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Prescription habits to geriatric patients in psychiatry clinic-university hospital and training and research hospital comparison

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Abstract

This study aimed to examine the psychotropic drug prescribing habits of clinicians from different clinics for patients over the age of 65 who applied to the psychiatry outpatient clinic. Patients over 65 who applied to the psychiatry outpatient clinic in January 2020 were included in the study. As a result of the inclusion criteria, 523 patients, 241 from university and 282 from training and research hospitals, were included in the study. Age, gender, diagnoses, past psychiatric disease histories, and recommended treatments of patients were obtained from electronic files in the hospital automation system. Antidepressant treatment was used in 228 (94.6%) patients in the university hospital and in 232 (82.3%) patients in the training and research hospital ($p<0.001$). Clinicians preferred monotherapy for 71% (n: 171) of the patients in the university hospital and 56.4% (n: 159) in the training and research hospital ($p=0.001$). Selective serotonin reuptake inhibitors (SSRI) are the most commonly used antidepressant group in both the university hospital (80.3%) and the training and research hospital (71.5%) ($p=0.022$). Escitalopram was the most frequently used SSRI in both the university hospital (54.7%) and the training and research hospital (42.8%) ($p=0.027$). Atypical antipsychotics (96.5%) constituted most antipsychotic preferences in the university hospital, and quetiapine (90.9%) among atypicals. Among the antipsychotics, atypical antipsychotics (97.1%) were preferred most frequently in the training and research hospital, and quetiapine (59.4%) was the most common choice among them. The side effect profile is as important as the drug's effectiveness in selecting psychotropic medications in the geriatric period. For this reason, among antidepressants, serotonin reuptake inhibitors, and among antipsychotics, atypical antipsychotics are the first drug groups used.

Keywords: elderly, escitalopram, quetiapine, outpatient

1. Introduction

It is a symbolic approach to define the senior period as age from a certain cut-off point. There is no agreed-upon age. However, 65 years of age is the most emphasized age. With the increase in life expectancy worldwide, the proportion of the senior population in society is expected to increase. In our country, while the ratio of people over 65 to the general population was 5.6% in 2000 and 9.0% in 2019, this rate is expected to be 10.2% in 2023 and 16.3% in 2040 (1). In the United States (USA), this rate, which was 14% in 2019, is expected to exceed 20% in 2026. A demographic feature of this period is the higher proportion of women in this population due to their longer life expectancy (2). It can be expected that the number of geriatric patients that psychiatrists will encounter will increase, depending on the proportional and numerical increase in the number of geriatric patients.

Physiological changes brought about by ageing and increasing disease frequency make geriatric patients more susceptible to many factors. Physiological changes such as the decrease in body water ratio and lean tissue mass, increase in body fat amount, shift of stomach acidity to alkaline, reduction in liver and kidney functions, and decrease in drug metabolism with age can make people in the senior period more sensitive to the side effects of drugs. At the same time, common medical diseases in this period can cause drug-disease interactions (3). For these reasons, various guidelines are being developed to control drug use in the geriatric age. (4). According to STOPP (Screening Tool for Older Persons' Potentially Inappropriate Prescriptions) criteria, inappropriate drug use was observed in 25.6% of geriatric patients (5). It is known that 29.9% of individuals over 65 use five or more drugs. One of this group's most frequently used drug groups is antidepressants (6).

The use of antidepressants in the geriatric period can be in depressive disorders, anxiety disorders, alcohol substance use disorders, and other psychiatric diseases, as well as in conditions other than psychiatric diseases (7). The frequency varies between countries. In recent years, selective serotonin reuptake inhibitors (SSRI) have become the first preferred antidepressant group in all age groups due to their efficacy and side effects advantages (8). Compared with 20 years ago, the rate of antidepressant use in the geriatric population has increased 2.79 times (9). In a multinational study investigating antidepressants used for the first time in the senior period between 2009 and 2014, Tricyclic antidepressants (TCA) were found to be the most commonly used antidepressant group in the UK and Taiwan, and SSRIs in Canada and the USA. The drugs chosen within the groups also vary between countries (7). Antidepressants used in old age may cause a decrease in bone mineral density (especially for drugs in the SSRI group)

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and adverse effects on the cardiovascular system (especially for drugs in the TCA group) (10).

