Research Article / Araştırma

Determination of anticoagulant therapy adherence and self-efficacy levels of individuals with atrial fibrillation*

Atriyal fibrilasyon tanısı olan bireylerin antikoagülan tedaviye uyum ve öz-etkililik düzeylerinin belirlenmesi

[1]Hacer Nur Akbaba, [2]Hilal Uysal

[1] MScN Istanbul University-Cerrahpaşa, Florence Nightingale Faculty of Nursing, Istanbul, Türkiye hacerakbaba98@gmail.com, 0009-0000-6251-6465

[2] Assoc. Prof. Dr. Bartın University Faculty of Health Sciences, Department of Nursing, Department of Internal Medicine Nursing, Bartın, Türkiye. 0000-0003-3211-7011

ABSTRACT

Introduction and Aim: Atrial fibrillation is a common type of rhythm disorder in the population, and its prevalence increases in parallel with age. Individuals with atrial fibrillation are at risk of stroke and arterial thromboembolism. This study was carried out as a descriptive study to determine the adherence and self-efficacy levels of individuals with atrial fibrillation to anticoagulant therapy. **Method:** The study data were obtained from individuals with a diagnosis of atrial fibrillation who were hospitalized in the cardiology services of a university hospital between November 01, 2022, and February 28, 2023. After the individuals were informed about the study, verbal and written informed consent was obtained, and data was collected by face-to-face interviews. Patient information form, medication adherence/adherence self-efficacy scale short form, and medication adherence reporting scale were used in the study. Data were analyzed using SPSS software. **Results and Conclusion:** In the study, it was found that the mean total score of self-efficacy and the mean total score of medication adherence were high, and the medication adherence of individuals was at a good level. It was also found that the total scores of medication adherence of those with comorbidities were higher than the total scores of those without comorbidities. The study found that higher levels of self-efficacy of adherence/compliance to medication were effective in increasing medication adherence. It was found that individuals with comorbidities had better medication adherence than those without comorbidities.

ÖZ

Giriş ve Amaç: Atriyal fibrilasyon, toplumda sıklıkla görülen bir ritim bozukluğu türüdür ve görülme sıklığı yaşa paralel olarak artmaktadır. Atriyal fibrilasyon tanılı bireylerde inme ve arteriyel tromboemboli riski vardır. Bu araştırma atriyal fibrilasyon tanısı olan bireylerin antikoagülan tedaviye uyum ve öz-etkililik düzeylerinin belirlenmesi amacıyla tanımlayıcı tipte bir çalışma olarak gerçekleştirildi. **Gereç ve Yöntem:** Araştırma verileri, 01 Kasım 2022 – 28 Şubat 2023 tarihleri arasında bir üniversite hastanesinin kardiyoloji servislerinde yatan ve polikliniğe başvuran atriyal fibrilasyon tanısı olan bireylerden elde edildi. Bireylere çalışma ile ilgili bilgi verildikten sonra sözlü ve yazılı onam alındı ve yüz yüze görüşme yöntemi veriler toplandı. Araştırmada hasta bilgi formu, ilaç tedavisine bağlılık/uyum öz-etkililik ölçeği kısa formu ve ilaç uyumunu bildirim ölçeği kullanıldı. Veriler SPSS programı kullanılarak analiz edildi. **Bulgular and Sonuç:** Araştırmada bireylerin öz-etkililik toplam puan ortalamasının ve ilaç uyum toplam puan ortalamasının yüksek olduğu; bireylerin ilaç uyumlarının iyi düzeyde olduğu bulundu. Ek hastalığı olanların ilaç uyum toplam puanlarının, ek hastalığı olmayanların ilaç uyum toplam puanlarından yüksek olduğu saptandı. Araştırmada bireylerin ilaç tedavisine bağlılık/uyum öz-etkililik düzeyinin yüksek olmasının ilaç uyumunun artmasında etkili olduğu saptandı. Ek hastalığı olan bireylerin ilaç uyumlarının, ek hastalığı olmayanlara göre daha iyi düzeyde olduğu saptandı.

