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RESEARCH

THE PREVALENCE OF CHRONIC DISEASE AND DRUG USE IN THE ELDERLY IN CENTRAL KIRŞEHİR

ABSTRACT

Introduction: The aim of this study was to investigate the prevalence of chronic diseases and drug use in the elderly in central Kırşehir.

Materials and Methods: Randomly selected 290 elderly participants registered at six Family Health Centers in Kırşehir were interviewed between March and July 2009. A questionnaire form developed by the researchers was used as the data gathering tool. For analysis of the data, percentage, arithmetic mean, and Chi-square tests were used.

Results: All of the participants had a diagnosis of at least one disease and used prescribed (80.3%) or prescribed plus over the counter (19.7%) drugs. The most frequent chronic diseases were hypertension and cardio-vascular diseases. The most frequently used drugs were antihypertensive, anti-inflammatory, cardiovascular system drugs, and analgesics. The most commonly used over the counter drugs were analgesics . Of the elderly 17.2% had a complaint of side effects such as stomach-ache(40.0%) and head-ache (24.0%). An association was found between the number of chronic diseases present and age ($p<0.01$), education status ($p<0.05$), and the number of prescribed drugs used ($p<0.001$). No association was found between drug use and age, gender, education and economic status (all $p>0.05$).

Conclusion: Prevention strategies at an earlier age may reduce the prevalence of chronic disease and drug use in the elderly.

Key Words: Aged; Chronic Disease; Prevalence; Drug utilization review; Adverse effects; Nonprescription drugs.

ARAŞTIRMA

KIRŞEHİR İL MERKEZİNDEKİ YAŞLILARDA KRONİK HASTALIK PREVALANSI VE İLAÇ TÜKETİMİ

ÖZ

Giriş: Bu çalışmanın amacı Kırşehir il merkezinde yaşayan yaşlılardaki kronik hastalık prevalansını ve onların ilaç tüketimlerini incelemektir.

Gereç ve Yöntem: Kırşehir il merkezindeki altı Aile Sağlığı Merkezine kayıtlı, rastlantısal örneklem yöntemi ile seçilen 290 yaşlı katılımcıyla Mart-Temmuz 2009 tarihleri arasında görüşüldü. Araştırmacılar tarafından geliştirilen soru formu veri toplama aracı olarak kullanıldı. Verilerin analizinde yüzdelik, aritmetik ortalama ve ki-kare testleri kullanılmıştır.

Bulgular: Yaşlıların tamamının en az bir kronik hastalığı bulunmaktadır. Hipertansiyon ve kalp hastalığı en çok görülen kronik hastalıklardır. Yaşlıların %80,3'ünün reçeteli, %19,7'sinin ise reçeteli ve reçetesiz olmak üzere tamamının ilaç kullandığı saptanmıştır. Antihipertansif, antiinflamatuar, kardiyovasküler sistem ilaçları ile analjezikler en çok kullandıkları ilaç türleridir. Reçetesiz olarak en çok analjezik kullandıkları belirlenmiştir. Yaşlıların %17,2'si ilaçların yan etkisinden şikayetçi olup bu konuda en çok mide ağrısı (%40), baş ağrısı (%24) gibi yan etkiler yaşadıklarını belirtmişlerdir. Kronik hastalık sayısı ile yaş ($p<0,01$), eğitim durumu ($p<0,05$) ve reçeteli olarak tüketilen ilaç sayısı ($p<0,001$) arasında anlamlılık bulunmuştur. İlaç tüketimi ile yaş, cinsiyet, eğitim ve ekonomik durum arasında anlamlı bir fark bulunamamıştır (tümü $p>0,05$).

Sonuç: Daha erken yaşlardaki koruyucu önlemlerle yaşlılıktaki kronik hastalık prevalansı ve dolayısıyla ilaç tüketimi azaltılabilir.

Anahtar Sözcükler: Yaşlı; Kronik hastalık; Prevalans; İlaç tüketimi; Yan etkiler, Reçetesiz ilaç.

