

## Original Article

# Satisfaction Levels of Cardiac Patients from Oral Anticoagulant Treatment

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### Abstract

**Objective:** This study was planned as a descriptive study in order to determine oral anticoagulant user satisfaction levels of cardiac patients from anticoagulant treatment.

**Materials and Method:** The study was carried out between April and October 2016 dates in department of internal diseases-cardiology of a State Hospital which is located in Diyarbakir City in Turkey. Population of the study was 220, comprised of oral anticoagulant user cardiac patients who were receiving inpatient treatment. The sample of the study, however, was comprised of 150 individuals, who were receiving anticoagulant treatment. Sample size power analysis method was determined by calculating at effect size of 0.05,  $\alpha$  level of 0.05 and with in confidence interval of 95%.

**Results:** It was determined that mean sub-dimension of limitations was 3.676 and its standard deviation was 1.058, mean sub-dimension of loads and challenges was 3.77 and its standard deviation was 0.865, mean sub-dimension of positive effects was 4.432 and its standard deviation was 0.962 and, as a result, mean of the satisfaction scale was 3.892 and its standard deviation was 0.825.

**Conclusion:** In direction of these outcomes, mean of "Duke Anticoagulant Satisfaction Scale" that was applied to the patients was 3.89 and its standard deviation was 0.825. Satisfaction level of the patients from the treatment was determined to be at moderate level. For this raising awareness of nurses concerning the issues influencing satisfaction levels of patients who are under Oral anticoagulant treatment may be recommended.

**Keywords:** Anticoagulant Treatment, Patient Satisfaction, Nursing, Cardiac Disease.

### Introduction

Cardiovascular diseases (CVD) are a public health issue as they independently increase mortality and morbidity. When we look at thrombotic diseases, they are the leading causes of mortality. In the World, 38 million people die from cardiovascular diseases according to 2012 data (Tobu, 2009). CVD is the leading threat to global health, whether measured by mortality, morbidity, or economic cost (Banerjee et al. 2016). Cardiovascular diseases were responsible for the largest proportion of noncommunicable diseases deaths under the age of 70 years (37%) (WHO 2014).

Data from the United States reveals that 6 million people are affected and 2 million die annually due to these diseases (Tobu, 2009). According to national mortality data of Turkey from 2010-2014, cardiovascular mortality leads the list with

205 457 deaths. Atrial fibrillation (AF), valvular heart disease, cerebral and pulmonary emboli, and many other cardiovascular diseases require therapeutic use of anticoagulant drugs (Canobbio, 2006; Uzun & Arslan, 2007).

Oral anticoagulants antagonize vitamin K which plays a role in the synthesis of many clotting factors and are commonly used in cardiovascular diseases (Canobbio, 2006; Uzun & Arslan, 2007; Fernández et al. 2018). Many side effects are experienced with anticoagulant group drugs. Today many drugs have life-threatening side effects due to their chemical structures, duration of use, and also due to individual factors (Graven & Hirnl, 2000; Wyness, 1990). In a study examining the FERS (Adverse Event Reporting System) reports, in the United States between 1993-2006, 9766 patients were admitted to emergency service due to bleeding, 8415 were

using anticoagulant drugs, and 999 died. Results of this study also show that risk of bleeding in patients using oral anticoagulants is non-negligible (Wysowski & Nourjah & Swartz, 2007).

Frequently used anticoagulant drugs can affect the quality of life of patients and decrease their compliance and satisfaction levels. Many studies have shown that to be able to measure the patient's level of satisfaction, patient's compliance with the duration of treatment is very important (Fernández et al. 2018; Samsa et al. 2004; Yildirim & Temel, 2014; Pandya & Bajorek, 2017; Keita et al. 2017; Benzimra et al. 2018). However considering the complications experienced by the patients, assessing opinions, experiences, and satisfaction levels of patients using anticoagulant drugs and effects of these results on their life standards are required (Yildirim & Temel, 2014; Keita et al. 2017).

