dysfunction and tinnitus as sensory symptoms of PD may improve the detection and treatment rates.

The main strength of our study is that, to the best of our knowledge, this was the first time tinnitus severity has been assessed in PD. However, we included a relatively small number of patients, and larger population-based studies with long-term clinical follow-up data will be needed to verify our results.

Conflict of Interest

The authors have no conflicts of interest or financial ties to disclose in regard to this study.

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RESEARCH

PERCEPTIONS OF THE ELDERLY ON ELDERLY ABUSE

ABSTRACT

Introduction: Determining the perception of the elderly who are at high risk of abuse in the community and identifying the existing abuse may be effective in creating the necessary awareness about elderly abuse. Therefore, this study aims to determine the elderly's perception of abuse.

Materials and Method: The study employed a descriptive and cross-sectional design. It focuses on the members of the population in Isparta who are 65 years or older. In determining this selection, the sample was determined at a 95% confidence level by simple random sampling technique. The study included 500 volunteers who had sound aural and verbal faculties and were fit enough to answer the survey questions. A questionnaire was created based on the relevant literature and was subsequently used to collect data.

Results: The questionnaire was presented to a total of 500 elderly citizens consisting of 297 women and 203 men. The results showed that 42.2% were in the age group of 65–69, and that 55.6% were married. We found that the majority of the elderly interpreted the physical acts in the statements as abuse and that they accepted economic abuse. The elderly held family members responsible for abuse. In cases where the perpetrator was a family member, they refrained from reporting them.

Conclusion: It is necessary to improve the elderly's awareness of abuse and neglect. The elderly, caregivers, and family members must participate in educational processes on aging and on the elderly. Research to detect and prevent abuse and the creation of national policies are also needed.

Key Words: Aged; Elder Abuse; Elder Neglect; Perception.

ARAŞTIRMA

YAŞLILARIN İSTISMAR ALGISI

ÖZ

Giriş: Toplumda istismara uğrama riski yüksek olan yaşlının istismara ilişkin algılarının belirlenmesi; mevcut istismarın tanımlanması ve gerekli farkındalığın oluşmasında etkili olabilecektir. Bu yüzden çalışma, yaşlıların istismara yönelik algılarının tespit edilmesini amaçlamaktadır.

Gereç ve Yöntem: Araştırma, tanımlayıcı ve kesitsel türde planlanmıştır. Evren, Isparta ilinde bulunan 65 yaş ve üzeri nüfustur. Örneklem basit rastlantısal teknikle, %95 güven düzeyinde belirlenmiştir. Araştırmaya anket sorularına cevap vermek için yeterince işitsel ve sözel becerileri uygun olan 500 gönüllü birey katılmıştır. İlgili literatür temel alınarak oluşturulan soru formu verilerin toplanması için kullanılmıştır.

Bulgular: Soru formu 297'si kadın, 203'ü erkekten oluşan 500 yaşlıya uygulanmıştır. Yaşlıların %42.2'si 65-69 yaş grubunda, %55.6'sı evlidir. Bu çalışmada, yaşlıların çoğunluğunun ifadelerdeki fiziksel eylemleri istismar olarak yorumladığını ve ekonomik istismarı kabullendikleri bulunmuştur. Yaşlılar istismardan çoğunlukla aile üyeleri sorumlu tutmaktadır. Ailenin fail olduğu durumlarda, onları ihbar etmekten kaçınmaktadırlar.

Sonuç: Yaşlı bireylerin istismar ve ihmale yönelik farkındalığının artırılmasının gerekmektedir. Yaşlılar, bakım veren kişiler ve aile üyeleri yaşlılık ve yaşlılar hakkındaki eğitimsel süreçlere katılmalıdır. İstismarı tespit etmek ve önlemek için araştırmaların yapılması ve ulusal politikaların oluşturulması gereklidir.

Anahtar Sözcükler: Yaşlı; Yaşlı İstismarı;Yaşlı İhmali;Algı.

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Introduction

In Turkey, the elderly population is increasing at a higher speed than that of other age groups as is the case all over the world. In the developing countries like Turkey, it is anticipated being much faster of population aging process. In 2013, while the growth rate of total population was 13.7‰, growth rate of elderly population was almost triple with 36.2‰ (1). Due to this demographic change, there has been growing interest in research on the elderly and on aging. But a common limitation of most studies is that they describe the current situation. While Turkish society is making a transition from its traditional social structure to a modern social structure, the impact of modernization is often ignored in terms of the individual and the nature of the social relationships.

In the community life of a traditional society, the elderly are the protectors and carriers of social values. Today, corporate embodiments, traditional relationships, and structures representing modernity in communities that are undergoing the transition process from traditionalism to modernism, run together the functions that sometimes overlaps or sometimes conflicts with each other (2). In such societies, elder abuse is a social problem that may be noticed too late.

Elder abuse can be defined as "a single, or repeated act, or lack of appropriate action, occurring within any relationship where there is an expectation of trust which causes harm or distress to an older person" (3). In many studies, elderly abuse is defined in five categories: physical, sexual, psychological, economic abuse, and neglect. Sometimes elderly abuse is also called as elder mistreatment or elder maltreatment (4).

Abuse can be seen in any society, economic situation, or ethnic and religious structure. However, since the meaning of abuse changes depending on individuals, families, and social and cultural values, it is often difficult to notice elderly abuse. This is because, abuse can be shaped by morality, ideology, cultural conditions, and daily life experiences (5).

Determining the perception of the elderly who is at a high risk of abuse in the community, and identifying the existing abuse, may be effective in creating the necessary awareness about elderly abuse. For this reason, this study aims to determine the elderly's perception of abuse.

Materials and Method

The study employed a descriptive and cross-sectional design and the data was collected from Isparta province (in Turkey) between July and December 2015. The research population was made up of 24.595 individuals who were 65 years of age and older (6).

The sample size was calculated as 379 people with 5% tolerance and 95% confidence interval level by simple random sampling techniques. 500 people were targeted in order to minimize the sampling mistake.

The study included 500 volunteers who were 65 years or older, who had sound aural and verbal faculties, who were fit enough to answer. Participants were reached at place such as parks, mosques, local markets and cafes. The data were collected using face-to-face interviews.

A questionnaire was created based on the relevant literature, and was subsequently used to collect the data. Assessments were made using a structured questionnaire with two parts. The first part included questions on participants' sociodemographic characteristics and if the elderly could provide financial support for their children or not. The second part was composed of statements that had the purpose of evaluating the perceptions of the elderly regarding abuse and neglect, the offender, reason of abuse and responsibility to report. The word "abuse", which is included in the statements in the questionnaire, was explained as "elder mistreatment" or "elder maltreatment" to the participants. The data were evaluated using a statistical analysis program; and the Frequencies and the Chi-Square Tests were applied.

The study was approved by the Ethics Committee of Suleyman Demirel University. After the purpose of the study was explained, verbal confirmation was collected from the elderly.

Results

The questionnaire was presented to a total of 500 elderly citizens, consisting of 297 women and 203 men. In the study, participants were aged between 65 and 95 years, and the mean age was 73.104±6.99 years of age (female, 72.82±6.86; male, 73.51±7.18). The largest group (42.2%) was composed of 65-69 year olds and 56.0% of the elderly could provide financial support for their children.

In the study, statements were given regarding the types of abuse, and the perceptions of the elderly were evaluated according to their responses to these statements.

Three statements were given under the heading of "physical abuse":

- 14.4% of the elderly do not consider physical violence between couples as abuse; 27.8% of the elderly do not consider giving drugs to an old person to calm him/her down

Table 1— Perceptions of the Elderly Regarding Abuse and Neglect

Theme Headers	Statements	YES						p
		Female		Male		Total		
		n	%	n	%	n	%	
Physical abuse	Physical violence between old couples is abuse.	257	86.5	171	84.2	428	85.6	0.4
	Family members' calming the elderly down with drugs when they are tired is abuse.	218	73.4	143	70.4	361	72.2	0.4
	Family members' tying the elderly to the bed when they care for him/her is abuse.	213	71.7	135	66.5	348	69.6	0.2
Psychological abuse	Ignoring the emotional needs of the elderly by family members is abuse.	260	87.5	177	87.2	437	87.4	0.9
	Family members' yelling at the elderly when they are stressed is abuse	218	73.4	152	74.9	370	74.0	0.7
Economic Abuse	Family members taking money from the elderly without permission is abuse.	122	41.1	80	39.4	202	40.4	0.7
	Family members' not paying the money borrowed from the elderly back is abuse.	108	36.4	68	33.5	176	35.2	0.5
Neglect	Family members' leaving bedridden elderly people alone is negligence.	155	52.2	92	45.3	247	49.4	0.1
Self Negligence	Some elderly are inadequate to care of themselves.	269	90.6	180	88.7	449	89.8	0.4

as abuse; 30.4% of the elderly do not consider being tied to the bed as abuse.

Two statements were given under the heading of "psychological abuse":

- 26% of the elderly do not consider "yelling at the elderly when the family members are stressed" as abuse; 87.4% of the elderly regard being ignored by family as abuse.

Two statements were given under the heading of "economic abuse":

- 59.6% of the elderly do not regard "taking money from them without permission" as abuse; 64.8% of the elderly do not regard "not paying the money back" as abuse, especially those who give financial aid to the children($p<0.05$).

Two statements were given under the heading of "negligence" and "self-neglect"

- 50.6% of the elderly do not regard "bedridden elderly people living alone" as neglect.
- 89.8% of the elderly consider "Some elderly are inadequate to care of themselves" (Table 1).

The evaluation of the perceptions of the elderly regarding "the offender," "reason of abuse," and "responsibility to report" (Table 2) showed that:

- They mostly held family members responsible (83.2%); they were against punishing by law family members who are abusive to the elderly (51.2%); they thought that they were subjected to ill-treatment because they did something wrong (86.0%). These thoughts of the elderly are meaningful in terms of the sex variable($p< 0.05$).

Discussion

In traditional culture, younger generations are obliged to take care of the elderly, but this is no longer the case in the modern society. In this situation, the elderly can become a convenient target for exploitation and mistreatment. Physical abuse is defined as visible behaviors such as beating, biting, as well as administering medications not suitable for the elderly, forming a physical restraint by binding to bed (7). Especially in cases of non-violent abuse, the elderly sometimes suffer much more than the abuser thinks and the abuser may not realize the extent of the negativity s/he causes. Therefore, it is



Table 2— Perceptions of the Elderly Regarding "The Offender," "Reason of Abuse" and "Responsibility to Report"

Theme Headers	Statements	YES						p
		Female		Male		Total		
		n	%	n	%	n	%	
Perceptions Regarding the Offender and Reasons for Abuse	The elderly are subject to maltreatment because they do something wrong.	247	83.2	183	90.1	430	86.0	0.06
	The elderly are generally treated badly by their families.	241	81.1	175	86.2	416	83.2	0.1
	If parents mistreat their child, the child treats them badly in the future.	110	37.0	91	44.8	201	40.2	0.08
	Those with mental, emotional or substance abuse problems mistreat elderly people.	67	22.6	65	32.0	132	26.4	0.1
Responsibility to Report	Neighbors who notice that the elderly are treated badly should call the police.	224	75.4	157	77.3	381	76.2	0.6
	The family member abusive to the elderly should be punished by law.	133	44.8	111	54.7	244	48.8	0.03*
	If the elderly is treated badly within the family, no one outside the family should know about this.	96	32.3	88	43.3	184	36.8	0.01*

*p<0.05

important to determine how non-violent abuse, which can be seen in different ways, is perceived.

This study shows that, while the majority of the elderly interpreted the physical acts in the statements as abuse, 27.8% did not regard giving the elderly drugs to calm them down as abuse, and 30.4% did not regard binding the elderly to the bed as abuse (Table 1). Lee's (7) findings showing that 38% of the elderly consider calming the elderly with drugs as appropriate, and that 13% consider tying the elderly to the bed as appropriate, are consistent with our findings.

Despite domestic violence being one of the most important social problems, society's internalizing or turning a blind eye to violence, or even regarding it as a traditional norm (8), is among the major obstacles in the prevention of violence. Population-based surveys place lifetime rate of physical intimate partner violence at between 42% and 76% (9). We have found that the significant ratio of elderly (14%) do not consider physical violence between couples as abuse. Moreover, the fairly close ratio of men and women participating the statement in this study supports the idea that many processes, from the way violence is perceived to the way it is realized, are affected by social conditions such as family structure, culturel value and norm etc. (8).

Psychological abuse is related to behaviors and attitudes that lead to emotional distress and emotional injury, as well as ignoring the emotional needs of the elderly (10). Psychological abuse that lacks physical symptoms is difficult to detect. However, this type of abuse is frequently encountered in society. In a study, the physical abuse rate among the elderly was reported as 1.9%, while the psychological abuse rate among the elderly was found to be 4.2% (11). In the study, the fact that the majority of the elderly (87.4%) regard ignoring the emotional needs of the elderly by the family as abuse shows their awareness of psychological abuse. Also, 26% of the elderly think that caregivers can yell at the elderly if they are stressed. This may be associated with the challenges of elder care, because individuals of old age may require a long and comprehensive care due to the weakening of their senses, physical disabilities, and chronic illness. Therefore, elderly care can be a type of care that is difficult and inconvenient for caregivers. To maintain their care relationship, the caregiver and older person need support. When this support is not provided in time and adequately, elderly abuse and neglect may increase (12).