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INTRODUCTION

Between the years 2000 and 2050, the worldwide population of people over 65 years of age is expected to more than double from 6.9% to16.4% (1). In Turkey, from 1985 to 2000, the proportion of older persons in the total population increased from 4.2% to 5.7%. Projections show that this proportion will increase to 9.1% by 2025 (2). This dramatic increase in the number of elderly persons warrants more attention to the health-related, social and economic needs of the elderly (3). Turkey has one of the fastest growing proportions of older citizens. Moreover, it is reported that of those over 65 years of age, 90% have at least one, 35% have two, 25% three and 15% four and more chronic health condition (4). The prevalence of chronic diseases and polypharmacy has increased in the older population (5).

Safety of drug use, which is defined by the maximum efficacy, safety of the drug and its convenience for the patient and cost-benefit relation are significant for all age groups. However, it is much more so for geriatrics. Polypharmacy (prescription or OTC) is a common concern in relation to seniors' health (6-8). People who take several medications at a time are more likely to have adverse drug reactions and seniors are particularly vulnerable because of co-morbidities and age-related physiological changes (8,9). Therefore, physicians and other health professionals working in this chain should pay great attention to the safety of drug use in the elderly group. Studies are needed to find the most effective way to reduce polypharmacy, especially in the frail elderly population, and to quantify the real advantages of simplifying their drug regimens in terms of improved quality of life (6).

There are a few studies concerning the prevalence of chronic disease and drug use in elderly in Turkey. The aim of the cross-sectional study was to investigate the prevalence of chronic diseases and drug use in elderly people in central Kırşehir.

MATERIALS AND METHOD

Participants were selected from Kırşehir, a city inhabiting 4150 elderly people (65 years and older) (10). The study was approved by the institutional review board. There are nine Family Health Centers in Kırşehir, but three of them are far from the city center. Elderly participants registered at six Family Health Centers in Kırşehir were interviewed between March and July 2009. Using $n=Nt^2pq^2/d^2(N-1)+t^2pq$ ($t=1.96$, $p=0.70$, $d=0.05$), 290 elderly out of 4150 living in central Kırşehir were selected. Participants were informed on the aim of the study, and were asked if they agreed to participate in the interview. The researcher told the participants that they could withdraw from the study at any time and that all information would be kept strictly confidential by the researcher.

A semi structured questionnaire form was used for the data collection. The questionnaire was developed by the researchers after a review of the related literature (11-18). The instrument included questions on socio-demographic information, chronic diseases and drug use. Socio-demographic measures included the participant's gender, age, economic status, education level, current marital status, profession, and health insurance status. Questions on chronic diseases included name/s and number/s of their chronic diseases. Data on drug use was collected from medical records. Participants were asked whether they took over the counter drugs. Participants were also asked about the types of over the counter drugs taken, and their side effects, followed by the question, "Who introduced you to the over the counter drug (family member, friend, relatives, neighbor, health care professionals, pharmacist or others)?" It was piloted with ten elderly people in order to determine the time needed for application and to test for clarity and logical flow. In this study, internal consistency of the number of chronic diseases and drugs used was found to be good for the elderly. Cronbach's alpha for the number of chronic diseases and drugs used was 0.73.

The SPSS program was used for the statistical analysis. For analysis of the data, statistical methods such as; percentage, arithmetic mean and Chi-square tests were used.

RESULTS

Of the 290 elderly subjects, 150 were women (51.7%) and 140 (48.3%) were men. The arithmetic mean age was 71.17 years (SD 5.54). Of these participants, 65.2% were married, and 31.7% were primary school graduates, 46.6% housewives, 44.5% retired, and 95.9% had social security coverage. Most of the participants described their incomes as "income < expenditure" (65.5%) (Table 1).

All of them had a diagnosis of at least one disease. The most common diseases were hypertension (61.3%), diabetes mellitus (28.6%), rheumatism (22.7%), heart diseases (12.0%), and high cholesterol (6.5%). Of these elderly people, 51.0% had one, 33.1% had two, and 15.9% had three diagnoses (Table 2).