No studies have been performed in Turkey on this topic and also very few studies have been performed abroad (Yildirim & Temel, 2014; Nadar et al. 2003; Yildirim, 2013). There have been studies on this topic in which tools were developed to measure patients' knowledge levels and needs. For example, Briggs et al. (Briggs et al. 2005). have developed a tool to assess knowledge level about anticoagulation. Various researchers also used standardized guidelines and various questionnaires in anticoagulation clinics (Wyness, 1990). In our country, Yildirim and Temel have developed Anticoagulant Satisfaction Questionnaire in 2014 to evaluate the satisfaction of patients using anticoagulant treatment (Yildirim & Temel, 2014). Assessing the satisfaction of patients about drug use may yield various approaches to determine their compliance with treatment, problems they experience, and perception about treatment (Fernández et al. 2018; Koretsune, 2017). Individual's response to anticoagulants can be affected by the rate of drug absorption, food and drug interactions, current medical condition, and inherited resistance to anticoagulants. Nursing education programs to be applied to individuals and their families will play an important role for the safe use of the drug and for the expected therapeutic effect in the prevention of overdose and accompanying bleeding in patients (Uzun & Arslan, 2007; Graven & Hirnl, 2000; Wyness, 1990; Wysowski & Nourjah & Swartz, 2007).

The aim of this study is to determine the level of satisfaction of cardiac patients about anticoagulant treatments. We suggest that this study will direct the nurses to exercise precautions that can minimize problems experienced by patients during treatment.

## Material and Method

**Type of study:** This study had a descriptive design in order to evaluate satisfaction levels of cardiac patients from anticoagulant treatment.

**Location and Characteristics of the Research:** This study was performed at 25-bed Internal Medicine- Cardiology Clinic of 98-bed Dr Yusuf Azizoglu State Hospital in Silvan, Diyarbakir.

**Research Universe and Sample:** The research universe included 220 inpatients using oral anticoagulants between April-June 2016 in Dr Yusuf Azizoglu State Hospital. The sample of this study consisted of 150 cardiac inpatients using oral anticoagulants. Power analysis method was used taking effect size as 0.5,  $\alpha$  as 0.05, and confidence interval as 95%.

## Inclusion Criteria

- Being an inpatient in the internal medicine-cardiology clinic during the dates of the study
- Does not have any problems with verbal communication
- Does not have a psychiatric story

## Data Collection Tools

**Personal information form:** A total of 16 questions were created by researchers that question the socio-demographic and disease-related characteristics of individuals in line with the literature.

**Duke Anticoagulation Satisfaction Scale:** The Anticoagulant Satisfaction Scale, which was developed by Samsa et al in 2004 (Samsa et al. 2004) and validity and reliability of its Turkish version was determined by Yildirim and Temel in 2014, is a 4-option Likert type questionnaire. The scale's validity index was 0.99 and the Cronbach's alpha coefficient was 0.89.13 The Cronbach alpha coefficient of our study is 0.928. This scale includes 25 questions in 5 sections (Yildirim & Temel, 2014).

The scale items are intended to determine the needs and perceptions of patients about treatment. These requirements are also expected to have an impact on the quality of life of the

patients and thus on their level of satisfaction with treatment.

**Data Collection:** This study was performed with voluntary cardiac patients using oral anticoagulants willing to participate in this study and necessary information was collected with data collection tools by the researcher. Researcher stayed with the patients during filling the questionnaire in order to answer their questions about the items which were not understood by the patients.

**Evaluation of Data:** Statistical Package for Social Sciences (SPSS Ltd., Chicago, IL, USA) 20.0 package program was used to analyze the data obtained from the research. Mean value, percentage, Independent Groups t test, correlation, Tukey, ANOVA, Hostelling, Kruskal Wallis, Mann-Whitney U test and Cronbach alpha coefficients were used to analyze data.

### **Ethic Aspects of the Study**

For the collection of data, permissions were obtained from Silvan Yusuf Azizoglu State Hospital. Permission to use the questionnaire was obtained by e-mail from the two researchers who performed validity and reliability study. Before the initiation of the study written permissions were obtained from the hospital from which the data will be collected and from Ethics Committee of Ataturk University Health Sciences Faculty. During data collection, written informed consents of the volunteers were obtained after explaining the purpose of this study and planned use of data obtained from this study. Privacy and Confidentiality principles were applied and patients were told that information they provide for this study will be confidential and used only for this study.