INTRODUCTION

Atrial fibrillation (AF) is a type of rhythm disorder that is frequently seen in the community, and its incidence increases in parallel with age (Sarı et al., 2014). A normal ECG includes a P wave, QRS complex, and T wave. However, AF ECG shows inconsistent fibrillation waves instead of P waves (Hagiwara et al., 2018). The risk of stroke and arterial thromboembolism is increased in individuals with AF (Özer, 2016). Oral anticoagulants used in the treatment are effective in preventing AF-related stroke (Zhu et al., 2021). Warfarin is the leading oral anticoagulant (Karaçağlar et al., 2012). Individuals using warfarin have a high risk of bleeding. The demand for new-generation oral anticoagulants has increased due to the negative effects of this type (Soyer, 2021).

The World Health Organization (WHO) defines adherence to treatment as a whole of implementing recommended health attitudes, taking medications regularly, adhering to diet, and implementing lifestyle changes. Adherence to drug treatment is the state of complying with the recommended treatment in the process from the start to the end of drug use (Temeloğlu Şen et al., 2019). Hospitalization, mortality rate, and the incidence of the disease increase in individuals who show non-compliance with treatment, and as a result, a decrease in the quality of life of individuals is observed (Dikeç and Kutlu, 2015).

Self-efficacy is defined as the confidence that an individual has in himself/herself about whether he/she can successfully overcome the event in difficult situations (Kansu and Hızlı Sayar, 2018). Individuals with high levels of self-efficacy have higher motivation to improve health (Demirbaş and Kutlu, 2020). Self-efficacy is an important marker for adaptation to all types of diseases. An individual's high level of self-efficacy is associated with high medication adherence (Rosli et al., 2022). Self-efficacy refers to individuals' perceptions of their competence in managing their health, and it is known to have a direct impact on treatment adherence. In this context, it is recommended to implement educational and support programs to enhance individuals' self-efficacy levels (Howren and Gonzalez, 2016).

Nurses should primarily play a role in increasing the self-efficacy of individuals with chronic diseases such as AF because nurses are the leading healthcare team members who know chronic disease management and how to approach individuals. Therefore, in order to positively affect the individual's well-being and improve motivation, nurses should teach the individual the correct disease management and coping strategies and inform the individual about the disease (Ceyhan and Ünsal, 2018).

In this study, we aimed to measure the level of medication adherence and self-efficacy in anticoagulant treatment of individuals diagnosed with AF and to determine the relationship between the two factors.

Purpose and Research Questions

This study is a descriptive study that seeks to determine the levels of adherence to anticoagulant therapy and self-efficacy of individuals with atrial fibrillation. The study sought answers to the questions "What are the levels of adherence with anticoagulant treatment and self-efficacy of individuals with atrial fibrillation, and how is the relationship between them?" were sought.

The research questions of this study are as follows:

What are the levels of adherence to anticoagulant therapy and self-efficacy among individuals diagnosed with atrial fibrillation?

Is there a relationship between adherence to anticoagulant therapy and self-efficacy levels among individuals diagnosed with atrial fibrillation?

MATERIAL AND METHOD

Settings and Samples

The study included 136 individuals with a diagnosis of atrial fibrillation who were hospitalized in the cardiology services of a university hospital between November 01, 2022, and February 28, 2023. The sample size was calculated using the sampling formula, and the required sample size was determined as 108 with a 95% confidence interval and ± 5% sampling error for this non-homogeneous population (Salant & Dillman, 1994).

Inclusion and Exclusion Criteria

The study included individuals who had been diagnosed with atrial fibrillation at least three months ago, were 18 years of age or older, and agreed to participate in the study. Individuals who used narcotic analgesics at a level that would affect their perception and communication, those with a diagnosis of severe mental illness, and those with cognitive dysfunction were not included in the study.

Data Collection Tools

The data were collected through face-to-face interviews. This study was conducted between November 01, 2022, and February 28, 2023.

The data collection tools used in the study were the Patient Information Form, the Medication Adherence/ Subherence Self-Efficacy Scale Short Form (MASES),

and the Medication Adherence Reporting Scale. The Patient Information Form was developed by reviewing the relevant literature and included questions such as age, gender, disease duration, and type of Anticoagulant used. The Medication Adherence/Compliance Self-Efficacy Scale Short Form (MASES) consists of 13 different questions and determines the individual's level of self-efficacy. Each question receives a score between 1 and 4, and the total score varies between 13 and 52 (Demirbaş and Kutlu, 2020). In this study, the reliability of the self-efficacy scale was found to be as high as Cronbach's Alpha = 0.961.