Economic abuse is defined as the illegal or improper use of the economic resources of the elderly (10). Economic abuse rates are reported as 2.5% in Turkey, 5.2% in the United States, and 6.4% in Japan (13). In our study, more than half of the respondents see no harm in family members taking money from them without permission, nor in them not paying it

back. As a result, it seems that the majority of the elderly, especially those who give financial aid to their children ($p<0.05$), accept this economic abuse. Similarly, Oh et al. found that the Korean elderly, who provided their children with financial support, were subject to economic abuse at a higher rate (11). Based on the results, it may be suggested that not only social and cultural values but also the fear of being alienated by their families influence this acceptance. In a study conducted in Nigeria, the elderly reported maltreatment such as social isolation and lack of visits when they refused to make financial support to their children (14).

Negligence is defined as a failure to meet the basic needs of the elderly intentionally or unintentionally. Although physical abuse is the best-known of all types of abuse, negligence is more common (15). In the study, the fact that 50.6% of the elderly agreed with the statement about family members leaving the bedridden elderly alone shows that the elderly's awareness of "negligence" has not formed sufficiently.

Self-neglect refers to a type of behavior displayed by an individual that threatens his/her own health and safety. It has been suggested that this concept should also be included in the study and definition of elderly abuse (13,15). It is assumed that self-neglect is caused by mental, physical, and social disorders, and that it also encourages such disorders. The self-neglect of an elder person is the most common form of elderly abuse and neglect that gets reported to social services (16). The fact that 89.8% of the participants in this study think that some elderly are inadequate to care of themselves is consistent with the high self-neglect rates reported in the literature.

The literature contains various data on the causes of abuse and the characteristics of those who abuse the elderly. These studies, although they do not precisely define the characteristics of people who abuse, report that family members with mental, drug addiction and emotional problems are more likely to abuse the elderly (17). Furthermore, it was found that the abuse of the elderly is made by the sons or daughter-in-laws (11), and that the rate of the elderly who thought that the abusers are family members is 79.8% (7). In the study, the majority of the participants (83.2%) hold the family members responsible for the abuse; and the rate of those who think that the individuals with mental, physical and social problems like drug addiction or mental diseases abuse the elderly is 26.4%. The findings are supported by the results of the other studies (7,11).

Cadmus et al. reported that modernization, urbanization and the increase in the number of women in the labor force have led to a decrease in the number of the primary caregivers for the elderly, and to an increase in the rate of the abuse of the elderly in Nigeria (14). There are several studies for the causes of elderly abuse. The research analyzed several factors, such as the characteristics of the person who is abused, the characteristics of the person who abuses, the conditions of the social environment causing violence, and familial conditions (12). In addition to these, history of domestic violence may result in the abuse of the elderly. In some cases it has been reported that the adults, who received abuse during childhood, abused their families (17). Similarly, we found that a substantial proportion of the elderly were of the opinion that "If parents mistreat their child, the child will behave badly towards them in the future." Besides the reasons related to the perpetrator, victim-blaming attitudes are also common (18). Erlingsson et al. (19) found that the elderly considered themselves to bear some part of the blame for becoming victims of abuse due to situations such as grouchiness, the presence of dementia-related behavior problems, and opening the door to strangers. In this study, the fact that the majority of the elderly agreed with the statement "Older people are exposed to ill-treatment because they are doing something wrong" indicates that they blame the victim in the case of abuse.

It is challenging to obtain sufficient and accurate data on elderly abuse, because it is often hidden and presents a social problem. Although many cases of elderly abuse and neglect are reported every year, the unreported rate of elderly abuse cases is estimated to be 84% in America (15). However, when the elderly who have serious injuries, apply to healthcare institutions, the abuse can be detected. Among the factors that cause this situation to remain unreported are the elderly's fear of being sent to elderly care institutions, the elderly' being ashamed of their families's behaviors, and ill-treatment by relatives (17,19). This study found that 76.2% of the respondents thought that the cases of abuse should be reported to the judicial authorities by neighbors who witness the abuse. However, half of the participants thought that "family members should not be punished for their abusive actions" and 36.8% of the elderly thought that "elderly abuse occurring within the family should not be revealed". The results concluded from the statements show that although the participants think that it is necessary to report abuse cases, they stay unwilling about reporting when the abuse is experienced within the family. This contradiction may be considered as a reason of the reports of abuse being less. Also, as shown in Table 2, there were statistically significant sex differences in response to two of the statements in this category ($p<0.05$). It



was found that while women abstained from being punished for abusing family members, men thought that abuse is a situation that should remain within family.

In conclusion, this study found that the majority of the elderly interpreted the physical acts in the statements as abuse and that they accepted economic abuse. The elderly held family members responsible for abuse. In cases where the perpetrator was a family member, they refrained from reporting them.

It is necessary to improve the elderly's awareness of abuse and neglect. The elderly, caregivers, and family members must participate in educational processes on aging and the elderly. The scope of educational policies should include socialization requirements for persons of old age, as well as the skills and equipment that will help the elderly overcome potential problems. Research to detect and prevent abuse and the creation of national policies are also needed.

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RESEARCH

LEGAL AWARENESS OF ELDERLY ABOUT ABUSE AND NEGLECT

ABSTRACT

Introduction: The weakness and dependence of elders may expose them to abuse and neglect more than other age groups. This research aimed to evaluate legal awareness of elderly about which behaviors of abuse and neglect could be considered as criminal.

Materials and Method: A questionnaire was administered during face-to-face interviews to 74 elderly people (>65 years of age) in a nursing home in Izmir. The statistical analysis of data was evaluated by SPSS 21.

Results: Majority of the participants demonstrated legal awareness regarding physical and psychological behaviors that could be considered criminal, whereas many were unaware that these behaviors could be considered criminal even when the perpetrator acts unintentionally. Most of the participants were aware of increased penalties in cases where abuse or neglect is committed against those unable to defend themselves because of age; and for cases of torment. However it is also seen that many of them did not apply to legal ways when they experienced that type of behaviors.

Conclusion: It is important to increase awareness regarding the criminal nature of abuse and neglect against elderly and to establish effective and easily accessible legal assistance.

Key Words: Aged; Elder Abuse; Criminal Law.

ARAŞTIRMA

YAŞLILARIN İHMAL VE SUİSTİMAL KONUSUNDA HUKUKSAL FARKINDALIKLARI

ÖZ

Giriş: Yaşlılar, güçsüzlükleri ve bağımlılıkları nedeniyle, diğer yaş gruplarına göre daha fazla ihmal ve suiistimalle karşılaşabilirler. Bu araştırmada yaşlıların fiziksel ve psikolojik ihmal ve suiistimal kabul edilebilecek davranışların suç olup olmadığı konusunda hukuksal farkındalıklarının değerlendirilmesi amaçlanmıştır.

Gereç ve Yöntem: Araştırma, İzmir'de bir huzurevinde kalan 65 yaş üzerindeki 74 yaşlıya yüz yüze anket yöntemiyle yapılmıştır. Verilerin istatistiksel değerlendirmesinde SPSS 21 programı kullanılmıştır.

Bulgular: Araştırma sonucunda, katılımcıların fiziksel ve psikolojik ihmal ve suiistimal niteliğindeki davranışların suç oluşturabileceğinin çoğunlukla farkında oldukları, ancak kasıtlı yapılmadığında suç olabileceği konusunda farkındalıklarının yeterli olmadığı görülmüştür. Katılımcıların çoğunluğu yaşlılık sebebiyle kendisini savunamayacak kişiye ihmal veya suiistimal davranışında bulunulduğunda veya işkence gibi sistematik uygulama halinde cezanın artırılabileceğinin bilincindedir. Buna rağmen çoğunun bu tarz davranışlarla karşılaştıklarında yasal yollara başvurmadıkları görülmüştür.

Sonuç: Yaşlılara karşı ihmal ve suiistimalin suç oluşturabileceği konusunda farkındalığın artırılması ve etkili kolay ulaşılabilir hukuksal destek sağlanmasının yararlı olacağı düşünülmüştür.

Anahtar Sözcükler: Yaşlılık; Suiistimal; İhmal, Yasal Farkındalık; Ceza Hukuku.

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Introduction

In Turkey, elderly people comprised 8.2% of the total population in 2015 (1). Aging is associated with increasing physical and mental weakness, rendering the elderly vulnerable and dependent on others. Accordingly, the elderly are at a risk of poor treatment by other people and often face abuse and negligence.

Elderly abuse is defined by the World Health Organization as a solitary or repeated inappropriate behavior within a fiduciary relationship that causes harm or inconvenience to older people. An older person might receive abuse from her/his own family or someone within the home; abuse of the elderly may arise in institutions intended for the elderly, such as nursing or rehabilitation centers. Finally, self-negligence occurs when an older person insists on living alone despite serious threats to her/his health and safety (2).

Abuse and negligence of the elderly is an apparent worldwide problem and was first described as "granny battering" by G.R. Burston in 1975, and has been an important area of research since 1978 (3). Abuse of the elderly increased by 150% between 1986 and 1996, the average rate of elderly abuse and neglect is 4%–10%, and the most common type is physical abuse according to the USA National Adult Protection Services Report. It is stated that to raise the awareness of professionals and the public, to diagnose and report cases, multidisciplinary studies by medical and law professionals are needed, to prevent abuse and neglect and to ensure a reasonable life for the elderly, despite the existence of many regulations intended to protect the elderly in different states of USA (3-6).

In Turkey, little public awareness exists about abuse and neglect of the elderly. It is therefore unknown whether the elderly are personally aware of criminal nature of abuse and negligence to protect themselves against these types of behaviors. Abuse or negligence can affect, at minimum, the psychological health of the exposed person, even if they are unaware of the illegal nature. The aim of this study involving elderly people living in a nursing home was to determine whether old people could identify behaviors that would be considered abusive or negligent and that could also be subject to legal punishment and whether they applied to legal ways as a result of legal awareness.

Materials and Method

This study was made in İzmir Gürçeşme Nursing Home which totally had 300 residents in 2014. The criteria for acceptance to research were determined as being older than 65 years old and able to care for her/himself. Of 88 voluntary residents, who met the criteria, 14 renounced afterwards. A questionnaire containing thirty questions about sociodemographic characteristics and seven questions about legal awareness of abuse and negligence of the elderly was administered during face-to-face interviews to 74 participants.

Survey questions were prepared by researchers. Cronbach's alfa measures were used for reliability analysis of questions about abuse and negligence. Coefficient of internal consistence was found as .824. Ethical committee approval has been taken before administration of the research.

Survey questions related with abuse and negligence considered the legal definitions of acts that are harmful to the physical and mental health of a person. Participants were asked whether they understood that these behaviors could be punished under the articles of the Turkish Criminal Code (TCK).The first four questions investigated the participant's awareness of: whether these behaviors even without the intent to do harm could be punished; whether systematic implementation and suffering qualified as torment and were therefore subject to greater penalties; and whether any of these acts committed against a person with age-related vulnerability incurred a higher penalty. The last three questions addressed the participant's previous experience with acts considered to constitute abuse and negligence. Survey questions aimed to examine the participants' legal awareness through their ability to classify acts criminal and to determine whether they had undertaken legal action when they had faced any physical and psychological abuse or negligence.

Dependent variables of the study were the legal awareness of abuse and neglect, exposure to physical and psychological abuse and neglect. Independent variables were age, gender, marital status, education, occupation, social security and income level. The results were evaluated using the SPSS 21 software package. Frequency analyses was made for evaluation of sociodemographic data; chi-square test and correlation were used to analyze the relation between dependant and independent variables, and analysis of variance(ANOVA) and chi-square test were used to analyze the relation between sociodemographic data and abuse ($p<0.05$=significance, R*: $>\pm0.50$).

The main limitation of the research was participants' not replying all questions. We did not insist to get the answers if they did not reply. Some of them didn't remember the age they were exposed to abuse and negligence definitely, they replied as "many years ago" etc.

Table 1— Socio-demographic Features.

Socio-demographic Features of the Participants		Number of the Participants n (%)
Age	65-74	21 (28.4)
	75-84	47 (63.5)
	85 and older	6 (8.1)
Gender	Male	33 (44.6)
	Female	41 (55.4)
Education	Illiterate	20 (27.0)
	Literate	10 (13.5)
	Primary school	34 (45.9)
	High school	8 (10.8)
	College/university	2 (2.7)
Occupation	Worker	9 (12.2)
	Public officer	11 (14.9)
	Self-employed	14 (18.9)
	Farmer	8 (10.8)
	Housewife	29 (39.2)
	Other	3 (4.1)
Health Insurance	Yes	52 (70.3)
	No	22 (29.7)
Total		74 (100.0)

Results

Seventy-four old people, including 41 women and 33 men were participated the study. Sociodemographic features are shown in Table 1.

Legal awareness results are shown in Table 2. As seen in the table, 79.7% of the participants were aware that both physical and psychological harmful acts were considered to be crimes under Article 86 of the TCK.

Twenty-seven participants (36.5%) thought these behaviors could not legally be accepted as crimes if the perpetrator did not act with the intent to cause bodily or property damage to the victim. According to the third question, only 55.4% of the participants thought the penalty could be increased by the judge if the victim was unable to defend her/himself because of age. Most participants (78.4%) stated both physical and psychological abuse and negligence could be considered torment with a resulting increase in penalty, because of the systematic nature and associated pain and indignity.

Participants had experienced crimes against property, and theft was the highly faced one (24.3%). Of participants who declared the exposure age, 54,5% were exposed to theft when they were between 65-74 ages, 33,3% were exposed to robbery between 45-64, 66.7% were exposed to fraud between 65-74 ages and, also there were not any differences regarding to age or sex.

Fifty participants were exposed to physical abuse or negligence whereas fifty-three were exposed to psychological abuse and negligence, but only two of them applied legal ways.