## **1. RESULTS**

Demographic data of the patients is given in Table 1.

The mean age of the patients was  $55.97 \pm 14.71$  years. 38.0% (n = 57) were between 51-65 years, 58.7% (n = 88) were male, 80% (n = 120) were married, 34.0% (N = 75) were primary school graduates, 44.0% (n=66) did not have social security, 50.0% (n=75) did not have a job at present, and 51.3% stated that the income was equal to the expense.

Measurement of Cronbach's Alpa levels of the

sub-dimensions showed that the levels were between 0.893 and 0.833, reliability level was high; the satisfaction scale had an alpha value of 0.928 and reliability level was very high.

Significance levels of the items forming the factors were examined and a significance at  $p < 0.001$  level was observed

There was a significant positive correlation of 0.729 between the Limitations subscale and the Burdens and Hassles subscale ( $p < 0.01$ ), a significant positive correlation of 0.413 between the Limitations Subscale and Positive Impacts Subscale ( $p < 0.01$ ) and a significant positive correlation of 0.549 between Burdens and Hassles Subscale and Positive Impacts subscale ( $p < 0.01$ ).

There was a significant positive correlation of 0.903 between Satisfaction Scale and Limitations Subscale ( $p < 0.001$ ), a significant positive correlation of 0.905 between Satisfaction Scale and Burdens and Hassles Subscale ( $p < 0.001$ ), and a significant positive correlation of 0.699 between Satisfaction Scale and Positive Impacts Subscale.

Table 4 gives mean scores, standard deviations, and minimum-maximum scores for items 1, 2, 3, 4, 5, 6, 7, 8, 9 and 20 in the Limitations Subscale (Factor 1), items 10, 11, 12, 13, 14, 15, 16, 22 and 24 in the Burdens and Hassles Subscale (factor 2) and 17, 18, 19, 21, 23 and 25. items in the Positive Impacts Subscale (Factor 3).

Accordingly, there was a moderate degree of satisfaction from the Limitations Subscale (mean: 3.676, standard deviation:1.058), moderate degree of satisfaction from Burdens and Hassles Subscale (mean: 3.77, standard deviation:0.865), high degree of satisfaction from Positive Impacts Subscale ( (mean: 4.432, standard deviation:0.962), and moderate degree of satisfaction from Satisfaction Questionnaire (mean: 3.892, standard deviation:0.825). The items with the highest satisfaction levels were item 8 in the Limitations subscale (mean: 4.23), item 14 in the Burdens and Hassles Subscale (mean: 4.59), and item 28 in the Positive Impacts subscale (mean: 4.96).

Mean score in the Satisfaction Scale was high for Factor 3, and low for factor 1 and factor 2 due to items with negative scores; overall it was above 50% from 7 points.

**Table 1. Distribution of Patients According to Demographic Features (N = 150)**

Socio-demographic Features	Number	%
<b>Age (years)</b>		
Mean± SD* 55.97 ± 14.71; Minimum-maximum = 24-92		
Under 35 years	14	9.3
Between 36-50 years	41	27.4
Between 51-65 years	57	38.0
66 years and over	38	25.3
<b>Gender</b>		
Male	88	58.7
Female	62	41.3
<b>Marital Status</b>		
Married	120	80.0
Single	17	11.3
Divorced/widowed	13	8.7
<b>Educational Status</b>		
Illiterate	35	23.3
Primary school	51	34.0
Secondary school	24	16.0
High school	27	18.0
University	13	8.7
<b>Social Security status</b>		
Present	84	56.0
Absent	66	44.0
<b>Current Employment Status</b>		
Yes	42	28.0
Retired	33	22.0
Unemployed	75	50.0
<b>Perception of Income Status</b>		
Income lower than expenditure	63	42.0
Income equal to expenditure	77	51.3
Income higher than expenditure	10	6.7