All of them were using prescribed (80.3%) or prescribed plus over the counter (19.7%) drugs. Of these elderly people, 59.7% were taking one drug, 36.9% were taking two, and 3.4% were taking three drugs. The most frequently used prescribed drugs were antihypertensive (57.5%), anti-diabetic

Table 1— Socio-demographic Characteristics of the Eelderly (n=290)

Characteristics		Number	%
Gender	Female	150	51.7
	Male	140	48.3
Marital Status	Married	189	65.2
	Unmarried	2	0.7
	Widowed	99	34.1
Age	65-74	215	74.1
	75-84	68	23.4
	85 and ↑	7	2.4
Education Level	Not literate	90	31.0
	Literate	58	20.0
	Primary school	92	31.7
	Secondary school	22	7.6
	High school	18	6.2
	University	10	3.4
Profession	Housewife	135	46.6
	Retired	129	44.5
	Farmer	10	3.4
	Craftsman	6	2.1
	Employee	5	1.7
	Unemployed	3	1.0
	Officer	2	0.7
Health Insurance	Present	278	95.9
	Not insurance	12	4.1
Economic Status	Income < expenditure	190	65.5
	Income = expenditure	78	26.9
	Income > expenditure	22	7.6
Age		71.17±5.54 (max – min = 65-69)	

(23.4%), anti-inflammatory (medication that reduces inflammation; many steroids, specifically glucocorticoids) (15.8%) drugs, cardiovascular system drugs (14.8), and analgesics (12.4%). Analgesics (painkillers; non-steroidal anti-inflammatory drugs or centrally acting drugs) were the most frequently used over the counter drugs (84.3%). Most of those using over the counter drugs reported that they had heard about them from family members (33.3%), neighbors (28.1%), relatives (12.3%), or friends (10.5%). The other sources of information were health professionals (7.0%), pharmacists (5.3%), and individuals that had the same disease (3.5%) . Fifty (17.2%) elderly people reported the side effects of drugs: 20 reported stomach pain, 12 reported vertigo and head pain, and the rest reported diarrhea, nausea, and xerostomia (Table 3). An association was observed between the number of chronic diseases and age (p=.004), education level (p=.017), and number of prescribed drugs used (p=.000) (Table 4). There was no statistically significant difference in drug use among gender (p=.182), age (p=.108), education level (p=.304) and economic status (p=.582) groups (Table 5).

Discussion

The results of chronic disease prevalence studies by Kesioğlu et al. (11), Gülbayrak et al. (12), Çivi and Tanrıkulu (14), Özdemir et al. (17), Deveci et al. (18) show high scores for the elderly in Turkey.

Parallel to other studies (11-13,17-21) in the current study, the primary and most common disease among these elderly people was hypertension. Previous surveys implied that the prevalence of hypertension was between 25% and 60% among elderly individuals in different age groups (17,22-24). Prevalence of hypertension in this study was 61.3% which is higher that found in the previous studies. This may be due to

Table 2— Chronic Ddiseases of Elderly People (n=290)

Chronic Diseases		Number	%
Number	One	148	51.0
	Two	96	33.1
	Three	46	15.9
Name	Hypertension	178	61.3*
	Diabetes	83	28.6
	Rheumatism	66	22.7
	Heart failure	35	12.0
	Cholesterol	19	6.5
	Stomach ulcer	17	5.8
	Chronic obstructive pulmonary disease	13	4.4
	Osteoporosis	13	4.4
	Asthma	11	3.7
	Osteoarthritis	7	2.4
	Dermatitis	6	2.0
	Myalgia	6	2.0
	Prostate	6	2.0
	Bronchitis	5	1.7
	Depression	4	1.3
	Goiter	2	0.6
	Herniated disc	1	0.3
	Anemia	1	0.3

*More than one answer. Percentages were calculated by accepting n as 290.

our study participants' being older than those in the other studies. In addition to Arslan et al. (5), Keskinoğlu et al. (11), Gülbayrak et al. (12), Diker (13), Çivi and Tanrıkulu (14), Özdemir et al. (17), Turhanoğlu et al. (20), Aslan and Eşer (21), and Akgün et al. (25) found that besides hypertension, the most common diseases were heart diseases, rheumatism, diabetes mellitus, osteoporosis, osteoarthritis, high cholesterol, and chronic obstructive pulmonary disease. The percentage of elderly people with a diagnosis of single chronic disease was 51.2% in the study of Gülbayrak et al. (12). Menotti et al. (26) found that 56% of Finn males, 51% of Italian males, and 44% of Dutch males were diagnosed with a single disease in their study. Thus, the rate (51%) of elderly people diagnosed with a single chronic disease reported in this study is in line with the results of the previous studies.