Antipsychotics can be prescribed for various reasons at an advanced age. Individuals in the geriatric period are susceptible to the side effects of antipsychotics. It has been reported that there is an increase in the side effects of cardiovascular disease, stroke, pneumonia, and extrapyramidal system side effects of antipsychotics in geriatric ages compared to young ages and that they may increase the risk of death. It is necessary to carry out the use of antipsychotics carefully in patients with dementia. Despite this information, insufficient attention is paid to the use of antipsychotics in elderly patients in the clinic (11). Antipsychotics can be used off-label at low doses in sleep-wake disorders (12). The side-effect potentials of antipsychotics differ between groups and drugs. It has been found that these risks may be higher in typical antipsychotic group drugs (13). Quetiapine has less stroke possibility, metabolic side effects and mortality, more falling than olanzapine; It has been shown to cause more metabolic side effects than risperidone (14).

This study aimed to examine the prescriptions written to patients over the age of 65 who applied to the psychiatry outpatient clinic. An evaluation will be made regarding the antidepressant and antipsychotic drugs used and their groups.

2. Material ve Methods

2.1. Participants and data collection

Patients over 65 who applied to the Ondokuz Mayıs University Faculty of Medicine and Kanuni Sultan Suleiman Training and Research Hospital psychiatry outpatient clinic in January 2020 were included in the study. The study did not include patients evaluated for consultation, medical board, or forensic reasons. The first application was evaluated in the case of two or more applications. During that period, 2341 applications to the university hospital and 3980 to the training and research hospital were received. Of these applications, 296 in the university hospital and 439 in the training and research hospital belong to the geriatric population. A total of 523 patients, 241 from the university hospital and 282 from the training and research hospital, who met the criteria for inclusion in the study, were included. Age, gender, past psychiatric disease history, diagnoses, and recommended treatments of the patients were obtained from electronic files in the hospital automation system.After the patient diagnoses were obtained, the diagnoses of the patients were divided into groups as anxiety disorders, depressive disorders, trauma-stress related disorders, sleep-wake disorders, neurocognitive disorders, and other disorders according to The Diagnostic and Statistical Manual of Mental Disorders-5 (DSM 5)

2.2. Statistical analysis

SPSS 15.0 package program was used for the statistical analysis of the study. The data of categorical variables are given as n (%). The age variable is given as mean±standard deviation. In the comparisons of categorical variables, the Chi-square test was applied. A value of $p<0.05$ was accepted as statistically significant.

3. Results

Of the geriatric patients who applied to the outpatient clinic, 162 (67.2%) in the university hospital and 181 (64.2%) in the training and research hospital were women. The mean age of the patients was 73.1±6.2 in the university hospital and 72.8±6.4 in the training and research hospital. The majority of geriatric patients who applied to the outpatient clinic, according to DSM 5 diagnosis categories, were composed of anxiety disorders and depressive disorders, respectively, both in the university hospital (48.5% and 22.4%) and in the training and research hospital (49.6% and 30.5%). It was determined that 33 (13.7%) patients in the university hospital and 8 (2.8%) patients in the training and research hospital had their first application to psychiatry ($p<0.001$). Monotherapy was preferred in 171 (71%) university hospital patients and 159 (56.4%) training and research hospital patients ($p=0.001$). Antidepressant treatment was used in 228 (94.6%) patients in the university hospital and in 232 (82.3%) patients in the training and research hospital ($p<0.001$). An antipsychotic drug was prescribed to 57 (23.6%) of the patients in the university hospital and 104 (36.9%) in the training and research hospital ($p=0.001$). The sociodemographic and clinical characteristics of the patients are given in Table 1.

Tablo 1. Sociodemographic and clinical characteristics of the patients

Variables		UH n (%)	TRH n (%)	X^2	t	p
Gender n (%)	**Male**	79 (32.8)	101 (35.8)	0.530		0.466
	Female	162 (67.2)	181 (64.2)			
Age Mean±Sd	**Male**	72.7±5.7	72.4±6.5		1.395	0.164
	Female	73.4±6.5	72.4±6.4			
	Total	73.1±6.2	72.8±6.4			
Diagnostic groups n (%)	**Anxiety disorder**	117 (48.5)	140 (49.6)	66.205		**** <0.001**
	Depressive disorder	54 (22.4)	86 (30.5)			
	Trauma-stressor-related disorder	27 (11.2)	0 (0)			
	Sleep-wake disorder	24 (10.0)	4 (1.4)			
	Neurocognitive disorder	8 (3.3)	10 (3.5)			
	Other	11 (4.6)	42 (14.9)			
First application n (%)	**Yes**	33 (13.7)	8 (2.8)	21.197		**** <0.001**
	No	208 (86.3)	274 (97.2)			

Form of treatment n (%)	**Monotherapy**	171 (71.0)	159 (56.4)	11.849		** **0.001**
	Combination therapy	70 (29.0)	123 (43.6)			
Preferred drug group n (%)	**Antidepressant**	228 (94.6)	232 (82.3)	18.666		** **<0.001**
	Antipsychotic	57 (23.6)	104 (36.9)	10.671		** **0.001**
	Benzodiazepine	6 (2.5)	5 (1.8)	0.324		0.569
	Mood stabilizer	3 (1.2)	15 (5.3)	6.491		* **0.011**