**Table 2. Reliability Comparison of Patient Satisfaction Scale and Subscales**

	Cronbach's Alpha	Significance Level (Tukey, Anova and Hostelling)
Limitations Subscale	0.893	0.000
Burdens and Hassles	0,861	0.000
Positive Impacts	0.833	0.000
Patient Satisfaction Scale	0.928	0.000

**Table 3. Patient Satisfaction Scale and Subscale Correlation Table of the Patients**

		Factor 1	Factor 2	Factor 3	Satisfaction Scale
<b>Factor 1</b>	Correlation	1	0.729	0.413	.903
	Significance		<b>0.000</b>	<b>0.000</b>	<b>0.000</b>
<b>Factor 2</b>	Correlation	.729	1	0.549	.905
	Significance	<b>0.000</b>		<b>0.000</b>	<b>0.000</b>
<b>Factor 3</b>	Correlation	0.413	0.549	1	.905
	Significance	<b>0.000</b>	<b>0.000</b>		<b>0.000</b>
Satisfaction Scale		.903	.905	.699	1
		<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	

Factor 1: Limitations Subscale; Factor 2: Burden and Hassles Subscale; Factor 3: Positive Impacts Subscale

**Table 4. Evaluation Table for Mean Values of Responses of Satisfaction Scale Items and Satisfaction Scale Subscales**

Scale Items	Mean	Standard Deviation	Minimum	Maximum
1. How much does the possibility of bleeding or bruising limit you from taking part in physical activities?	3.65	1.511	1	7
2. How much does the possibility of bleeding or bruising limit you from traveling?	3.63	1.495	1	7
3. How much does the possibility of bleeding or bruising limit you from getting the medical care you need?	3.86	1.414	1	7
4. How much does the possibility of bleeding or bruising limit your ability to work for pay?	3.65	1.541	1	6
5. Overall, how much does the possibility of bleeding or bruising affect your daily life?	3.84	1.371	1	7
6. How much does anti-clot treatment limit your choice of food (diet)?	3.63	1.421	1	7
7. How much does anti-clot treatment limit the alcoholic beverages you might wish to drink?	2.19	1.658	1	7
8. How much does anti-clot treatment limit the over-the-counter medications you might wish to take?	4.23	1.628	1	7
9. Overall, how much does anti-clot treatment affect your daily life?	4.12	1.385	2	7
20. How much do you worry if you experience bleeding and bruising due to your anti-clot treatment?	3.95	1.355	1	7
<b>LIMITATIONS SUBSCALE</b>	<b>3.67</b>	<b>1.058</b>		
10. How much of a hassle (inconvenience) are the daily tasks of anti-clot treatment?	3.79	1.353	1	6
11. How much of a hassle (inconvenience) are the occasional tasks of anti-clot treatment?	4.00	1.390	1	7
12. How complicated do you find your anti-clot treatment to be?	4.38	1.103	1	7
13. How time-consuming do you find your anti-clot treatment to be?	3.52	1.304	1	7

14. How frustrating do you find your anti-clot treatment to be?	4.59	1.429	1	7
15. How painful do you find your anti-clot treatment to be?	3.47	1.246	1	7
16. Overall, how much of a burden do you find your anti-clot treatment to be?	3.17	1.089	1	6
22. Overall, how much does anti-clot treatment negatively affect your life?	3.29.	1.229	1	7
24. Compared with other treatments you have had, how difficult is your anti-clot treatment to manage?	3.74	1.126	1	7
<b>BURDENS AND HASSLES SUBSCALE</b>	<b>3.77</b>	<b>0.865</b>		
17. How much do you believe yourself to continue anti-clot treatment?	4.33	1.374	1	7
18. How well do you feel that you understand the medical reason for your anti-clot treatment?	4.03	1.303	1	7
19. How much do you feel reassured because of your anti-clot treatment?	4.59	1.254	1	7
21. Overall, how much has anti-clot treatment had a positive impact on your life?	4.28	1.270	1	7
23. Overall, how satisfied are you with your anti-clot treatment?	4.40	1.111	1	6
25. How likely would you be to recommend this form of anti-clot treatment to someone else with your disease or medical condition?	4.96	1.483	1	7
<b>POSITIVE IMPACTS SUBSCALE</b>	4.43	0.962		
<b>SATISFACTION SCALE (TOTAL POINTS)</b>	3.89	0.825		