All of the elderly people were found to have a chronic disease, and therefore they were all using prescribed or over the counter drugs. People ≥65 years have higher prevalence of chronic illness, disability and dependency than those under <65 years. The use of several drugs is concomitantly justified in the treatment of multiple chronic diseases. They are more likely to be on medication than younger people (27). A Swedish population-based study of 785 community-dwelling people over the age of 75 years found that inappropriate drug use was common, with a prevalence of 18.6% (28). Esengen et al. found that 14.4% of elderly people were using over the counter drugs (29). Our finding on use of prescribed and/or over the counter drugs (19.7%) was in line with this finding. The number of individuals using one or two drugs is higher than individuals using three drugs in this study. This finding was parallel to findings of Arslan et al. (5) and Gülbayrak et al. (12). Diker (13) found that the most frequently used drugs were antihypertensive and cardiovascular system drugs. In this study, antihypertensive and cardiovascular system drugs were the most commonly used drugs. This result is supported by the findings of an earlier study (13). Given that hypertension is the most frequent disease in the elderly, this is not an unexpected finding. Analgesics were used by 60.4% of the elderly in the study of Hanlon et al. (30). In a survey covering asylums in 23 provinces of Turkey, cardiovascular system drugs and analgesics were found to be the most frequently used drugs by elderly people . In this study, 84.3% of the elderly were using analgesics (non-steroidal anti-inflammatory

Table 3— Drug Use of Elderly People (n=290)

Drug Use		Frequency	%
	Prescribed drug	233	80.3
	Prescribed and over the counter drug	57	19.7
Number of drugs used	One	173	59.7
	Two	107	36.9
	Three	10	3.4
Prescribed drug name	Antihypertensive	167	57.5*
	Anti-diabetic	68	23.4
	Anti-inflammatory	46	15.8
	Cardiovascular system drugs	43	14.8
	Analgesic	36	12.4
	Respiration system drugs	28	9.6
	Gastrointestinal system drugs	14	4.8
	Genitourinary system drugs	5	1.7
	Antidepressant	4	1.3
	Calcium	4	1.3
	Endocrine system drugs	2	0.6
	Dermatology preparations	1	0.3
	Antifungal	1	0.3
Over the counter drug name			
	Analgesic	48	84.3**
	Acetylsalicylic acid	4	7.1
	Antibiotic	2	3.6
	Dermatology preparations	2	3.6
	Central nerve system drugs	1	1.8
People who advised advice over the counter drug			
	Family	19	33.3
	Neighbor	16	28.1
	Relatives	7	12.3
	Friend	6	10.5
	Other health professionals except physician	4	7.0
	Pharmacist	3	5.3
	Individuals who had the same disease	2	3.5
Side effects	Present	50	17.2
	Absent	240	82.8
Drug name for present side effects	Not known	23	46.0***
	Analgesic	14	28.0
	Anti-diabetic	4	8.0
	Acetylsalicylic acid	3	6.0
	Calcium	2	4.0
	Alpha blocker	1	2.0
	Bronchodilator	1	2.0
	Antiulcer	1	2.0
	Iron preparation	1	2.0
Side effects name	Stomach ache	20	40.0
	Vertigo and head a	12	24.0
	Diarrhea	3	6.0
	Nausea	3	6.0
	Xerostomia	3	6.0
	Syncope	2	4.0
	Constipation	1	2.0
	Abdominalgia	1	2.0
	Forgetfulness	1	2.0
	Palpitation	1	2.0
	Bleeding	1	2.0
	Lethargy	1	2.0
	Hunger sensational	1	2.0

*More than one answer. Percentage was calculated by accepting n as 290. **Percentage was calculated by accepting n as 57. ***Percentage was calculated by accepting n as 50.