In the Medication Adherence Reporting Scale, each question receives a score between 1 and 5; the total score varies between 5 and 25. An increase in the total score indicates an increase in medication adherence (Temeloğlu Şen and Sertel Berk, 2022). In this study, the reliability of the Medication Adherence Scale was found to be as high as Cronbach's Alpha = 0.886.

Data Analysis

The data obtained in the study were evaluated in the computer environment through the SPSS 22.0 statistical program. Frequency and percentage analyses were used to determine the study participants' descriptive characteristics and mean and standard deviation statistics were used to examine the scale. Kurtosis and Skewness values were analyzed to determine whether the research variables were normally distributed. The relationships between the dimensions determining the scale levels of the individuals were examined through Pearson correlation and linear regression analyses. Independent groups' t-test, one-way analysis of variance (ANOVA), and post hoc (Tukey, LSD) analyses were used to examine the differences in scale levels according to the descriptive characteristics of individuals. Cohen(d) and Eta square ($\eta2$) coefficients were used to calculate the effect size.

Ethical Considerations

Ethical approval was obtained from the clinical research ethics committee of Istanbul University-Cerrahpaşa Social and Human Sciences Research Ethics Board (date: 22.08.2022 and number: 2022/245), and institutional permissions were obtained from the university hospital and the cardiology institute for data collection. Participants were informed verbally and in writing following the Declaration of Helsinki, and their informed consent was obtained. Permissions were obtained from the principal investigators for the use of the scales.

RESULTS

Results Regarding Individuals' Descriptive Characteristics

In the study, 64.7% of the individuals were female, and 35.3% were male. The age range of the individuals was 18.4% were, 60 and below, 41.9% were 61-70, 39.7% were over 70, and the mean age was 68.070. Of the individuals who participated in the study, 80.9% were married, and 19.1% were single. It was determined that 84.6% of the individuals had comorbidities, 48.7% had diabetes mellitus (DM), and 79.1% had hypertension (HT). It was found that 23.5% of the individuals in the study had a family history of atrial fibrillation, 39% of the individuals used warfarin, and 61% used new-generation anticoagulants. It was identified that 97.8% of the individuals used their medications regularly. It was determined that 11% of the individuals had received education about atrial fibrillation before, and 89% had not (Table 1).

Results of the Medication Adherence/Subherence Self-Efficacy Scale (MASES)

Self-efficacy levels of adherence/compliance with drug treatment were found to be at a good level (41.640±6.093). Individuals' medication adherence was found to be at a good level (23.897±1.324) (Table 2).

Findings Related to Individuals' Self-Efficacy and Medication Adherence Reporting Scale

It was found that self-efficacy/adherence to medication was better in employed individuals (c=44.583) than in non-employed individuals (c=41.355) (p=0.024<0.05) (Table 3). It was found that total medication adherence scores of those with comorbidities (c=24.017) were higher than total medication adherence scores of those without comorbidities (c=23.238) (p=0.013<0.05) (Table 3). The calculated effect size (Cohen's d = 0.600) corresponds to a level between medium and large. This finding suggests that the presence of comorbidities may be a factor that increases individuals' adherence to medication therapy (Table 3).

The Relationship Between Individuals' Self-efficacy and Medication Adherence

In the study, it was determined that there was a positive moderate correlation (r=0.502, p=0.000<0.05) between total medication adherence and total self-efficacy, and as the level of self-efficacy increased, the level of medication adherence increased.

Regression analysis between self-efficacy and medication adherence was significant (F=45.229; p=0.000<0.05). It was found that a higher self-efficacy level of adherence/adherence to drug treatment was effective in increasing medication adherence (Table 4).

Table 1. Distribution of Individuals by Descriptive Characteristics (N=136)