**Table 5. Comparison of the Patient Satisfaction Scale and Subscales According to Socio-Demographic Features of the Patients (n=150)**

		Factor 1	Factor 2	Factor 3	Satisfaction Scale
Gender	Female	3.45 ± 1.09	3.52 ± 0.70	4.24 ± 0.99	4.04 ± 0.84
	Male	3.83 ± 0.96	3.94 ± 0.93	4.56 ± 0.92	3.67 ± 0.74
	Test Value Significance	MW = 2202.0 p = 0.044 *	MW=1888.5 p = 0.001 **	MW = 2273.5 p = 0.082	MW = 2017.5 p=0.007*
Age Groups	Under 35 years	3.92 ± 1.06	3.72 ± 1.07	4.67 ± 1.15	4.03 ± 0.95
	Between 36-50 years	3.45 ± 0.98	3.65 ± 0.74	4.50 ± 0.90	3.77 ± 0.72
	Between 51-65 years	3.63 ± 1.07	3.73 ± 0.77	4.28 ± 0.93	3.82 ± 0.75
	66 years and over	3.88 ± 1.17	3.97 ± 1.02	4.49 ± 0.99	4.06 ± 0.96
	Test Value Significance	KW = 3.704 p = 0.295	KW = 2.828 p = 0.419	KW = 2.611 p = 0.456	KW = 3.429 p = 0.330
Marital Status	Married	3.60 ± 1.07	3.74 ± 0.86	4.42 ± 0.93	3.85 ± 0.84
	Single	4.05 ± 0.93	3.75 ± 0.89	4.83 ± 0.91	4.13 ± 0.75
	Divorced / widowed	3.85 ± 1.00	4.01 ± 0.82	4.00 ± 1.14	3.91 ± 0.76
	Test Value Significance	KW = 4.143 p = 0.126	KW = 1936 p = 0.380	KW = 5.226 p = 0.073	KW = 2.901 p = 0.234
Perception of Income Status	Income lower than expenditure	3.56 ± 1.07	3.74 ± 0.93	4.35 ± 0.96	3.82 ± 0.89
	Income equal to expenditure	3.77 ± 1.02	3.78 ± 0.78	4.48 ± 0.95	4.27 ± 0.76
	Income higher than expenditure	3.64 ± 1.22	3.82 ± 1.06	4.51 ± 1.07	3.78 ± 0.79