Table 4— Socio-demographic Characteristics and Drug Use According to the Number of Chronic Diseases in the Elderly

Variable		Number of Chronic Diseases			Chi Square	p value
		One Disease n (%)	Two Disease n (%)	Three Disease n (%)		
Gender	Female	69 (46.6)	58 (60.4)	23 (50.0)		
	Male	79 (53.4)	38 (39.6)	23 (50.0)	4.503	**>0.05**
Age	65-74	110 (74.3)	71 (74.0)	34 (73.9)		
	75-84	38 (25.7)	18 (18.8)	12 (26.1)		
	85 and ↑	–	7 (7.3)	—	15.501	**<0.01**
Education Level	Not literate	45 (30.4)	28 (29.2)	17 (37.0)		
	Literate	26 (17.6)	27 (28.1)	5 (10.9)		
	Primary school	49 (33.1)	29 (30.2)	14 (30.4)	21.615	**<0.05**
	Secondary school	11 (7.4)	6 (6.3)	5 (10.9)		
	High school	12 (8.1)	6 (6.3)	—		
	University	5 (3.4)	–	5 (10.9)		
Economic Status	Income < expenditure	94 (63.5)	70 (72.9)	26 (56.5)	5.061	**>0.05**
	Income = expenditure	44 (29.7)	19 (19.8)	15 (32.6)		
	Income > expenditure	10 (6.8)	7 (7.3)	5 (10.9)		
Number of drugs used	One	134 (90.5)	25 (26.0)	14 (30.4)		
	Two	14 (9.5)	71 (74.0)	22 (47.8)	168.900	**<0.001**
	Three	–	–	10 (21.7)		

Table 5— . Socio-demographic Characteristics and the Prescribed and over the Counter Drug Use in the Elderly

Variable		Prescribed Drug Use n (%)	Prescribed and Over the Counter Drug Use n (%)	Chi Square	p value
Gender	Female	116 (49.8)	34 (59.6)		
	Male	117 (50.2)	23 (40.4)	1.784	>0.05
Age	65-74	167 (71.7)	48 (84.2)	4.458	
	75-84	59 (25.3)	9 (15.8)		>0.05
	85 and ↑	7 (3.0)	–		
Education Level	Not literate	72 (30.9)	18 (31.6)	6.023	
	Literate	49 (21.0)	9 (15.8)	SD=5	>0.05
	Primary school	74 (31.8)	18 (31.6)	.304	
	Secondary school	16 (6.9)	6 (10.5)		
	High school	12 (5.2)	6 (10.5)		
	University	10 (4.3)	–	1.083	>0.05
Economic Status	Income < expenditure	60 (25.8)	18 (31.6)		
	Income = expenditure	156 (67.0)	34 (59.6)		
	Income > expenditure	17 (7.3)	5 (8.8)		

drugs or centrally acting drugs). In this study, elderly people stated that the most important source of information on drugs was their families, neighbors, relatives, and friends; this result is supported by the findings of Kutsal (6), Uskun et al. (31). Arslan et al. (5) found that 5.5% of the study population reported side effects due to drug use and the most common side effects were gastrointestinal. In the current study, 17.2% of the participants reported side effects due to drug utilization. These were gastrointestinal side effects such as stomach ache, diarrhea, nausea, xerostomia, constipation, and abdominalgia. All of them with side effects reported other side effects such as vertigo and head pain, syncope, forgetfulness, palpitation, bleeding, and lethargy. The study of Hanlon et al. (32) found that adverse drug reactions can be difficult to detect in elderly patients because they often exhibit non-specific symptoms such as lethargy, confusion, light-headedness, falls, constipation and depression. Parallel to previous reports, we found that there was an association between number of chronic diseases and age (3,14). In this study, the education levels of the elderly were often lower (not literate, literate and primary school graduate). The elderly people with a lower education level had more diseases than those with a high education level. The reason for this might be that the lower education level and thus, the lower economic status may reduce the capability of the individuals coping with diseases. Similar to this study, a number of chronic diseases were found to be associated with use of drugs (33). As the presence of a chronic disease increases use of drugs, this is an expected result. Aksoydan (34) found that 75% of males and 79.2% of females had at least one chronic disease. However, in this study, 53.4% of males and 46.6% of females had at least one chronic disease. This study confirmed the previously identified fact that there is no association between drug use and gender (35). Another finding that is in line with a previous report (36) is no significant association was found between the use of drugs and economic status.

In conclusion, this study clearly demonstrates that all elderly people have at least one chronic disease and all are using drugs. Prevention strategies at an earlier age may reduce the prevalence of chronic disease and drug use in older ages. Further studies are needed to investigate training elderly people individually on chronic disease management and drug use.

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