Socio-demographic features and exposure to abuse and neglect are shown in Table 3.

Exposure to minor physical and psychological abuse and neglect is higher than major behaviors. The number of the participants exposed to abuse and neglect were more than other age ranges within the 75-84 age range. The number of women who exposed to physical and psychological abuse and neglect was statistically higher than men ($p<0.05$).

There were no significant correlation between dependant and independent variables.

Discussion

It is seen that researches are mostly about exposure of the elderly to abuse and negligence different than this study which examines the legal awareness mainly. The study conducted by Acierno and colleagues using data from 5777 respondents aged 60 years or older in the USA, revealed the following one-year prevalence rates: 4.6% for emotional abuse, 1.6% for physical abuse, and 0.6% for sexual abuse (7). A survey conducted in Boston in 1990 reported an elderly abuse rate of 3.2%, including a physical abuse rate of 2.2%, and a neglect rate of 4% (8). A study in Illinois showed physical, emotional, and sexual abuse among the elderly of 25%, 44%, and 4%, respectively (9). A total abuse prevalence of 4% was reported following a Canadian survey of the elderly, with financial abuse rates ranging from 1.9% to 3.3%, verbal abuse from 0.8% to 1.8%, physical abuse from 0.3% to 0.9%, and neglect from 0.2% to 0.6% (10).

A survey of "Intera-familia Physical Elder Abuse," involving 113 elderly nursing home candidates and their relatives in Istanbul, revealed that 25.6% of elderly individuals were exposed to physical abuse, mostly through face slapping and severe beating, which caused these individuals to feel lonely, sad, and desperate (11). Another study of physical abuse, financial abuse, and neglect in 204 participants older than 65 years in Izmir, found 1.5%, 2.5%, 3.5%, and 28.9% of participants were exposed to physical abuse, financial abuse, definite neglect, and probable neglect, respectively (12).

The results of this study were similar to those of a study of elderly candidates in a nursing home in Istanbul, although the rates were higher than those obtained from independent-



Table 2— Legal Awareness of Elderly About Abuse and Negligence

Questions	Number of the Participants n (%)
1. Person intentionally giving harm or pain to another person or executes an act which may l ead to deterioration of health or mental power of others. is sentenced to imprisonment from one year to three years" according to Turkish Criminal Code(TCK)Art.86. In your opinion, which one of the following acts could be accepted in this context?	
Hitting, pinching, pushing and other physical violence acts	7 (9.5)
Indignity and other similar acts of psychological violence	3 (4.1)
Both	59 (79.7)
Total	69 (93.3)
2. Could unintended negligent acts be punishable as a crime, when they lead to deterioration of physical or mental power of others?	
No if unintended	27 (36.5)
May be	16 (21.6)
Have no idea	27 (36.5)
Total	70 (94.6)
3. Would the punishment of a crime, gives harm to the health or property of a person not have self-protection ability because of being old, be increased according to TCK?	
Yes	41 (55.4)
No	6 (8.1)
Have no idea	23 (31.1)
Total	70 (94.6)
4. Acts systematically implemented and caused suffering of another person physically or psychologically with pain and indignity are defined as "torment" and punished with imprisonment from three years to eight years if committed to an old person who cannot protect her/himself due to corporal or spiritual disability. Which one of the following acts can be evaluated as "torment" in your opinion?	
Behaviors cause physical harm like injury, attack etc.	4 (5.4)
Acts giving psychologically harm; defamation, threat, sexual harassment.	3 (4.1)
Both	58 (78.4)
Total	65 (87.8)
5. Have you ever faced with any of the crimes below mentioned and against to property? If you did, please indicate the age	
Theft	18 (24.3)
Fraud	9 (12.2)
Robbery	7 (9.5)
Forgery	7 (9.5)
6. Have you ever been exposed any of the physically harmful acts undermentioned? If you did, please indicate the age	
Minor physical abuse and negligence like hitting, slapping, pushing etc.	42(56.8)
Major physical abuse and negligence like burning, tie up, forcing to sexual activity, giving harm to health in any other ways.	8 (10.8)
Total	50 (67.6)
7. Have you ever been exposed any of the below mentioned psychologically harmful acts? If you did, please indicate the age.	
Minor psychological abuse and neglects; shouting, defamation, intimidation, blaming, teasing etc.	43 (58,1)
Major psychological neglects; isolation, offended, ignorance etc.	10 (13,5)
Total	53 (71,6)
8. Did you apply legal ways when you have been exposed any of the acts fore mentioned?	
Yes	2 (3,9)
No	49 (96,1)
Total	51 (100.0)

Table 3— Socio-demographic Features and Exposure to Abuse and Neglect.

Socio-demographic Features		Number n (%)	Physical Abuse and Negligence			Psychological Abuse and Negligence		
			Minor n (%)	Major n (%)	Total n (%)	Minor n (%)	Major n (%)	Total n (%)
Total		74 (100)	42 (56.75)	8 (10.8)	50 (67.6)	43 (58.1)	10 (13.5)	53 (71.6)
Age	65-74	21 (28.4)	10 (23.8)	5 (62.5)	15 (30.0)	11 (25.6)	6 (60.0)	17 (32.1)
	75-84	47 (63.5)	28 (66.6)*	2 (25.0)	30 (60.0)	27 (62.8)*	4 (40.0)	31 (58.5)
	85 and over	6 (8.1)	4 (9.5)	1 (12.5)	5 (10.0)	5 (11.6)	- (-)	5 (9.4)
Gender	Female	41 (55.4)	24 (57.1)*	5 (62.5)	29 (58.0)	27 (62.8)*	5 (50.0)	32 (60.4)
	Male	33 (44.6)	18 (42.9)	3 (37.5)	21 (42.0)	16 (37.2)	5 (50.0)	21 (39.6)
Education	Illiterate	20 (27.0)	12 (28.6)	2 (25.0)	14 (28.0)	11 (25.6)	4 (40.0)	15 (28.3)
	Literate	10 (13.5)	6 (14.3)	1 (12.5)	7 (14.0)	7 (16.3)	0 (0.0)	7 (13.2)
	Primary School	34 (45.9)	17 (40.5)	4 (50.0)	21 (42.0)	18 (41.9)	5 (50.0)	23 (43.4)
	High School	8 (10.8)	5 (11.9)	1 (12.5)	6 (12.0)	6 (13.9)	0 (0.0)	6 (11.3)
	College/ University	2 (2.7)	2 (4.8)	- (-)	2 (4.0)	1 (2.3)	1 (50.0)	2 (3.8)
Occupation	Worker	9 (12.2)	5 (11.9)	1 (12.5)	6 (12.0)	6 (13.9)	1 (10.0)	7 (13.2)
	Public Officer	11 (14.9)	5 (11.9)	0 (0.0)	5 (10.0)	4 (9.3)	0 (0.0)	4 (7.5)
	Self-employed	14 (18.9)	7 (16.7)	2 (25.0)	9 (18.0)	6 (13.9)	3 (30.0)	9 (17.0)
	Farmer	8 (10.8)	5 (11.9)	1 (12.5)	6 (12.0)	7 (16.3)	0 (0.0)	7 (13.02)
	Housewife	29 (39.2)	18 (42.9)*	4 (50.0)	22 (44.0)	19 (44.2)*	4 (40.0)	23 (43.4)
	Other	3 (4.1)	2 (4.8)	- (-)	2 (4.0)	1 (2.3)	2 (20.0)	3 (5.7)
Health Insurance	Yes	52 (70.3)	29 (69.0)	4 (50.0)	33 (66.0)	28 (65.1)	5 (50.0)	33 (62.3)
	No	22 (29.7)	13 (30.9)	4 (50.0)	17 (34.0)	15 (34.9)	5 (50.0)	20 (37.7)

*p<0.05

ly living elderly in Izmir. The rates were higher than those of many studies conducted in other countries, which involved a broader population. Exposure to external abuse and neglect might induce some individuals to choose a nursing home. Future research should attempt a better understanding of these issues. In addition, national surveys similar to those used in the USA, Canada, and Israel (13-15), should also be conducted in Turkey to confirm the findings. To protect the elderly from abuse and neglect, it is important to draw up a comprehensive plan with the cooperation of professionals from different areas, and implement a multidisciplinary procedure, as suggested by previous studies (15, 16).

In this study, participants those aged 75–84 years were found to have greater exposure to minor and major psychological abuse and neglect ($p<0.05$). A report from 1997, however, stated in community-based studies, no association was observed between age of the victim and frequency of abuse (10).

It has been reported in a Canadian study (14) that males experience more physical abuse and negligence than females. In a study in Illinois, approximately three of every four victims were female (9). In a study based on official records from Northern Portugal, most sex offenses against the elderly were experienced by women, especially those who lived alone (17).

In the present study, more women than men were exposed to minor physical and psychological abuse and neglect ($p<0.05$). The rate of sexual abuse could not be determined because questions were classified according to abuse severity, rather than type of abuse.

Previous community-based surveys revealed that elderly abuse did not correlate with education or economic background, and victim age and abuse frequency were not associated (10). However, according to a study by Burnes, psychological and physical abuse were associated with being separated or divorced, living in a lower-income household, and being of a younger age; neglect was associated with poor health, being separated or divorced, living below the poverty line, and being of a younger age (18). There was no statistically significant difference related to education in the current study for physical abuse and neglect ($p>0.05$), but the number of elderly people who reported minor psychological abuse and neglect was higher among those with lower levels of education, as well as those who were housewives ($p<0.05$).



The two main issues of elderly abuse and negligence are a lack of awareness of the problem and difficulty in defining the acts (19). This study aimed to identify awareness regarding offenses considered to constitute abuse and neglect according to the law and to determine whether the elderly participants took legal action upon exposure. Previous studies on the rate of prosecutions resulting from elderly abuse and negligence are available (20,21), although none have addressed the awareness of older people regarding what constitutes a crime, even a minor crime, or the elements that would increase the incurred penalty. This study shows that majority of elderly people can determine whether a behavior can be classified as abuse or negligence (i.e., can be considered a crime). However, their awareness regarding the role of intention is insufficient. This can be a reason for the lack of legal proceedings, even when abuse and negligence occur. Participants mostly exposed to minor abuse and neglect types, this may be the other reason.

A total of 67.6% participants were exposed to physical abuse, and 71.6% participants were exposed to psychological abuse and neglect; however, only 3.9% of them took legal action in this study. The legal action application rate was found to be less than that reported in the study by Acierno (7) in the USA, where only 1 in 10 of the incidents were reported to the police. Only 39% of elderly abuse and negligence cases have been a matter of legal intervention according to the results of the study by Alon and Berg-Warman in Israel. Most of the cases were psychological, but legal intervention was in question for 49% of financial exploitation, 44% of physical, and 38% of psychological cases in that research. Israel has established different methods of legal intervention for the protection of the elderly against abuse and negligence; therefore, only 14% of the cases are reported to the police (19). Further explanations are that the elderly may feel embarrassed or ashamed to admit that they have a problem and need help, especially if the perpetrators are family members or they may not have legal awareness (22).

In conclusion, the elderly are much more open to abuse and neglect because of their vulnerability (23). This study determined that the elderly experience abuse and negligence and understand that these behaviors could be considered crimes. Participants generally were aware of increased penalties in cases where abuse or neglect is committed against those unable to defend themselves because of age; and also for cases of torment. However, the participants lacked sufficient legal awareness regarding the role of intention. This study also showed that few of the participants had taken legal proceedings, even a much lower rate than ones who had experienced major physical abuse and neglect. It is therefore necessary to improve the legal awareness of both the elderly and elderly care professionals with respect to abuse and negligence, and to understand why elderly people are reluctant to pursue legal proceedings. Legal assistance should be established for the protection of the elderly against these behaviors and for enhancing their quality of life. Furthermore, various measures must be taken to increase public awareness regarding the available legal proceedings.

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RESEARCH

AGEING IN THE RURAL AREA: QUALITY OF LIFE AND ASSOCIATED FACTORS IN SİVAS/TURKEY*

ABSTRACT

Introduction: This study aimed to identify the Quality of Life (QOL) and associated factors among rural elders. They represent a growing percentage in the national population today and have become increasingly isolated in villages that are being drained due to migration flows from rural to urban areas.

Materials and Method: The universe of the present cross-sectional study consists of people of and over the age of 65 living in villages of the Zara district in Sivas Province. The study sample is composed of 20 villages and 577 elderly individuals living in these villages. The data were collected with the use of a personal information form, the WHOQOL-Bref QOL scale, the Geriatric Depression scale, and the Barthel Index of Activities of Daily Living through face-to-face interviews. The data thus obtained were evaluated on the SPSS software through the implementation of the distribution measures, Mann-Whitney U test, and Kruskall-Wallis Variance test.

Results: Twenty-five per cent of the elderly individuals included in the study perceive their health status as being poor. The difference between gender, age, education, economic status, health perception, dependency information, and score averages in all subfield scores of QOL among the elderly was found to be statistically significant ($p<0.05$).

Conclusion: Advanced age, female gender, chronic disease, depression, perception of health as poor, dependency, and constantly living in a village were determined to be among the negative factors that affect the elderly's QOL.

Key Words: Rural Population; Aged; Quality of Life; Depression; Risk Factors.

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ARAŞTIRMA

KIRSAL KESİMDE YAŞLILIK: YAŞAM KALİTESİ VE İLİŞKİLİ FAKTÖRLER, SİVAS/TURKEY*

ÖZ

Giriş: Günümüzde kırdan kente doğru yaşanan hızlı göç nedeniyle boşalan köylerde giderek yalnızlaşan ve ülke nüfusu içerisinde oransal olarak artış gösteren kırsal alanda yaşayan yaşlıların Yaşam Kalitesi ve ilişkili faktörleri belirlemek amacıyla yapılmıştır.