	<b>Test Value</b>	KW=2.398	KW = 0.647	KW = 0.592	KW=1.153
	<b>Significance</b>	p = 0.302	p = 0.724	p = 0.742	p = 0.562
<b>Education Level</b>	<b>Illiterate</b>	3.67±1.15	3.64 ± 0.88	4.56±0.87	3.73±0.87
	<b>Primary school</b>	3.80 ± 0.90	3.81±0.76	4.27 ± 0.80	3.91 ± 0.73
	<b>Secondary school</b>	3.66 ± 1.02	3.86±0.87	4.43±1.03	3.91 ± 0.80
	<b>High school</b>	3.97 ± 1.02	3.85±0.95	4.30±1.16	4.01±0.91
	<b>University</b>	3:55 ± 1.33	3.61±1.05	4.97±1.03	3.91 ± 0.92
	<b>Test Value</b>	KW = 6.437	KW = 2.657	KW = 5.504	KW = 1.577
	<b>Significance</b>	p = 0.169	p = 0.617	p = 0.239	p=0.813
<b>Employment Status</b>	<b>Yes</b>	3.52 ± 1.12	3.66 ± 0.92	4.34±1.13	3.77 ± 0.84
	<b>Retired</b>	4.13±1.05	4.12 ± 0.87	4.73 ± 0.78	4.27 ± 0.76
	<b>Unemployed</b>	3.55±0.97	3.67 ± 0.79	4.34 ± 0.91	3.78 ± 0.79
	<b>Test Value</b>	KW=9.020	KW = 7.346	KW = 4.006	KW = 10.024
	<b>Significance</b>	<b>p = 0.011*</b>	<b>p = 0.025*</b>	p = 0.135	<b>p=0.007*</b>
<b>Bleeding Experience</b>	<b>Yes</b>	3.78 ± 1.15	3.81 ± 0.89	4.51±0.88	3.97 ± 0.89
	<b>No</b>	3:58 ± 0.96	3.73 ± 0.84	4.35±1.02	3.82±0.76
	<b>Test Value</b>	MW = 2501.00	MW = 2774.00	MW = 2646.00	MW = 2574.00
	<b>Significance</b>	p = 0.259	p = 0.922	p = 0.560	p = 0.394
<b>Bruising</b>	<b>Yes</b>	3.65 ± 1.09	3.79 ± 0.86	4.45 ± 0.86	3.89 ± 0.85
	<b>No</b>	3.69 ± 1.02	3.75 ± 0.87	4.40 ± 1.05	3.88 ± 0.80
	<b>Test Value</b>	MW = 2743.50	MW = 2784.50	MW = 2783.00	MW = 2810.00
	<b>Significance</b>	p = 0.796	p = 0.473	p = 0.913	p=0.994
<b>Alcohol Use</b>	<b>Yes</b>	4.04 ± 1.11	3.94 ± 1.04	4.25 ± 1.14	4.06 ± 0.96
	<b>No</b>	3.36 ± 0.90	3.62 ± 0.65	4.58 ± 0.74	3.75 ± 0.66
	<b>Test Value</b>	MU = 1876.00	MU = 2350.50	MU = 2387.50	MU = 2293.00
	<b>Significance</b>	<b>p = 0.001 **</b>	p = 0.098	p = 0.129	p = 0.061

Statistical significance level was accepted as \* p<0.05, \*\* p<0.01. Factor 1: Limitations Subscale;

Factor 2: Burden and Hassles Subscale; Factor 3: Positive Impacts Subscale

MU= Mann-Whitney U Test Value, KW=Kruskall Wallis Test Value

A significant correlation ( $p < 0.01$ ) was observed between alcohol use and the Limitations Subscale of the patients ( $p = 0.001$ ). Alcohol use decreased satisfaction significantly. In addition, there was a significant correlation ( $p < 0.05$ ) between the employment status and the Limitations Subscale ( $p = 0.011$ ) meaning that employment decreases satisfaction in patients taking anticoagulants. Also there was a correlation between employment status and Burden and Hassles Subscale ( $p = 0.025$ ) meaning that employment increases burden in patients taking anticoagulant treatment.

There was a significant relationship ( $p < 0.05$ ) between gender and the Limitations Subscale ( $p = 0.044$ ), meaning that there was a negative relationship between the gender of the patients and the satisfaction from anticoagulant treatment. Also there was a significant relationship ( $p < 0.01$ ) between the gender and Burden and Hassles

Subscale ( $p = 0.001$ ) meaning that gender difference may decrease satisfaction from Burden and Hassles Subscale.

There was a significant relationship ( $p < 0.05$ ) between gender of the patients and the Satisfaction Scale ( $p = 0.007$ ), meaning that gender difference may decrease satisfaction from anticoagulant treatment. Moreover, there was a significant relationship ( $p < 0.05$ ) between employment status and the Satisfaction Scale ( $p = 0.007$ ) meaning that employment decreased satisfaction in patients taking anticoagulants.

There wasn't a significant relationship ( $p < 0.05$ ) between gender, age group, marital status, income status, education level, work status, bleeding experience, bruising experience, and alcohol use with Positive Impacts subscale of the Satisfaction Questionnaire meaning that the patients had low satisfaction levels.