UH: University Hospital TRH: Training And Research Hospital Sd: Standard deviation. * p <0.05 ** p <0.01

Selective serotonin reuptake inhibitors (SSRI) are the most commonly used antidepressant group in both the university hospital (n: 183, 80.2%) and the training and research hospital (n: 166, 71.5%) (p=0.02). Mirtazapine was prescribed to 26 (11.4%) patients in the university hospital and 48 (20.7%) in the training and research hospital (p=0.500). Escitalopram was the most frequently used SSRI in both the university hospital (54.7%) and the training and research hospital (42.8%) (p=0.027). The second most frequently used SSRI was sertraline in the university hospital (26.3%) and the training and research hospital (36.7%) (p=0.034). While 55 (96.5%) of 57 patients using antipsychotics in the university hospital were prescribed atypical antipsychotics, and 2 (3.5%) were prescribed typical antipsychotics, 10 (9.6%) of 104 patients using antipsychotics in a training and research hospital were prescribed both typical and atypical antipsychotics, 4 (3.9%) were prescribed only typical antipsychotics, and 90 (86.5%) were prescribed only atypical antipsychotics. Atypical antipsychotics (96.5%) constituted most antipsychotic preferences in the university hospital, and quetiapine (90.9%) among atypicals. Among the antipsychotics, atypical antipsychotics (97.1%) were preferred most frequently in the training and research hospital, and quetiapine (59.4%) was the most common choice among them. However, a statistically significant difference was found between the university hospital and the training and research hospital regarding quetiapine preference (p<0.001). In addition, olanzapine was prescribed to 3 patients (5.4%) and risperidone to 2 patients (3.7%) as atypical antipsychotics in the university hospital. In the training and research hospital, 22 patients (21.8%) were prescribed aripiprazole. Detailed information on preferred antidepressants and antipsychotics is given in Table 2.

Tablo 2. Groups of antidepressants and antipsychotics used, and SSRI and atypical antipsychotic preferences

	UH n: (%)	TRH n (%)	X^2	p
Antidepressants used (n:460)	n:228	n:232		
SSRI	183 (80.3)	166 (71.5)	5.218	* **0.022**
Mirtazapine	26 (11.4)	48 (20.7)	0.454	0.500
Trazodone	20 (8.8)	44 (19.0)	0.070	0.791
SNRI	16 (7.0)	55 (23.7)	8.698	** **0.003**
Vortioxetine	5 (2.2)	19 (8.2)	3.557	0.059
TCA	4 (1.8)	7 (3.0)	0.163	0.722
Antipsychotics used (n:161)	n:57	n:104		
Typical antipsychotics	2 (3.5)	14 (13.5)	4.075	* **0.044**
Atypical antipsychotics	55 (96.5)	101 (97.1)	0.149	1.000
SSRI (n:349)	n:183	n:166		
Escitalopram	100 (54.7)	71 (42.8)	4.911	* **0.027**
Sertraline	48 (26.3)	61 (36.7)	4.483	* **0.034**
Paroxetine	14 (7.6)	14 (8.4)	0.072	0.788
Citalopram	10 (5.4)	11 (6.7)	0.208	0.648
Fluoxetine	10 (5.4)	9 (5.4)	0.000	0.986
Fluvoxamine	1 (0.6)	0 (0)	0.910	1.000
Atypical antipsychotics (n:156)	n:55	n:101		
Quetiapine	50 (90.9)	60 (59.4)	16.997	** **<0.001**
Olanzapine	3 (5.4)	14 (13.9)	2.592	0.107
Risperidone	2 (3.7)	6 (5.9)	0.389	0.713
Aripiprazole	0 (0)	22 (21.8)	13.947	** **<0.001**
Paliperidone	0 (0)	15 (14.9)	9.037	** **0.003**
Sulpiride	0 (0)	8 (7.9)	4.592	0.051
Amisulpride	0 (0)	3 (3)	1.666	0.552
Clozapine	0 (0)	2 (2)	1.103	0.541

SSRI: Selective serotonin reuptake inhibitors SNRI: Serotonin noradrenaline reuptake inhibitors TCA: Tricyclic antidepressants UH: University

Hospital TRH: Training And Research Hospital * p <0.05 ** p <0.01

4. Discussion

The current study found that most of the patients who applied to the psychiatry outpatient clinic were women; anxiety and depressive disorders were the most common diagnoses, and most patients had applied to psychiatry before. Monotherapy was preferred as the main treatment method. Antidepressants were preferred more frequently as the drug group used. SSRIs among antidepressants and atypical antipsychotics among antipsychotics were the most selected groups. Escitalopram and sertraline, among antidepressants, and quetiapine, among antipsychotics, are the most commonly used drugs.