Characteristics	n	%	Characteristics	n	%
Gender			**Type of Medication Used**		
Female	88	64.7	Warfarin	53	39
Male	48	35.3	Next Generation Anticoagulants	83	61
Age Mean: (68.070±9.400)			**Duration of Diagnosis (Mean: 7.090±7.518)**		
60 And below	25	18.4	5 Years and Less	76	55.9
61-70	57	41.9	6-10 Years	40	29.4
Over 70	54	39.7	Over 10 Years	20	14.7
Marital Status			**Additional Diseases***		
Married	110	80.9	Diabetes Mellitus	56	48.7
Single	26	19.1	Hypertension	91	79.1
Education Status			Heart Failure	27	23.5
Primary-secondary school	114	83.8	Hyperlipidemia	17	14.8
High School and Above	22	16.2	COPD/asthma	16	14
Employment Status			Rheumatoid Arthritis	4	3.5
Yes	12	8.8	Benign Prostatic Hypertrophy	5	4.3
No	124	91.2	Chronic Kidney Failure	4	3.5
Profession			Hyperthyroidism	2	1.7
Retired	62	45.6	Cancer	2	1.7
Housewife	68	50	Previous Cerebrovascular Event	4	3.5
Worker / Officer	4	2.9	Alzheimer	1	0.9
Cook	1	0.7	**Regular Use of Medicines**		
Textile Owner	1	0.7	Yes	133	97.8
Income Level			**Status of Education on Atrial Fibrillation**		
I can fulfill daily needs	42	30.9	Yes	15	11
I can only fulfill Essential Needs	94	69.1	No	121	89
Presence of Additional Disease			**Family History of Atrial Fibrillation**		
Yes	115	84.6	Yes	32	23.5
No	21	15.4	No	104	76.5

*Items selected more than once

Table 2. Medication Adherence/ Subherence Self-efficacy and Medication Adherence Mean Scores (N=136)

	N	Mean	Sd	Min.	Max.
Self-efficacy Total	136	41.640	6.093	25	48
Medication Adherence Total	136	23.897	1.324	19	25

(Mean: average, SD: standard deviation, Min: minimum value, Max: maximum value)

Table 3. Differences in Self-efficacy and Medication Adherence Scores by Descriptive Characteristics (N=136)

Demographic Characteristics	n	Self-efficacy Total Mean ± SD	Medication Adherence Total Mean ± SD
Gender			
Female	88	41.784±6.132	23.841±1.421
Male	48	41.375±6.076	24.000±1.130
t=		0.373	-0.668
p=		0.710	0.505
d=		0.067	0.120
Age			
60 and below	25	42.600±5.979	23.920±1.352
61-70	57	41.368±6.212	23.684±1.478
Over 70	54	41.482±6.087	24.111±1.110
F=		0.382	1.456
p=		0.683	0.237
$\eta^2=$		0.006	0.021
Employment Status			
Yes	12	44.583±4.078	24.583±0.669
No	124	41.355±6.191	23.831±1.354
t=		1.766	1.899
p=		**0.024**	0.060
d=		0.534	0.574
Income Level			
I can fulfill daily needs	42	40.929±6.034	23.738±1.449
I can only fulfill compulsory needs	94	41.957±6.124	23.968±1.265
t=		-0.909	-0.936
p=		0.365	0.351
d=		0.169	0.174
Type of Medication Used			
Warfarin	53	41.528±6.351	23.774±1.409
Next Generation Anticoagulants	83	41.711±5.960	23.976±1.269
t=		-0.170	-0.868
p=		0.865	0.387
d=		0.030	0.153
Presence of Additional Disease			
Yes	115	41.652±6.099	24.017±1.249
No	21	41.571±6.209	23.238±1.546
t=		0.056	2.530
p=		0.956	**0.013**
d=		0.013	0.600

*F: Anova Test; t: Independent Groups T-Test; PostHoc: Tukey, LSD; Cohen(d):Etki Büyüklüğü

Table 4. The Effect of Self-Efficacy on Medication Adherence (N=136)

Independent Variable	Non-standardized Coefficients		Standardized Coefficients	t	p	95% Confidence Interval	
	B	SE	ß			Lower	Upper
Fixed	19.352	0.683		28.338	0.000	18.002	20.703
Self-efficacy Total	0.109	0.016	0.502	6.725	**0.000**	0.077	0.141

*Dependent Variable=Medication Adherence Total, R=0.502; R^2 =0.247; *F*=45.229; *p*=0.000; Durbin Watson Value=1.996