Gereç ve Yöntem: Kesitsel tipte yapılan çalışmanın evrenini Sivas ili Zara ilçesine bağlı köylerde yaşayan 65 yaş ve üzeri nüfus oluşturmaktadır. Örneklemini ise 20 köy ve bu köylerde yaşayan 577 yaşlı birey oluşturmaktadır. Veriler yüz yüze görüşme yoluyla kişisel bilgi formu, WHOQOL-Bref Yaşam Kalitesi ölçeği, Geriatrik Depresyon ölçeği ve Günlük Yaşam Aktiviteleri İndeksi aracılığı ile toplanmıştır. Elde edilen veriler SPSS programında, dağılım ölçütleri, Mann Whitney U testi, Kruskall-Wallis Varyans testi uygulanarak değerlendirilmiştir.

Bulgular: Araştırma kapsamına alınan yaşlıların %25'i, kendi sağlıklarını kötü olarak algılamaktadır. Yaşlıların cinsiyeti, yaşı, öğrenim durumu, ekonomik durumu, sağlığı algılama ve bağımlılık durumu ile yaşam kalitesinin tüm alt alan puan ortalamaları arasındaki fark istatistiksel olarak anlamlı bulunmuştur ($p<0.05$).

Sonuç: İleri yaş, kadın cinsiyeti, kronik hastalığın olması, depresyonun varlığı, sağlığını kötü olarak algılama, bağımlı olma ve sürekli köyde yaşama gibi faktörler yaşlıların yaşam kalitesini etkileyen olumsuz faktörler olarak belirlenmiştir.

Anahtar Sözcükler: Kırsal Kesim; Yaşlılık, Yaşam Kalitesi, Depresyon, Günlük Yaşam Aktiviteleri, Risk Faktörleri.

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INTRODUCTION

Similar to other countries around the world, the elderly population in Turkey is also on the rise. According to the 2014 data from the Turkish Statistical Institute (1), the percentage of the population over the age of 65 in the general population was 3.4% in 1955, whereas this rose to 8% in 2014. Population projections give way to the estimate that the ratio of the elderly will increase by 10.2% in 2023, 20.8% in 2050, and 27.7% in 2075 (1).

The increase in the elderly population and lengthened lifespan have led to a rise in chronic, debilitating, and stressful diseases. More importance is also attached to the Quality of life (QOL). In this context, improved QOL among the elderly has become one of the most important goals in the field of health (2-4). The studies undertaken to examine QOL among the elderly indicate that age, gender, education, chronic diseases, physical incapacities, physical activity status, economic status, and depression are important factors that affect it (3-10).

The determination of QOL among the elderly and the identification of factors affecting it are of great importance for providing protective and preventive interventions for at-risk seniors (3). Thus, it is important to identify the factors affecting health with a view to improving QOL among the elderly.

After the immense attention provided by Western countries, studies on old age and QOL have also become common in Turkey in recent years; moreover, a higher number of scientific studies have been conducted on the elderly with a focus on QOL factors (2–4,5–8,10). However, since a majority of these studies emphasized on the elderly's QOL and needs in urban centers, the current knowledge of QOL in rural areas is limited and insufficient. The determination of QOL among the elderly and the identification of factors affecting it are of great importance for ascertaining the protective and preventive interventions for at-risk individuals. Therefore, the present study aimed to identify QOL and affecting factors among the elderly

MATERIALS AND METHOD

Study Design and Sample Selection

This cross-sectional study was conducted between 1st and 21st August 2014.

Universe: The universe of the present cross-sectional study comprised people of and over the age of 65 living in villages of Zara district in the Sivas Province.

Sample: The number of individuals of and over the age of 65 living in Zara and its villages is 4001 according to the data obtained from the Address-Based Population Registration System (2012) (11). The number of individuals of and over the age of 65 living in the villages of Zara is 2566. The sample size was statistically calculated through the formula $n=Nt^2 pq/d^2 (N-1)+ t^2 pq$. Accordingly, the sample included 577 elderly individuals. At the second stage, 20 villages were selected from Zara's 64 villages in the east, west, north, and south directions through the proportional stratified sampling technique. At the third stage, home addresses of 65 age and older people were taken from the village Mukhtars and data of all elderly individuals over the age of 65 were collected and the elderly to be included in the study from such households. The study identified the elderly in their villages on a regular basis to be spending at least six months a year in their respective villages.

As data collection tools, the study utilized a personal information form, the WHOQOL-Bref QOL scale, Depression Scale, and Index of Activities of Daily Living.

Personal Information Form: This form includes 20 questions to collect information regarding gender, age, marital status, education, income status, employment status, permanent or temporary living in village, chronic disease, and smoking and alcohol consumption.

WHOQOL-Bref QOL Scale: This scale, developed by the World Health Organization, comprises 26 questions related to perceived QOL in general. The study that determined the validity and reliability of the scale in Turkey was undertaken by Eser *et al* (12). The WHOQOL-Bref–TR version consists of 27 questions along with a national question added to the scale during the studies concerning its validity in Turkish. The scale covers five fields including physical health, mental health, social relationships, environment, and national environment. WHOQOL-Bref scores are calculated in a range of 0–20. The higher the scale's score, the higher the QOL is considered to be (12).

Geriatric Depression Scale: Developed by Yesavage *et al.* (13), the scale was made subject to validity and reliability studies in Turkey by Sağduyu *et al.* (14) in 1997. The scale consists of 30 questions based on self-declaration and every item in the scale is given a response of "yes" or "no.? For the scoring of the scale, 1 point is given to every response in favor of depression, while no point is given to responses that do not support depression. The consequently obtained score is regarded as the total depression score. The scale is evaluated with 0–10 points considered as a reference to "no symptoms of depression," 11–13 points as a reference to "possible depression," and 14 points and higher as a reference to "definitive depression."



Barthel Index of Activities of Daily Living: This index, developed by Mahoney and Barthel in 1965, identified the level of independence of the elderly involved in activities of daily living (15). Studies concerning its validity and reliability for Turkey were undertaken by Küçükdeveci *et al.* (16). The Barthel index operates in a score range of 0–100 with 0 signifying full dependency and 100 signifying full independence. In the Index of Activities of Daily Living, a score of 0–20 points to full dependency; 21–61 to severe dependency; 62–90 to moderate dependency; 91–99 to mild dependency; and 100 to independence.

The data were collected through face-to-face interviews held at households following the explanation of the study's objective to the elderly.

The permits necessary for the study were obtained from the Ethics Board of Abant İzzet Baysal University, Zara District Governorate, and Village Mukhtars. Each individual participating in the study was duly informed and explained that participation was voluntary. Accordingly, individuals included in the study were provided with information on the study's objective and contents and their consent was obtained thereafter.

Table 1— Socio-demographic Features of Elderly (n= 577).

Group	n	%
Age		
65-69	185	32.1
70-74	147	25.5
75-79	112	19.4
80 and older	99	17.2
Unknown age	34	5.9
Gender		
Female	324	58.2
Male	253	43.8
Educational status		
Illiterate	337	58.4
Literature	63	10.9
Elementary school graduate	165	28.6
Secondary school graduate	12	2.1
Economic status		
Good	243	42.1
Moderate	257	44.5
Poor	77	13.3
Time spent in village		
Always	148	25.6
At least six months	429	74.4

Table 2— Distribution of Health Status of Elderly.

Characteristics	n	%
Perception of health		
Good	256	44.4
Moderate	177	30.6
Poor	144	25.0
Smoking		
Never smoked	403	69.8
Current smoker	27	4.7
Given up	147	25.5
Alcohol use		
No	562	97.4
Yes	15	2.6
Presence of chronic disease (n= 577)		
Yes	490	84.9
No	87	15.1
Disease (n=490)		
Hypertension	351	71.6
Diabetes	131	26.7
Cardiovascular disease	103	21.0
Rheumatism-arthritis	39	0.8
Chronic Obstructive Lung	74	15.1
Other diseases*	19	3.8
Body Mass Index		
Normal	81	14.0
Overweight	202	35.0
Obese	294	31.5
Dependency		
Moderately dependent	237	41.1
Mildly dependent	89	15.4
Fully independent	251	43.5
Depression		
No depression	251	44.0
Possible depression	84	14.7
Definitive depression	236	41.3

*Cancer, Depression, Chronic Kidney Diseases.

The data obtained through the WHOQOL-Bref QOL scale and Barthel Index of Activities of Daily Living were evaluated on the SPSS software through the implementation of the distribution measures, Mann-Whitney U test, and Kruskall-Wallis Variance test.

RESULTS

Considering Table 1, 32.1% of the elderly included in the study were found to be in the 65–69 age group; 17.2% to be in the age group defined as 80 and above; 58.2% to be fe-

Table 3— Distribution of Average QOL Scores of Elderly.

QOL Subfields	Minimum Score		$\bar{X}$	±ss
Physical health	7	18.00	12.733	1.912
Mental health	6	19.00	13.134	2.262
Social	4	20.00	13.811	3.043
Environmental	7	20.00	14.215	2.310
National subfield	6	18.00	13.071	2.051

male; 58.4% to be illiterate; 13.3% to be in an economically poor status; and 25.6% to be living in the village on a regular basis.

Table 2 indicates that 25% of the elderly defined their perception of health as poor. Twenty-five per cent of the participants had given up smoking; 4.7% were still smoking; and 2.6% consumed alcohol.

Considering Table 3, the highest QOL score among the elderly (14.215±2.310) was observed in the environmental subfield, while the lowest average score (12.733±1.912) was detected in the physical health subfield.

Considering Table 4, the difference between gender, age, educational status, and economic status of the elderly and subfield averages of QOL was found to be statistically significant ($p<0.05$). The average scores of individuals who lived in the village during summer months in the national field and social relationships exhibited a statistically significant difference when compared to those always living in the village ($p<0.05$).

Considering Table 5, the average scores of the elderly with chronic diseases in all subfields of QOL other than social relationships were found to be lower than those not suffering from such diseases. The difference between the groups is also statistically significant ($p<0.05$). No statistically significant difference was observed between body weight and the average scores of the elderly in the subfields of QOL except for the physical health subfield ($p>0.05$). The difference between depression, dependency, and health perception of the elderly and their average scores in the QOL subfields was determined to be statistically significant ($p>0.05$).

Discussion

The present study identified QOL and relevant factors among individuals of and over the age of 65 living in villages of Zara district in the Sivas province and determined the lowest average scores in the physical health subfield and the highest average scores in the environmental subfield among the subfields of QOL. The reason behind the high scores in the environmental subfield may be due to the elderly's thorough knowledge of their surroundings and their ability to move more freely compared to urban spaces. Although not everything in the lives of the rural elderly is in consonance with their wishes, this finding may depend upon the fact that they are faced with fewer problems in transportation while visiting their relatives and friends; they communicate more easily with others; and they encounter fewer environmental problems, including air pollution, when compared to those elderly living in cities. The lower scores obtained in the physical health subfield when compared to the other subfields may be based upon the increasing pains and ills and incrementally more chronic health problems they encounter as they get older. This result may have also been affected by the fact that 84.9% of the participating elderly had been diagnosed with chronic diseases, which potentially affect their QOL; 41.3% had depression (Table 2); and they had more limited access to care and medical services provided by the public sector in rural areas.

The difference between gender, age, educational status, and economic status of the elderly and subfield averages of QOL was found to be statistically significant ($p<0.05$). The number of health problems encountered by individuals increases with age, and social inclusion and self-confidence declines among the elderly, thereby leading to a deterioration in their QOL (4.8). The relevant studies in the literature also identified a decline in average scores in the subfields of QOL along with age (3,4,5–8). These results are in concordance with the present study's findings.

The study determined the average scores of female participants in the subfields to be lower than those of male participants ($p<0.05$). The relevant studies also identified lower levels of QOL among women than among men (3-6,8,9,17). Kirchengast and Haslinger (9) reported the QOL among women over the age of 70 was lower than men of the same age



Table 4— Distribution of Average QOL Scores of the Elderly by Socio-demographic Characteristics.