Biological, social, and psychological differences brought about by advanced age can have various undesirable consequences on the mental health of individuals. Depending on this, there may be applications to the psychiatry outpatient clinic. In general, depressive and anxiety disorders are the most common reasons for referral to psychiatry outpatient clinics and emergencies in the geriatric period (15, 16).

Experiencing side effects related to antidepressants in the geriatric period increases the possibility of drug change or discontinuation (17). In recent years, SSRIs have been the first line of antidepressant treatment. Having a better profile than other antidepressant groups regarding side effects, having similar results to other antidepressant groups in terms of efficacy, and less possibility of drug interaction are seen as the most important reasons for being a first-line treatment (18). In the senior period, SSRIs are the first-line treatment as antidepressant treatment (19). Therefore, most antidepressants used in the senior period are SSRIs (20). However, there are differences in the use of SSRIs in the geriatric period. However, there are differences in the use of SSRIs in the geriatric period. Among the SSRIs in use, paroxetine is one of the drugs that inhibit CYP enzymes with the highest affinity and has the most increased anticholinergic side effects (21). According to the Beers criteria published in 2019, paroxetine is not recommended for use in senior periods like TCAs due to its anticholinergic properties. However, it is stated that the clinician should make the final decision on a case-by-case basis (22). It is recommended that fluvoxamine should not be preferred in the first place in the senior period due to drug interactions and fluoxetine due to its long half-life. Less binding of escitalopram and citalopram to plasma proteins than other SSRIs may have positive aspects for them to be preferred in old age (23). When the side effect profile and efficacy of escitalopram are evaluated together, it has been shown that it may be a better option than other antidepressants (24). Sertraline is an SSRI that has been found to be safe in the geriatric period in terms of efficacy and side effects (25). For these reasons, as seen in our study, escitalopram, citalopram, and sertraline may be considered more prominent than others in the case of SSRI use at an advanced age (26). However, the person's previous treatment experiences should also be considered when choosing drug therapy.

Benzodiazepines and TCAs have side effects that can have dangerous consequences in old age. Depending on the pharmacokinetic and pharmacodynamic changes that develop due to the regular physiological changes that occur with ageing, there may be various changes in the effects of these drugs. A comparison study conducted between 2004 and 2011 showed that benzodiazepine use decreased by 10% and TCA use by 55% (27).

Mirtazapine is an antidepressant treatment that can be an alternative to SSRIs in the geriatric period. In addition to its antidepressant effect, it is a drug that can be preferred by people who have difficulty falling and staying asleep due to its sedation effect and people who have weight loss or decreased appetite due to increased appetite (28). Trazodone is a relatively safe drug in the geriatric population, primarily preferred in cases with difficulty falling and staying asleep (29).

Quetiapine is an atypical antipsychotic approved for schizophrenia, bipolar affective disorder, and major depressive disorder as adjuvant therapy. In addition, it can be used frequently for posttraumatic stress disorder, anxiety disorders, dementia, and behavioural symptoms of Parkinson's disease and insomnia. Compared with other antipsychotics, there is no increased risk of side effects in advanced age (14). For these reasons, it is an expected finding that it is the most commonly used antipsychotic in geriatric patients.

There were some limitations to this study. First, our study is cross-sectional. Secondly, since the data were obtained from the electronic files of the patients in the hospital automation system, some patient data could not be included in the study because some information was not recorded in the system by the physicians, and the existing data could not be verified by interviewing the patients.

As a result, SSRIs are preferred in the first place due to their safe profile when antidepressant treatment is needed in senior age. Among the antipsychotics, atypical antipsychotics are more preferred than typical antipsychotics. In addition, it is understood that combined treatments are preferred more frequently in geriatric patients in the training and research hospital compared to the university hospital. Research to understand the reasons for this situation will be beneficial.

Conflict of interest

The authors declared no conflict of interest.

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Authors' contributions

Concept: K.L., S.Ö., Design: K.L., S.Ö., Data Collection or

Processing: K.L., S.Ö., Analysis or Interpretation: K.L., S.Ö., Literature Search: K.L., S.Ö., Writing: K.L., S.Ö.

Ethical Statement

Approval was obtained from Ondokuz Mayıs University Clinical Research Ethics Committee, the study started. The ethics committee decision date is 13/05/2020 and the number of ethical committee decisions is 2020/347.

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