DISCUSSION

Self-efficacy is the individual's belief in himself/herself to overcome the challenging conditions that he/she may encounter (Gözüm and Aksayan, 1999). Individuals who believe they can solve a problem are thought to have a higher ability to solve problems and make the right decisions. Self-efficacy changes individuals' thoughts and behaviors (Gözüm, 1999). In this study, similar to the literature, it was observed that the self-efficacy level of adherence/compliance with drug treatment was high (Table 2). In a study conducted by Özdemir et al. on geriatric hypertensive patients, the mean MASES score was 45.05±6.0 (Özdemir et al., 2016). According to the study conducted by Demirbaş and Kutlu on adult individuals using multiple medications, the mean MASES score was found to be 33.65±8.6 (Demirbaş and Kutlu, 2020). A review by Lowres indicated that 25-35% of patients with atrial fibrillation were not receiving anticoagulant therapy, and adherence to this treatment was found to be low. This suggests that enhancing individuals' self-efficacy levels is essential to improving treatment adherence. (Lowres et al., 2019). A study conducted by Martynow and colleagues examined the impact of disease acceptance levels on treatment adherence. The research indicates that individuals with a high perception of self-efficacy exhibit better adherence to treatment. These findings suggest that enhancing self-efficacy levels could positively influence adherence to anticoagulant therapy (Martynow et al. 2017).

The study determined that 8.8% of the individuals were employed and 91.2% were not (Table 1). According to a study on individuals diagnosed with AF, 20.4% of individuals were found to be employed (Şengül and Uysal, 2019). It is thought that the rate of working individuals is low because individuals diagnosed with AF are generally elderly. The study found that working individuals' self-efficacy scores were higher than those of non-working individuals, and self-efficacy treatment adherence levels of working individuals were better (p=0.024) (Table 3). Goli et al. reported in their study that being unemployed was associated with worsening AF symptoms (Goli et al., 2012). The unemployment factor adversely affects adherence to VKA, according to the Program for the Reduction In Medication

Errors (PRIME) component of the INR Adherence and Genetics (IN-RANGE) study (Emren et al., 2018). According to a study conducted on patients diagnosed with non-valvular atrial fibrillation in Japan, the treatment adherence rate was found to be 14%. The study demonstrated that increasing medication doses and patient age significantly impacted treatment adherence. Specifically, the requirement to take medication twice daily increased the risk of non-adherence. These findings highlight the importance of paying attention to dosing regimens to improve patient adherence. The same study also revealed that medication adherence was lower among individuals under the age of 65 and those who were unemployed (Suzuki et al., 2017).

Adaptation is the state of adapting the individual's behavior to the new situation in case of changes in conditions (Dikeç and Kutlu, 2015). Individuals' adherence to treatment is defined as medication use, compliance with the recommended diet and treatment regimen, and implementing the recommendations of the physician/nurse (Tör and Tosun, 2020). Individuals with chronic diseases can experience adaptation problems due to living dependent on others, experiencing losses, and lifestyle changes (Dikeç and Kutlu, 2015). When individuals come to an appointment for an examination, it is important for nurses and physicians to evaluate behaviors that may cause medication nonadherence and to inform the individual (Moudallel et al., 2022). Similar to the literature, in this study, it was found that the medication adherence of individuals with comorbidity was better than those without comorbidity, and the presence of comorbidity did not affect the level of medication adherence (p=0.013<0.05) (Table 3). In a study by Tör and Tosun (2020) on medication adherence of hypertensive patients, it was found that the presence of other chronic diseases did not affect the level of medication adherence, similar to our study (Tör and Tosun, 2020). However, according to the results of the study conducted by Manzoor et al. (2017), the presence of additional diseases other than AF affects the low level of adherence to new-generation oral anticoagulants (Manzoor et al., 2017). In the study conducted by Chen and colleagues (2023), the effects of self-efficacy on self-management skills and medication adherence in individuals with chronic illnesses were examined.

The findings revealed a positive relationship between self-efficacy and self-management but did not identify a significant association with medication adherence (Chen et al. 2023).

The limitation of the study is that it is only a two-center study. Since this study was conducted only with Turkish patients, studies should be conducted in different countries to determine whether it is similar to other races.

Conclusion and Recommendation

In this study aimed to determine the adherence to anticoagulant therapy and self-efficacy levels of individuals diagnosed with atrial fibrillation. It was found that employed individuals had higher self-efficacy levels than non-employed individuals; individuals with comorbidities showed better medication compliance than those without; and adherence to anticoagulant therapy increased as self-efficacy levels increased. it was found that the self-efficacy levels of employed individuals were higher than the self-efficacy levels of non-employed individuals; the medication compliance of individuals with comorbidities was better than those without comorbidities; and the level of adherence to anticoagulant drug therapy increased as the self-efficacy levels of individuals increased . It is recommended that patient education programs about the disease and drug treatments be planned and regularly implemented in clinics.

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