	Subfields of QOL				
Characteristics	**Physical Health X ± SD**	**Mental Health X ± SD**	**Social X ± SD**	**Environmental X ± SD**	**National Subfield X ± SD**
Sex					
Female	12.413±1.931	12.661±2.302	13.530±2.995	13.546±2.293	12.524±2.032
Male	13.142±1.811	13.739±2.063	14.170±3.072	15.075±2.035	13.773±1.855
	MU=32434.000	MU=30249.000	MU=36695.000	MU=25021.000	MU=26246.000
	p=0.0001	p=0.0001	p=0.029	p=0.0001	p=0.0001
Age groups					
65-69 years	13.108±1.950	13.356±2.143	14.302±2.955	14.535±2.164	13.351±1.914
70-74 years	13.000±1.775	13.244±2.256	13.775±3.320	14.157±2.564	13.034±2.235
75-79 years	12.794±1.650	13.366±2.180	13.812±2.861	14.339±2.145	13.169±1.967
80 and older	11.828±1.938	12.478±2.422	12.899±2.822	13.798±2.276	12.717±2.045
	KW=30.995	KW=11.319	KW=15.082	KW=8.714	KW=8.574
	p=0.0001	p=0.010	p=0.002	p=0.033	p=0.036
Educational status					
Illiterate	12.412±1.931	12.792±2.251	13.563±2.931	13.664±2.312	12.614±2.061
Literature	12.666±1.750	12.529±2.365	13.587±2.751	14.254±2.023	13.079±1.789
Elementary school	13.400±1.790	14.030±2.025	14.448±3.319	15.243±2.027	13.914±1.828
Secondary school or higher	12.916±1.621	13.583±1.621	13.166±2.657	15.416±2.234	14.333±1.969
	KW=31.401	KW=37.219	KW=9.683	KW=57.167	KW=51.865
	p=0.0001	p=0.0001	p=0.021	p=0.0001	p=0.0001
Economic status					
Good	12.979±1.747	13.351±2.078	14.205±2.829	14.979±2.050	13.727±1.808
Moderate	12.657±1.946	13.221±2.278	13.645±2.999	14.011±2.167	12.906±1.944
Poor	12.207±2.178	12.155±2.534	13.116±3.652	12.493±2.495	11.558±2.227
	KW=9.745	KW=14.034	KW=5.681	KW=62.873	KW=60.449
	p=0.008	p=0.001	p=0.058	p=0.0001	p=0.0001
Time spent in village					
Always	12.094±2.007	12.747±2.257	13.547±2.775	13.331±2.408	12.317±2.125
Summers (at least six months)	12.953±1.829	13.267±2.251	13.902±3.128	14.521±2.196	13.331±1.961
	MU=24085.000	MU=27366.000	MU=29145.000	MU=22960.500	MU=23511.500
	p=0.0001	p=0.011	p=0.132	p=0.0001	p=0.0001

group. These results are similar to the findings of the present study. Özyurt *et al.* (4) emphasized that compared to men, the lower average scores obtained by women in QOL were affected by the higher incidence of chronic diseases among women and the consequential difficulties encountered by them in completing their daily chores due to a decline in physical mobility.

The study identified higher average scores in QOL among individuals with secondary school or higher education levels than others. Studies undertaken in Turkey also determined that QOL increased in consonance with the level of education (4,6,7,8,17,18). The QOL of individuals is improved and their pursuit and practices for further development heightened along with higher educational levels and this can have a positive impact on QOL. However, a striking feature is that the social subfield of QOL among the elderly of secondary school or higher educational levels exhibited lower scores than those in the other groups. The reason for this may be the higher expectations of the individuals with higher educational levels and their inability to satisfy such levels in daily life.

The studies in the relevant literature also determined that the QOL and perceptions concerning QOL are more advanced

Table 5— Distribution of Average QOL Scores of the Elderly by Health Characteristics.

	Physical health	Mental Health	Social	Environmental	National Subfield
Chronic disease					
Yes	12.646±1.943	13.017±2.246	13.795±2.952	14.118±2.301	12.981±2.033
No	13.218±1.652	13.789±2.258	13.896±3.534	14.758±2.297	13.574±2.088
	MU=17266.500	MU=17105.000	MU=20980.500	MU=17920.500	MU=17795.000
	p=0.004	p=0.003	p=0.813	p=0.018	p=0.014
Body weight					
Normal	12.543±1.923	12.814±2.495	13.493±3.122	13.753±2.718	12.592±2.407
Overweight	13.074±1.836	13.402±2.110	14.242±3.067	14.507±2.238	13.333±1.980
Obese(class 1)	12.651±1.939	13.138±2.235	13.618±3.031	14.116±2.119	12.994±1.907
Obese (class I1)	12.439±1.904	12.822±2.413	13.560±2.962	14.158±2.411	13.056±2.100
Morbid obese	11.500±2.258	13.833±0.752	13.833±2.041	14.666±1.632	13.333±1.751
	KW=11.201	KW=4.803	KW=5.785	KW=4.840	KW=4.914
	p=0.024	p=0. 308	p=0.216	p=0.304	p=0.296
Perception of health					
Good	13.359±1.679	13.628±2.036	14.234±2.707	14.705±2.087	13.431±1.859
Moderate	12.615±1.808	13.064±2.245	13.700±3.116	14.180±2.129	13.096±1.881
Poor	11.763±2.003	12.340±2.438	13.194±3.401	13.388±2.650	12.402±2.395
	KW=59.916	KW=27.020	KW=7.399	KW=24.619	KW=18.260
	p=0.0001	p=0.0001	p=0.025	p=0.0001	p=0.0001
Depression					
No depression	13.334±1.651	13.840±2.106	14.745±2.681	15.151±1.891	13.872±1.687
Possible depression	12.773±1.785	13.273±2.020	13.523±3.094	14.650±1.663	13.361±1.534
Definitive depression	12.101±2.024	12.370±2.276	12.919±3.137	13.055±2.428	12.105±2.181
	KW=49.906	KW=48.448	KW=41.907	KW=98.091	KW=87.744
	p=0.0001	p=0.0001	p=0.0001	p=0.0001	p=0.0001
Dependency on others					
Severely Dependent	12.207±1.902	12.641±2.188	13.182±2.860	13.762±2.316	12.724±2.090
Moderately Dependent	12.865±1.919	13.539±2.100	13.943±2.781	14.528±2.316	13.258±2.090
Fully Independent	13.191±1.794	13.474±2.288	14.346±3.200	14.536±2.316	13.336±2.090
	KW=38.815	KW=23.293	KW=22.946	KW=18.591	KW=13.922
	p=0.0001	p=0.0001	p=0.0001	p=0.0001	p=0.003

among individuals with a good economic status or regular monthly income (17,19). The present study also identified lower average scores in QOL among individuals with a poor economic status ($p<0.05$). These results indicate that elderly individuals should be provided with the economic support they need to sustain a minimum level in life.

The study also determined a higher average score among the elderly living in the village during summer months when compared to those who live in the village on a regular basis. Aydın *et al.* (3) found significantly higher average scores in QOL among the elderly living in cities than among those living in rural areas ($p<0.05$). As the elderly are more prone to diseases, it is of great importance for them to be able to access healthcare services. Such access is even more difficult during winter months. The reason behind the low level of QOL among elderly individuals living in villages may be represented by the problems they indicated. Participating elderly specified their important problems as insufficient infrastructure in villages, notably problems in heating and transportation during winter months, and difficulties in accessing healthcare services with an emphasis on renewing their prescriptions.

The average scores of elderly suffering from a chronic disease in the subfield of social relationships were identified to be statistically significant compared to those without such diseases ($p<0.05$). A number of studies have also identified lower levels of QOL among old individuals suffering from chro-



nic diseases (4,6). Sönmez *et al.* (2007) determined chronic diseases to be significant risk factors for QOL (2). Chronic diseases observed in old age restrict the active life of an individual, prevent them from maintaining their self-care, and reduce their QOL (20).

As shown in the relevant studies (2,18), factors such as reduced physical capabilities, decline in cognitive functions, difficulties in maintaining daily activities and social relationships, deterioration in economic status, individuals living alone, and weak social support systems increase the incidence of depression among the elderly (21) and affect the QOL of individuals. The present study also identified a lower average score among senior individuals suffering from definitive depression in QOL and all of its subfields when compared to the other groups.

Forty-four per cent of the elderly included in the study specified their health perception to be good and 25% as poor. The difference between the health perception of elderly individuals and their average scores in the subfields of QOL was identified to be statistically significant ($p<0.05$). In the scope of a study undertaken by Doğanay and Uçku (22), 39.7% of the participating elderly individuals assessed their health perception as good and 60.3% as poor. The percentage of elderly with a poor perception of health was identified to be lower in the study. However, a review of the literature has not revealed any study comparing QOL and health perception among the elderly in the society. Doğanay and Uçkun identified that poor health perception among the elderly predicted coroner incidents and death. When correlated with age, gender, economic status, educational status, and risk level, the mortality rate among old individuals with a poor perception of health was identified to be 4.4 times higher with a statistical significance.

The study did not detect a statistically significant difference between the body weight of the elderly and their average scores in all subfields except for the national subfield and physical health ($p>0.05$). Severely overweight individuals were identified to have a lower average score in the subfield of physical health. The relevant studies identified that the QOL among underweight and overweight individuals was lower than those with normal weight (12,23).

The increase in health problems encountered in old age puts further difficulty on individuals' abilities to maintain their daily lives independently. Therefore, they are faced with being dependent on others for activities of daily life in advanced age. Dependence on others for daily life becomes more common and physical incapability increases in advanced age (22). This situation affects QOL among the elderly. The present study also identified a higher average score in QOL among independent elderly individuals ($p<0.05$). The elderly with severe dependence were identified as representing lower average scores in QOL and its subfields when compared to the other groups.

Consequently, factors such as advanced age, gender, chronic disease, perception of health as poor, depression, dependency, and constantly living in a village were determined to be negative factors that affect the elderly's QOL. Along with the increase in the elderly population, protection of their QOL and provision of a higher quality of life for them should become priority objectives in healthcare not only for the present but also for the future. Specifically, women, those of and over the age of 80, those with chronic diseases, depression, severe dependency on others, poor perception of health, and those constantly living in the village are at-risk groups; they should be monitored more closely in terms of their QOL. In addition, being overweight, suffering from chronic diseases or depression should be prevented among the elderly through the provision of training, consultancy, care, and medical services.

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RESEARCH

ATTITUDES OF SURGICAL NURSES TOWARDS THE ELDERLY

ABSTRACT

Introduction: Ageism is an ideology and process that can evolve into a discrimination against the elderly because of their old age, similar to the prejudices and stereotypes inherent in racism and sexism. Ageism can be observed in health care and can affect the quality of care provided to the elderly. This descriptive study aimed to determine surgical nurses' attitudes towards the elderly.

Materials and Method: The study was conducted with 337 nurses who worked at surgery clinics in hospitals located in Trabzon, Turkey. The data were gathered using the Ageism Attitude Scale and a Personal Information Form.

Results: The mean Ageism Attitude Scale score and mean subscale scores of surgical nurses were high indicating that their attitudes towards aged were generally positive. Statistically significant differences were observed between mean total Ageism Attitude Scale scores in terms of surgical nurses' educational status and their choice to work with the elderly at the clinics. Nearly one-fourth of the nurses stated that they experienced communication problems when interacting with the elderly.

Conclusion: It is necessary to identify hindrances to effective communication and develop ways to improve communication skills. Furthermore, subjects related to ageing need to be incorporated into the current nursing education curriculum.

Key Words: Ageism; Aging; Attitude; Aged; Nurses.

ARAŞTIRMA

CERRAHİ HEMŞİRELERİNİN YAŞLILARA İLİŞKİN TUTUMLARI

ÖZ

Giriş: Yaşlı ayrımcılığı yaşlılara yönelik bir ayrımcılık, ırk ayrımcılığı ve cinsiyet ayrımcılığı gibi eyleme dönüşebilen bir ideoloji türüdür. Yaşlı ayrımcılığı sağlık bakımında görülebilmekte ve yaşlıların bakım kalitesini etkileyebilmektedir. Bu tanımlayıcı tipteki çalışma cerrahi hemşirelerinin yaşlılara ilişkin tutumlarını belirlemek amacıyla yapıldı.

Gereç ve Yöntem: Çalışma Türkiye'nin Trabzon ilindeki hastanelerin cerrahi kliniklerinde çalışan 337 hemşire ile yapıldı. Veriler Yaşlı Ayrımcılığı Tutum Ölçeği ve Kişisel Bilgi Formu kullanılarak toplandı.

Bulgular: Cerrahi hemşirelerinin Yaşlı Ayrımcılığı Tutum Ölçeği toplam puan ve alt boyut puan ortalamaları, yaşlılara karşı tutumlarının genellikle olumlu olduğunu gösterecek şekilde yüksekti. Cerrahi hemşirelerinin eğitim durumları ve klinikte yaşlılarla çalışmayı isteme durumları yönünden Yaşlı Ayrımcılığı Tutum Ölçeği toplam puan ortalamaları arasında anlamlı fark vardı. Hemşirelerin yaklaşık dörtte biri yaşlılarla ilişkilerinde iletişim problemleri yaşadığını ifade etti.

Sonuç: Etkili iletişimi engelleyen durumlar belirlenmeli ve iletişim yeteneklerini geliştirici yöntemler geliştirilmelidir. Ayrıca, yaşlanmaya ilişkin konular mevcut hemşirelik eğitim müfredatına dahil edilmelidir.

Anahtar Sözcükler: Yaşlı Ayrımcılığı; Yaşlanma; Tutum; Yaşlı; Cerrahi Hemşiresi.

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INTRODUCTION

With the advances in basic health services, the proportion of the elderly in the overall population has increased (1-3). Current predictions indicate that this population will increase from 12% in 2013 to 14% in 2025 throughout the world (4). A society is considered "old" if 7% or more of its population is aged 65 and above. Turkey passed that benchmark and currently has a population in which 8.2% are aged 65 and over with projections indicating that this percentage will increase to 10.2% by 2030 (5).

In the past decades, our societies have undergone many changes. These include shifts in attitude and behavior towards the elderly. Such changes have created many challenges that are eventually reflected in the services provided to the elderly population in a society. One of these challenges is the increase in ageism (1).

The term "ageism" was first used in 1969 by gerontologist Robert Butler, the first director of the National Institute on Aging. He identified ageism as an ideology and process that could evolve into a discrimination against the elderly because of their old age, similar to the prejudices and stereotypes inherent in racism and sexism (6,7).

In recent years, discrimination against the elderly has become more prevalent at places where health care services are provided (2,6,8,9). While some studies show that nurses working with the elderly have positive attitudes towards them (10,11), a few studies also indicate that these nurses have negative attitudes towards them (12,13). Such negative attitudes unfortunately have an adverse effect on health care for the elderly.

The current literature reveals a limited number of studies on ageism in Turkey; most studies on the subject have focused on university students' attitudes towards the elderly. Moreover, ageism studies conducted with nurses are few, and no study has thus far included surgical nurses as participiants. Based on this information, the current study was undertaken to determine surgical nurses' attitudes towards the elderly.

MATERIALS AND METHOD

Study Design

The study was undertaken to identify surgical nurses' attitudes towards the elderly.

Sample and Setting

The study was conducted in April, 2015 at seven hospitals in Trabzon, Turkey: four public hospitals, two private hospitals and one university hospital. These hospitals, located in the city centre, were chosen for the study because they serve at large proportion of the elderly in the area and have many nurses caring for them. As people age, they undergo some physiological changes and require others' help to perform their daily activities, thus creating a work load in health care. Moreover, patients' care needs increase when they undergo an operation, especially postoperatively. Therefore, nurses' work load also increases. Surgical nurses were thus included in the study. The study population comprised 420 surgical nurses working in operating rooms and surgery clinics. The pediatric surgery clinic was excluded from the study. All the nurses working at these clinics were included in the study. The study had no other limitation. 83 were excluded because they stated that they were very busy and chose not to participate, and the study was completed with 337 nurses. The participation rate was 80.2%.

Ethical Considerations

The Institutional Review Board provided the permission to conduct the study and the hospitals provided official approvals. Furthermore, informed consent forms were obtained from each nurse. In addition, permission to use this scale was obtained from Vefikulucay.

Data Collection Method and Instruments

Data were gathered using the "Personal Information Form" designed by the researcher, which was in line with the literature, and the Ageism Attitude Scale (AAS).

Personal Information Form

The Personal Information Form designed by the researcher and based on the relevant studies (2,14,15) had 23 questions divided into two parts. The first part (10 questions) addressed questions regarding age, gender and educational status while the second part (13 questions) asked about possible factors affecting attitudes towards the elderly.

Ageism Attitude Scale (AAS)

The scale has 23 items and was developed by Vefikulucay in 2008. Validity and reliability tests were performed using a Cronbach's Alfa Reliability Coefficient of 0.80 (1). The scale used the following items: "I strongly agree", "I agree", "I am uncertain", "I disagree" and "I strongly disagree". For positive scoring, the item scores were as follows: "I strongly agree" (5 points), "I agree" (4 points), "I am uncertain" (3 points), "I



disagree" (2 points) and "I strongly disagree" (1 point). For negative scoring, reverse scoring was used. The lowest score was 23 while the highest score was 115. The higher the score, the more positive was the attitudes towards the elderly. The AAS had three subscales: restricting the life of the elderly, positive ageism and negative ageism.

Procedure

As several factors may affect surgical nurses' behaviuor towards the elderly, they were informed that ageism was an important problem for the elderly, especially in health care, and that it was the focus of this study. As nurses' attitudes may affect the quality of health care, their participation in such a study is important to determine their attitudes towards the elderly. After the participants were provided detailed instructions regarding the aims and details of the study, they were given informed consent forms, followed by the Personal Information Form and the AAS. The researcher regularly visited their clinics to collect the completed forms and scales.

Data Analysis

Collected data were processed using SPSS 18.0 (Statistical Package for the Social Sciences). For the statistical evaluation of the data, percentages, mean numbers, standard deviations, and minimum and maximum figures were used. Furthermore, the t test for independent groups, the Mann-Whitney U test, one-way ANOVA and the Kruskal-Wallis Variance Analyses were also employed.

Results

As shown in Table 1, of the surgical nurses included in the research, 64.7% were 18-35 years of age, 87.5% were female, 61.5% were married, 57.0% were undergraduate or graduate students, 90.2% were living in a nuclear family, 59.3% were working at affiliated hospitals of the Association of Public Hospitals, and 79.0% had worked from three months to 11 years.

The surgical nurses' mean scores were noted to increase with their educational level. In terms of the nurses' educational status, statistically significant differences were observed among the mean AAS total scores, and mean subscale scores of restricting the life of the elderly and negative ageism ($p<0.05$). Statistically significant differences were also observed in surgical nurses' mean subscale score of negative ageism in terms of family type ($p<0.05$); however, no statistically significant differences were found among the mean AAS total score and mean subscales scores of positive ageism and restricting the life of the elderly ($p>0.05$). In this study, attitudes towards the elderly were found to be independent of surgical nurses' age, gender, marital status, hospitals and working duration (See Table 1).

The nurses' mean AAS total score was determined to be 85.0±7.7. Furthermore, the surgical nurses' mean subscale scores were 36.5±3.7 for "restricting the life of the elderly", 30.4±4.4 for "positive ageism" and 18.0±3.1 for "negative ageism" (See Table 2).

Statistically significant differences among the mean AAS total scores and mean subscale scores of restricting the life of the elderly and positive ageism were identified ($p<0.05$), however, no statistically significant differences existed in the mean subscale scores of negative ageism ($p>0.05$) in terms of nurses' preference to work with the elderly at clinics (See Table 3).

Participants stated that their attitudes and behaviors towards the elderly were influenced by lack of personnel in the workplace (82.2%), job fatigue (77.2%), job stress (68.5%) and unsatisfactory working conditions (56.4%). Furthermore, nearly one-fourth of the surgical nurses reported that they experienced problems, especially related to communication, when professionally interacting with the elderly (See Table 4).

Discussion

This study revealed that the participating surgical nurses had developed positive attitudes towards the elderly. Similar to our study, studies by Gallagher et al. (10), Liu et al. (11) and Unalan et al. (16) conducted with nurses, showed positive participant attitudes towards the elderly. In contrast, Higgins et al. (12) reported that nurses preferred working with younger rather than older people. Nonetheless, our study and other Turkish studies show similar positive attitudes and regard for the elderly. These results are likely because of the traditional behaviour and cultural patterns of Turkish life which show great respect for the elderly and a desire to protect them.

Our study results also indicated that the participant nurses' educational status affected their attitudes towards the elderly. The mean AAS total scores and mean subscale scores of restricting the life of the elderly and negative ageism of surgical nurses with undergraduate and graduate educational levels were significantly higher than those of nurses with lower educational level. Our results were supported by studies by Soderhamn et al. (17) with both student and employed nur-

Table 1— Mean Total AAS Scores and Subscale Scores of Surgical Nurses According to Their Socio-demographic Characteristics (n=337).

Socio-demographic Characteristics	n (%)	Restricting the Life of The Elderly X ± Sd	Positive Ageism X ± Sd	Negative Ageism X ± Sd	Negative Ageism X ± Sd
Age					
18 - 35	218 (64.7)	36.6 ± 3.7	30.5 ± 4.5	17.9 ± 3.1	85.0 ± 7.6
36 - 52	119 (35.3)	36.4 ± 3.7	30.2 ± 4.2	18.1 ± 3.2	84.9 ± 8.1
		t = 0.382	Z = -1.228	Z =-0.844	t = 0.129
		p = 0.703	p = 0.220	p = 0.399	p = 0.898
Gender					
Female	295 (87.5)	36.4 ± 3.7	30.3 ± 4.5	18.1 ± 3.1	84.9 ± 7.7
Male	42 (12.5)	36.9 ± 4.2	31.0 ± 3.8	17.2 ± 3.3	85.3 ± 8.4
		t = 0.734	t = 0.962	t = 1.061	t = 0.253
		p = 0.463	p = 0.337	p = 0.110	p = 0.800
Marital Status					
Married	207 (61.5)	36.7 ± 3.8	30.7 ± 4.6	18.1 ± 3.0	85.5 ± 7.8
Single	130 (38.5)	36.3 ± 3.6	30.0 ± 4.0	17.8 ± 3.3	84.1 ± 7.6
		t = 0.941	Z = -1.830	t = 0.705	t = 1.699
		p = 0.348	p = 0.670	p = 0.482	p = 0.090
Educational Level					
High school	70 (20.8)	35.5 ± 4.1	30.4 ± 4.3	17.2 ± 3.3	83.2 ± 8.2
Associate degree	75 (22.2)	35.7 ± 3.6	29.8 ± 4.1	17.6 ± 3.2	83.2 ± 7.1
Undergraduate degree and post graduate degree	192 (57.0)	37.2 ± 3.5	30.7 ± 4.6	18.4 ± 2.9	86.3 ± 7.6
		F = 7.250	F = 1.117	F = 4.801	F = 6.992
		p = 0.001	p = 0.329	p = 0.009	p = 0.001
Family Type					
Nuclear	304 (90.2)	36.4 ± 3.7	30.4 ± 4.4	17.8 ± 3.0	84.7 ± 7.7
Extended	33 (9.8)	37.3 ± 3.7	30.4 ± 4.8	19.1 ± 3.5	87.0 ± 8.2
		t = -1.301	Z = -0.264	Z = -2.866	t = -1.607
		p = 0.194	p = 0.792	p = 0.004	p = 0.109
Hospitals					
Public Hospital Union hospitals	200 (59.3)	36.3 ± 3.9	30.1 ± 4.2	17.9 ± 3.0	84.5 ± 7.5
University hospital	100 (29.7)	37.0 ± 3.2	30.5 ± 4.9	18.0 ± 3.1	85.6 ± 7.7
Private hospital	37 (11.0)	36.0 ± 4.0	31.7 ± 4.3	18.0 ± 3.8	85.8 ± 9.1
		F = 1.585	KW = 4.750	F = 0.015	F = 0.895
		p = 0.206	p = 0.093	p = 0.985	p = 0.410
Working duration (years)					
3 months - 11 years	266 (79.0)	36.5 ± 3.7	30.3 ± 4.3	17.9 ± 3.1	84.8 ± 7.5
12 years and more	71 (21.0)	36.5 ± 4.0	30.7 ± 4.9	18.2 ± 3.1	85.5 ± 8.7
		t = 0.042	Z = -0.553	t = 0.842	t = -0.656
		p = 0.967	p = 0.580	p = 0.400	p = 0.512

ses, and Furlan et al. (14), and Coffey and Whitehead (15) with employed nurses. Moreover, studies by Karlin et al. (18) and Lambrinou et al. (19) with student nurses, determined that positive attitudes increased with educational levels. Surgical nurses with higher educational levels were believed to show more positive attitudes towards the elderly because they had more knowledge and experience regarding elderly individuals' health and other issues.

Surgical nurses with extended families were revealed to have more positive attitudes towards the elderly. No statistically significant differences were observed between the groups in terms of mean AAS total scores and mean subscale scores of



Table 2— Mean Total AAS Scores and Subscale Scores of Surgical Nurses (n=337)

AAS* Subscales	n	X ± Sd	Min - Max
Restricting the life of the elderly	337	36.5 ± 3.7	25 - 45
Positive ageism	337	30.4 ± 4.4	10 - 40
Negative ageism	337	18.0 ± 3.1	7 -26
AAS Total score	337	85.0 ± 7.7	62 - 108

Table 4— Factors that Affected Behaviours Towards the Elderly According to the Surgical Nurses (n=337).

Factors that Affected Behaviours Towards the Elderly*	n	%
Lack of personnel	277	82.2
Job fatigue	260	77.2
Job stress	231	68.5
Unsuitable working conditions	190	56.4
Lack of knowledge	71	21.1
Cultural factors	63	18.7
Prejudices	57	16.9
Age of nurses	50	14.8
Religious factors	29	8.6

*Participants were instructed to mark all that apply.

restricting the life of the elderly and positive ageism. However, the mean subscale score of negative ageism of surgical nurses from extended families was significantly higher. Similar to our findings, Köse et al. (20) found that individuals from extended families showed more positive attitudes than those from nuclear families. In contrast, studies by Yılmaz and Ozkan (2) and Altay and Aydın (21) determined that individuals from nuclear families demonstrated more positive attitudes than those from extended families. Nevertheless, spending more time with the elderly and seeing their positive aspects may help in developing more positive attitudes towards the elderly.

The mean AAS total scores, and mean subscale scores of restricting the life of the elderly and positive ageism of the surgical nurses who wanted to work with the elderly were found to be considerably higher than those who did not want to work with this group. The relevant studies showed students wanting to work with the elderly after graduation showed more positive attitudes towards the elderly (21-23).

Surgical nurses who wanted to work with the elderly greatly empathised with them and felt more valued and useful while working with them, while those who did not want to do so attributed their unwillingness to communication problems, as well as burnout and mental and physical exhaustion. Similar to Ozdemir and Bilgili (22), 66.3% of the student nurses stated that they wanted to work with the elderly, while 41.8% of them expressed the desire to work with this population because they needed more care. In contrast, 42.0% and 27.0% of the nurses did not want to work with the elderly because they found it too difficult, and because their care needs were excessive, respectively (22). Since the elderly require more care than other patients, surgical nurses may feel more valued and motivated to serve the elderly. Nonetheless, communication hindrances between surgical nurses and the elderly, with fatigue and burnout, may negatively affect surgical nurses' views and they may thus choose not to work with these patients.

Surgical nurses working at clinics may encounter various difficulties when interacting with the elderly, including patient aggressiveness and dissatisfaction as well as mental problems and communication issues (24). In fact, we identified that one-fourth of the participants had work-related problems when interacting with the elderly, and all of these were due to communication difficulties.

Factors affecting surgical nurses' behaviors towards the elderly may include the cultural structure, working conditions,

Table 3— Mean Total AAS Scores and Subscale Scores of Surgical Nurses in Terms of Wishing to Work with the Elderly at Clinics (n=337).

Wish to Work With the Elderly at Clinics	n (%)	Restricting the Life of The Elderly X ± Sd	Positive Ageism X ± Sd	Negative Ageism X ± Sd	Negative Ageism X ± Sd
Yes	160 (47.5)	37.1 ± 3.4	31.4 ± 4.3	18.3 ± 3.1	86.9 ± 7.2
No	177 (52.5)	35.9 ± 3.9	29.5 ± 4.3	17.7 ± 3.1	83.2 ± 7.8
		t = 2.942	Z = -4.110	Z = -1.331	t = 4.536
		p = 0.003	p = 0.000	p = 0.183	p = 0.000

lack of personnel, lack of knowledge regarding ageing, job fatigue and job stress (25). Participants stated that several factors affect their attitudes towards the elderly; four-fifths of them cited a shortage of personnel, three-fourths named job stress, and more than half noted unsatisfactory working conditions as significant factors affecting their attitudes towards the elderly.

According to the literature, improving the working conditions of nurses working with the elderly rather than focusing on their behaviors might be more effective in changing their attitudes towards working with this population. As mentioned earlier, inadequate staffing and the elderly's need for more care increase surgical nurses' work load substantially and also contribute to nurses' fatigue, exhaustion, stress, lack of patience, tolerance and compassion towards their elderly patients. More nurses are required to eliminate negative factors such as job fatigue and stress. To achieve these goals, the number of patients per nurse needs be reduced. Nurses providing care to fewer patients will experience less job fatigue and stress, thus benefitting both nurses and patients. Promoting positive changes in surgical nurses' attitudes towards their patients and providing optimal health care services to the elderly are most important.

In conclusion the current study identified that surgical nurses' attitudes towards the elderly were generally positive. Nevertheless, nearly one-fourth of them experienced problems, especially communication problems, when professionally interacting with the elderly. These study results indicate that the nursing education curriculum needs to be significantly revised. For example, course contents should focus on developing an awareness of ageism in society and within the medical community and determine factors impairing communication with the elderly. In conclusion, nursing curriculums should integrate expanded on-the-job training pertaining to elderly care.

Limitations of the Study

As the study was conducted with nurses who agreed to participate and who worked at surgery clinics of hospitals located only in Trabzon Province's city center, the results cannot be generalised for all nurses.

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Case Report

BREAST CANCER IN A WOMAN WITH GUILLAIN–BARRÉ SYNDROME: A REMINDER TO CONSIDER PARANEOPLASTIC NEUROLOGICAL SYNDROME

Abstract

A 72-year-old woman was referred to us for Guillain–Barré syndrome rehabilitation, during which her functional status improved (Hughes score 3–2, Functional Ambulation Classification Scale 2–4, Functional Independence Measure score 99–120). Despite her improvement, discharge was postponed because of a bloody discharge from her left nipple, which started 1 day before the last visit. The final diagnosis, after an excisional biopsy, was invasive ductal carcinoma with apocrine features. Guillain–Barré syndrome is an acute, rapidly progressing inflammatory polyneuropathy, with patients typically showing symmetrical, ascending weakness with a severe loss of reflexes. The current literature describes Guillain–Barré syndrome as a probable paraneoplastic neurological syndrome and cancer precursor. Guillain–Barré syndrome with this etiology, i.e., paraneoplastic neurological syndrome, may result from remote effects with immunological mechanisms that are not directly caused by the tumor or metastases infiltration. Guillain–Barré syndrome may develop as a paraneoplastic neurological syndrome, may be secondary to treatment, or may occur coincidentally with cancer. Because paraneoplastic neurological syndrome occurs at an early stage of cancer before metastasis, it is important to consider paraneoplastic neurological syndrome when evaluating Guillain–Barré syndrome patients.

Key Words: Breast Neoplasms; Guillain-Barré Syndrome; Paraneoplastic Syndromes

Olgu Sunumu

GUİLLAİN-BARRÉ SENDROMLU BİR KADINDA MEME KANSERİ-PARANEOPLASTİK NÖROLOJİK SENDROMLAR İÇİN BİR HATIRLATMA

Öz

Guillain-Barré sendromu saptanan 72 yaşındaki kadın hasta, rehabilitasyon amacıyla tarafımıza yönlendirildi. Rehabilitasyon sürecinde, fonksiyonel düzeyinde bir kazanım elde edildi (Hughes skoru 3'ten 2'ye, Functional Ambulation Classification düzeyi 2'den 4'de, Functional Independence Measure skoru 99'dan 120'ye değişim gösterdi). Bu gelişmeye rağmen, son vizitten bir gün önce sol meme ucundan gelen kanlı akıntı şikayeti nedeniyle taburcu işlemi ertelendi. Eksizyonel biyopsi sonucu nihai tanı apokrin özellik taşıyan invasiv ductal carcinoma olarak tanımlandı. Guillain-Barré sendromu akut, hızlı progresyon gösteren bir inflamatuar polinöropati dir. Bu hastalarda çoğunlukla reflex kaybının eşlik ettiği, simetrik, asendan güçsüzlük saptanır. Güncel literatürde, Guillain-Barré sendromu muhtemel paraneoplastik sendrom ve kanser öncüsü olarak tanımlanır. Bu tür bir Guillain-Barré sendromu, yani paraneoplastik sendrom; tümör veya metastaz infiltrasonunun doğrudan etkisi dışında, immünolojik mekanizmalara bağlı oluşan uzak bir etkiden kaynaklanabilir. Guillain-Barré sendromu; bir paraneoplastik sendrom olabilir, kanserle birlikte tesadüfi olarak veya tedaviye ikincil olarak gelişebilir. Bununla birlikte, paraneoplastik sendromun metastazlar oluşmadan önce, kanserin erken evresinde ortaya çıkması, Guillain-Barré sendromu olarak değerlendirilen tüm hastalarda paraneoplastik sendromu düşünmeyi elzem kılar.

Anahtar Sözcükler: Guillain–Barré Sendromu; Meme Kanseri; Paraneoplastik Sendrom.

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Introduction

Guillain–Barré syndrome (GBS) is an acute inflammatory polyneuropathy that leads to numbness in the extremities, paresthesia, muscle weakness, and pain. It is characterized by progressive, symmetrical ascending weakness and loss of reflexes. Even when treated, GBS has a mortality of about 5%. The pathophysiology of this idiopathic peripheral nervous system disease is not well understood. It occurs rarely after administration of medication or vaccines or after surgery. The majority of GBS cases occur after respiratory or gastrointestinal infections (1).

Paraneoplastic neurological syndrome (PNS) occurs in malignancies and can present as peripheral neuropathy (2). GBS has been reported in patients with various malignancies, including leukemia, lymphoma, and colorectal, esophageal, breast, and small-cell lung cancer. It is not clear whether such cases of GBS are coincidental or are reflective of PNS (3-6). However, the current literature suggests that a case of GBS may be seen as a "probable" PNS and thus a precursor of cancer (7). We present a case in which breast cancer was detected in a patient undergoing rehabilitation for GBS. Our aim is to raise the level of sensitivity to PNS because clinicians tend to overlook this possibility.

Case Report

A 72-year-old woman with a history of upper respiratory tract infections was referred for GBS rehabilitation. She presented initially with an extensor weakness of the third phalange of the right hand, followed by weakness of the feet and hands manifesting on the same day, and was admitted to our neurology department. There was no evidence of any pathology on cervical magnetic resonance (MR) and diffusion-weighted MR imaging. Electromyography (EMG) revealed sensorimotor polyneuropathy characterized by axonal degeneration in the lower extremities. Following treatment with immunoglobulin for GBS, her clinical status stabilized and she was transferred to our clinic for rehabilitation. Initial physical examination revealed areflexia and symmetrical bilateral weakness in both upper (elbow flexion and extension 4/5, wrist extension and finger flexion 3/5) and lower (hip, knee, and ankle flexion and extension, 3/5, 4/5, and 4/5, respectively) extremities. No sensory impairments were noted. Laboratory findings were normal except for anemia (Hb = 9.4 g/dL). The patient did not consent to endoscopy and colonoscopy to investigate the cause of anemia. The patient's functional status improved during rehabilitation (Hughes score 3–2, Functional Ambulation Classification Scale 2–4, Functional Independence Measure score 99–120). Despite her improvement, discharge was postponed because of a bloody discharge from her left nipple that began 1 day before the last rehabilitation visit. Bilateral breast ultrasound revealed irregular contours of the left breast ducts and an intense, heterogeneous appearance of the entire outer quadrant of glandular tissue. Mammography detected a suspicious lobular pathology in the left breast, but could not exclude mastitis. A smear preparation of the nipple secretion was diagnosed with malignant cytology. Dynamic contrast-enhanced MR mammography detected a mass with asymmetric opacity in the left breast (ACR-BI RADS 4c). A Tru-Cut® biopsy of this area was diagnosed as atypical apocrine hyperplasia suspicious for *in situ*/invasive carcinoma. The final diagnosis on excisional biopsy was invasive ductal carcinoma with apocrine features.

Discussion

Despite appropriate treatment, disability or even death occur in approximately 20% GBS cases. Accurate diagnosis of GBS in the acute period is vital. The Brighton Collaboration GBS case definitions and guidelines include recommendations for the collection of patient data related to diagnostic certainty. Clinical case definitions are graded in four levels with level 1 as the most certain diagnosis (Table 1) (8, 9).

Because our patient was on anticoagulant therapy, we did not perform a lumbar puncture for evaluation of cerebrospinal fluid (CSF). However, electrophysiological findings of sensorimotor polyneuropathy characterized by axonal degeneration in the lower extremities were consistent with GBS. The EMG findings satisfied neurophysiological criteria that supported acute motor and sensory axonal neuropathy, in which the neurological deficits are both sensory and motor (10). At the same time, alternative diagnoses of weakness, diseases affecting the brain, spinal cord, and peripheral nerves or neuromuscular junctions and muscles were excluded. For our patient, the diagnostic certainty was determined to be Level 2 (Table 1). She had bilateral, flaccid weakness of the limbs, areflexia, a monophasic illness pattern, i.e., weakness that did not continue to worsen after the first 9 weeks of disease, electrophysiological studies consistent with GBS, and absence of an alternative diagnosis of weakness.

Cancer can lead to dysfunction of the peripheral nervous system, with peripheral neuropathy related to adverse effects of treatment (chemotherapy or radiotherapy) or to local inva-

Table 1— Brighton Collaboration Diagnostic Criteria and GBS Case Definitions (8,9).

Diagnostic Features	Diagnostic Certainty			
	Level 1	Level 2	Level 3	Level 4
1. Bilateral and flaccid weakness of the limbs	+	+	+	+/-
2. Decreased or absent deep tendon reflexes in weak limbs	+	+	+	+/-
3. Monophasic illness pattern and interval between onset and nadir of weakness between 12 h and 28 days, subsequent clinical plateau	+	+	+	+/-
4. Electrophysiological findings consistent with GBS	+	+		+/-
5 and 6-CSF albuminocytological dissociation	+			+/-
5. Elevation of CSF protein level above laboratory normal value	+	+/-		+/-
6. CSF total white cell count <50 cells/ìl	+	+		+/-
7. Absence of an identified alternative diagnosis for weakness	+	+	+	+
	1+2+3+4+5+6+7	1+2+3+4+6 or 4+7	1+2+3+7	7

CSF: cerebrospinal fluid.

sion by malignant cells (11). Cancer may also cause PNS, which consists of remote effects with immunological mechanisms that are not directly caused by the tumor or metastases. PNS is rare, detected in fewer than 1/10,000 patients (12, 13), and the presence of a cancer etiology varies with neuropathy type. The involvement of cancer was observed in 47% sensory neuropathies, but in only 1.7% GBS cases. PNS may involve the central and peripheral nervous systems, and its severity has been attributed to inflammatory processes that can cause irreversible destruction of neural structures (14).

The definitions and diagnostic criteria of PNS include a group of "classical" syndromes that are often associated with cancer (e.g., subacute sensory neuronopathy and chronic intestinal pseudo-obstruction). The finding of a classical syndrome requires a search for a hidden malignancy even if onconeural antibodies not detected. GBS is seen as a "non-classical" PNS, and is a member of a subgroup of acute sensory–motor neuronopathies. It is not affiliated with well-known onconeural antibodies such as anti-Hu, Yo, CV2, Ri, Ma2, or amphiphysin (2). PNS is determined to be either definite or possible, classical or non-classical, by specific diagnostic criteria (Table 2). These are the time between cancer diagnosis and neurological disease diagnosis, improvement of neurological disease after treatment of cancer, and the presence or absence of onconeural antibodies. A non-classical PNS with absence of onconeural antibodies, and a cancer diagnosis within 2 years can be considered to be a "possible" PNS, i.e., possibly related to cancer (2).

Because of the diagnosis of GBS, our case was a non-classical PNS. We were not able to determine whether onconeural antibodies were present, but Graus et al. (2), propose testing for onconeural antibodies only if cancer has not yet been detected. Furthermore, absence of these antibodies cannot rule out a diagnosis of PNS. We diagnosed breast cancer in our patient within 2 months of diagnosing GBS. Given the nature of this case, we accept it as a possible PNS.

In a prospective multicenter study that included 979 patients with PNS, the most common neoplasias were small-cell lung cancer, ovarian cancer, breast cancer, and non-small-cell lung cancer. When PNS was diagnosed; 262 patients had local cancer, 360 had regional cancer, and 150 had metastatic cancer. These results indicate that PNS developed in the early stages of cancer or in cancers with limited spread (4). In fact, PNS can occur months or years before the cancer is diagnosed (13). However, another study interpreted 16 PNS cases as acute inflammatory polyradiculoneuropathy and coincidentally associated with cancer (7). Cancer and GBS were diagnosed simultaneously in seven of 435 GBS patients. The group was followed up for 9 years, and nine additional patients were diagnosed with cancer within 6 months. In that group of GBS patients, the incidence of cancer was found to be higher than that expected in the normal population (6). A study of PNS in gynecological cancer patients revealed four of the 45 breast cancer cases with possible PNS and two with GBS. One case of GBS appeared simultaneously with, and the other appeared 4 months after, the breast cancer diagnosis (15).



Table 2— Diagnostic Criteria for Paraneoplastic Neurological Syndromes (PNS) (2).

	Diagnostic Criteria			
	Type of Neurological Syndome	**Cancer Development Time**	**Improvement After Cancer Treatment**	**Onconeural Antibodies**
Definite PNS	Classical*	Within 5 years	-	-
	Non-classical**	-	+	-
	Non-classical	Within 5 years	-	+ (well characterised *** or not)
	Classical or Non-classical	-	-	+ (well characterised)
Possible PNS	Classical	-****	-	-
	Classical or Non-classical	-		+ (partially characterise)
	Non-classical	Within 2 years		-

*: Encephalomyelitis, limbic encephalitis, subacute cerebellar degeneration, opsodomus-myoclonus, subacute sensory neuronopathy, chronic gastrointestinal pseudo-obstuction, Lambert-Eaton myasthenic syndome, Dermatomyositis
**: Acute sensorimotor neuropathy (GBS, brachial neuritis), subacute or chronic sensorimotor neuropathies...
*** anti-Hu, Yo, CV2, Ri, Ma2, or amphiphysin
****: no cancer, but at high risk to have an underlying tumor

In conclusion, GBS may develop as a PNS, may develop secondary to treatment, or may be coincidental with a cancer diagnosis. This is open to debate. However, as PNS occurs in early stage cancers and before metastasis, it is important to consider GBS as a possible PNS.

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TURKISH JOURNAL of GERIATRICS AUTHOR INDEX for 2016
TÜRK GERİATRİ DERGİSİ 2016 YILI YAZAR DİZİNİ

Filiz ABACIGİL; 87
Hakan Ahmet ACAR; 54
Ülkü AKARIRMAK; 128
Betül AKBUĞA ÖZEL; 154
Yeliz AKKUŞ; 19, 113
Mehmet Naci ALDEMİR; 27
Tamay ALPİN FİNCİ; 133
Mustafa ALTINDİŞ; 183
Ali ARIKAN; 87
Ferda ARTÜZ; 50
Ayhan AŞKIN; 58
Şehri AYAŞ; 174
Özlem AYDEMİR; 183
?Ali AYDENİZ; 9
Erbil AYDIN; 42
Ezgi AYDIN; 9
Kutlay AYDIN; 67
İdil AYSIN; 58
Gül BABACAN ABANONU; 139
Süleyman BADEMLER; 162
Mert BAŞARAN; 35
Caner BAYDAR; 228
İnan BEYDİLLİ; 81
Beliz BİLGİLİ; 133
Mehmet BİLİCİ; 27
Pınar BORMAN; 9
Feyzi BOSTAN; 139
Nihal BOSTANCI DAŞTAN; 113
Enes BULUT; 253
Aslı CAN; 146
Eylem CANKURTARAN ŞAHİN; 146
Funda CERAN; 50
Ceyhun CESUR; 63
Özgür CİN; 81
Hasan Şenol COŞKUN; 169
Aytül ÇAKCI; 146
Volkan ÇAKIR; 58
Haluk ÇALIŞIR; 203
Mehtap ÇAVUŞOĞLU; 107
Pervin ÇAVUŞOĞLU; 133
Kerim ÇAYIR; 27
Ayhan Hilmi ÇEKİN; 139
Bülent ÇELİK; 42
Elif ÇELİKEL; 154
Ayşe Yılmaz ÇİFTCİ; 50
Gülşen ÇIĞŞAR, 19
Dilek ÇİLİNGİR; 253
Gülseren DEMİR; 9
Tayfur DEMİRAY; 183
Fuat DEMİREL; 146
Metin DİNÇER; 74
Ahmet DİRİCAN; 133
Asuman DOĞAN; 9
Deniz DOĞAN; 1
Cihan DÖĞER; 74
Süleyman DOLU; 139
Semra DURAN; 107
Hasan Mansur DURGUN; 217
Bekir DURMUŞ; 9
Recep DURSUN; 217
Ela DÜZCE; 260
Tamer EDİRNE; 122
Emel EKŞİOĞLU; 146
Günal ELNARE; 19
Esma ERDEMİR ÖZTÜRK; 19
Fikret EREN; 63
Begüm ERGAN; 67
Dilek ERGÜN; 67
Recai ERGÜN; 67
Kutlu Hakan ERKAL; 54
Sibel ERKAL; 195
Cemalettin ERTEKİN; 162
Deniz EVCİK; 9
Sibel EYİGÖR, 9
Hande EZERARSLAN; 35
Mustafa Vecdi GEÇİN; 101
Fazıl GELAL; 58
İrem GENÇ; 50
Ali Fuat Kaan GÖK; 162
Yeşim GÖKÇE KUTSAL; 9
Derya GÖKÇINAR; 74
Kutay O. GÖKKAYA; 9
Sema Sezgin GÖKSU; 169
Süheyla GÖRAR; 139
Nuran GÜLER; 245
Zühal GÜLER; 245
Cahfer GÜLOĞLU; 217
Recep GÜLOĞLU; 162
Nebi Mustafa GÜMÜŞ; 101
Rojan GÜMÜŞ; 189
Elif GÜNAYDIN; 107
Rezzan GÜNAYDIN; 9
Şeyda GÜNDÜZ; 169
Mehmet Yavuz GÜRLER; 139
Ece GÜVENDİ; 58
Fikret HALİS; 183
Sami HİZMETLİ; 9
Afitap İÇAĞASIOĞLU; 95
Mustafa İÇER; 217
Mehmet İLHAN; 162
Kadriye KAHVECİ; 74
Işıl KALAYCI; 232
Feride Aylin KANTARCI; 223
M. Nabi KANTARCI; 223
Mustafa KARAAĞAÇ; 169
Ercan KARABACAK; 63
Melek KARAKURT ERYILMAZ; 169
Gülşah KARAÖREN; 133
Ayşe KARHAN YARICI; 74
Cemil KAVALCI; 154
Mesut KAYA; 101
Gülseren KAYALAR; 9
Afşin Emre KAYIPMAZ; 154
Bilge KESİKBURUN; 146
Saffet KILIÇASLAN; 228
Derya KIVRAK SALİM; 169
Melahat KIZIL; 238
Ümmü Gülsüm KOCALAR; 154
Hikmet KOÇYİĞİT; 58
İlhan KORKMAZ; 81
Mehmet KÖROĞLU; 183
Nalan KOZACI; 81
Ahmet KÜPELİ; 232
Burhan KURTULUŞ; 42
Murat KUTLU; 122
Ercan MADENCİ; 95
Elmas Burcu MAMAK EKİNCİ; 154
Cenk MELİKOĞLU; 63
NilgÜn MESC; 95
Erkan MESCİ; 95
Özgür Cem MÜSRİ; 169
Hasan MUTLU; 169
Hamza OGUN; 203
Mehmet OKAN; 42
Pınar OKYAY; 87
Murat ORAK; 217
Nesrin ÖCAL; 1
Ayşe ÖKTEM; 50
Mustafa ÖZBAYRAK; 128
Ahmet ÖZBEK; 183
Hande ÖZDEMİR; 260
Serhat ÖZER; 1
Bayram ÖZHAN; 122
Gökhan ÖZKAN; 87
Metin ÖZKUL; 232
İpek ÖZMEN; 203
Doğancan ÖZSEL; 245
Pınar ÖZTOP; 9
Özden ÖZYEMİŞCİ; 9
Nurdan PAKER; 9
Melek Beyza PALAS; 19
Serhat PİRİNÇÇİ; 87
Bülent SAKMAN; 107
Hamza SANMAN; 146
Sacide Nur SARAÇGİL COŞAR; 174
Seyfettin SARIBAŞ; 189
Neşe SARIKAYA; 58
Yiğit SOYTAŞ; 162
Bedriye Müge SÖNMEZ; 81
Ayşe Pervin SUTAŞ BOZKURT; 133
Hande ŞAHİN; 195
Nilay ŞAHİN; 9
Yasin ŞAHİNTÜRK; 139
M. İlgi ŞEMİN; 238
Abdullah ŞEN; 217
Savaş ŞENCAN; 174
Ufuk ŞENER; 228
Melih ŞİMSEK; 27
Zahide ŞİMŞEK; 146
Zeynep ŞİŞLİ; 238
Sibel SÜZEN ÖZBAYRAK; 128
Huri TAŞ; 74
Zahide TAŞ; 139
Gürhan TAŞKIN; 1
Ebru TAŞTEKİN; 260
Gökhan TAZEGÜL; 169
Salim Başol TEKİN; 27
Esra TEMÜGAN; 101
Güler TEPE; 81
Tülay TÖRÜN; 203
Filiz TUNA; 260
Hakan TUNA; 260
Mehmet TÜRKEL; 27
Esra TUTAL; 146
Murat ULUDAĞ; 128
Sinan ULUYOL; 228
Seyit UYAR; 139
Devrim Tuba ÜNAL; 50
Selim ÜNSAL; 1
Mehmet ÜSTÜNDAĞ; 217
Nursun ÜSTÜNKARLI; 238
Banu VURAL GÖKAY; 133
Halil İbrahim YAKAR; 203
Başak YALÇIN; 211
Fatma YALÇIN MÜSRİ; 169
Ünzile YAMAN; 1
Levent YAMANEL; 1
Sercan Özbek YAZICI; 232

Ekrem YETER; 146
Harun YETİMOĞLU; 27
Elif YILDIRIM; 203
NilgÜn YILDIRIM; 27
Birol YILDIZ; 1
Fevzi YILMAZ; 81
İsmail YILMAZ; 63
Kerem YILMAZ; 183
Ahu YORULMAZ; 211
Yücel YÜCE; 54
Melike YÜCEEGE; 146
Mustafa YÜKSEL; 101
Sasan ZARDOUST; 9
Yılmaz ZENGİN; 217

TURKISH JOURNAL of GERIATRICS SUBJECT INDEX for 2016

Accident; 195
Accidental Falls; 174, 195
Aged; 1, 19, 27, 253
Ageism; 253
Aging; 203
Apache; 133
Arteriovenous Fistula, 58
Attitude; 122, 253
Audiometry; 101
Autopsy; 81
Bacterial/Epidemiology; 211
Bone Nails; 42
Breast Neoplasms; 260
Burns; 54
Cervical Vertebrae; 128
Cholecystectomy, 162
Chronic Disease, 19
Chronic Obstructive; 67
Chronic Pain; 9
Cognitive Function; 113
Congenital Abnormalities; 128
Conjunctiva; 223
Craniocerebral Trauma; 217
Criminal Law; 238
Critical Care; 1
Depression; 113, 245
Disease Progression; 67
Disease; 146
Drowning; 81
Drug Resistance, 183
Drug Therapy; 27
Education; 122
Elder Abuse; 232, 238
Elder Neglect; 232
Emergency Service; 154
Emergency Treatment; 19
Emergency; 19
Erythrocyte Indices; 35
Escherichia Coli; 183
Eustachian Tube; 101
Euthyroid Sick Syndromes; 67
Eye Hemorrhage; 223
Fibrinolytic Agents; 223
Fracture Fixation; 42
Frail Elderly; 203, 211
Gallstone; 162
General Surgery; 169
Geriatric Assessment; 139
Geriatric; 1
Guillain-Barré Syndrome; 260
Health Status Indicators; 133
Hearing Loss; 35, 228
Hearing Tests; 101
Hemiarthroplasty, 42
Hip Fractures; 42
Home Health Nursing; 74, 189
Home; 195
Hospital; 154
Hypertension; 223
Hyponatremia; 139
İntervertebral Disc Degeneration; 107
Intra-medullary; 42
Laparoscopic; 162
Ligamentum Flavum; 107
Low Back Pain; 95
Lymphocyte; 35
Lymphoma; 50
Magnetic Resonance Imaging; 107
Mantle-Cell; 50
Mean Platelet Volume; 35
Medical; 122
Microbial; 183
Mortality; 1, 67, 81, 139, 169, 217
Mycosis Fungoides; 50
Neck Pain, 128
Neoplasm Metastasis; 27
Neuralgia; 9
Neutrophils; 35
Nurses; 253
Nursing Homes; 87
Oral health; 87
Outcome Assessment (Health Care)/methods; 133
Palliative Care; 74
Paraneoplastic Syndromes; 260
Paraparesis; 58
Parkinson Disease; 228
Patient Discharge; 74
Perception; 232
Pneumonia; 1, 203
Postural Balance; 95, 174
Potentially Inappropriate Medication List; 146
Presbyacusis; 228
Prostatic Hyperplasia; 183
Pulmonary Disease, 67
Qualitative Research; 122
Quality of Life; 245
Rehabilitation; 58
Risk Factors; 245
Rural Population; 245
Scoliosis, 128
Skin Diseases, 211
Skin Diseases/Epidemiology; 211
Spinal Canal; 107
Spinal Cord/Abnormalities; 128
Spinal Dural; 58
Stomach Neoplasms; 27, 169
Sudden; 35
Tinnitus; 228,
Triiodothyronine; 67
Urinary Tract Infection; 183
Violence; 54
Viral/Epidemiology; 211