## Discussion

The success of treatment with anticoagulant drugs depends on the knowledge of the patient about drug use; awareness of the benefits of drug, risk of life-threatening bleeding risk and other side effects, risk of interaction with consumed food and other drugs; and understanding the importance of regular follow up by a physician and laboratory tests (Estrada & Hryniewicz & Higgs, 2010; Wilson et al. 2003).

There were statistically significant differences between the satisfaction levels of Factor 1 and Factor 2 Subscales and gender ( $p < 0.05$ ). Lower satisfaction of women than men may be due to higher risk of side effects in women due to menstruation and pregnancy and higher responsibility and workload at home. 41.3% of the individuals participating in this study were women. In Fernández's research (2018) the perceived burdens with anticoagulant treatment were lower (higher satisfaction) and the perceived benefits were higher in men (Fernández et al. 2018). They explained this result as women exhibit a worse quality of life and a worse health perception than men not only in atrial fibrillation, but also in several chronic clinical conditions.

There was no statistically significant difference between the Satisfaction Levels of the patients included in this study in terms of age factor ( $p > 0.05$ ). Experiences of individuals due to illness may affect treatment compliance and acceptance Gadisseur et al found that younger people perceived anticoagulant treatment better than elderly people (Gadisseur et al. 2004). Almeida et al. found that middle-age group (40-64 years) had better quality of life than younger and older patients (Almeida et al. 2011).

Examination of education levels of the patients revealed that 34.0% were primary school graduates and 23.3% were illiterate. Education is an important factor to gain new information about secure health procedures. The fact that majority of the individuals in the sample had low education levels may be a factor that negatively affects knowledge about OAC drugs and their regular use; this affects satisfaction level of the patients. No statistically significant difference was found in satisfaction levels of the groups according to patients' level of education ( $p > 0.05$ ). However, review of the literature suggests that treatment success with OAC drugs depends on individual's education level and awareness that

life-threatening side effects may occur (Yildirim, 2013; Wilson et al. 2003; Tasocak, 2003).

Employment status of the patients revealed that 22% were retired. Higher satisfaction level in retirees may be due to increased time allocation of retirees for themselves and lower work-stress due to the absence of work. The 46.7% of the patients included in this study have experienced bleeding. Experience of bleeding during oral anticoagulant use warrants some precautions while choosing products for self-hygiene, clothes and the safest activities to perform. These include choosing comfortable clothes, using non-irritating cleaning products, avoiding razor blades to prevent cuts and bleeding, wearing protective clothing such as gloves while working and choosing sports activities that won't result in injuries (Acaroglu & Sendir, 2001; Mercan, 2010). Few patients knew precautions to be taken on this issue and therefore 46.7% of the subjects in the sample group experienced bleeding side effect.

Literature review revealed that larger hemorrhages direct individuals to emergency department however mild/small haemorrhages are generally noticed later and treatment is initiated later. Regardless of the severity of bleedings drugs should be stopped immediately and a physician should be seen (Beyth, 2001; Nazarian et al. 2009; Egred & Rodrigues, 2004). Informing the individual and the family is very important is very important to prevent these side effects. Given the non-negligible number of individuals who experienced bleeding in this study, it is obvious that individuals forming this sample should be informed to help them using OAC drugs safely.

Alcohol use of the patients included in this study had a significant relationship with Limitations Subscale meaning that alcohol use decreases satisfaction. In addition, employment status had a significant relationship with the Limitations Subscale meaning that employment decreases satisfaction in patients taking anticoagulants; also there was a significant relationship between employment status and Burdens and Hassles Subscale meaning that employment status leads to a burden in coagulation treatment. Possible effects of alcohol and drug use, bleeding signs, his/her illness and the reason for warfarin use, explanation of the necessity of taking drugs at the same hour every day should be explained in detail to the patients and regular INR follow-ups

should be performed (Dogu, 2012). 45.3% of the study patients were using alcohol. Higher level of satisfaction in patients using alcohol is in contrast with the literature. 6.2% of the patients in Dogu's study were using alcohol. In Dogu's study patients using alcohol were found to be more prone to bleeding. Alcohol use may change the effect of warfarin. Alcohol causes bleeding and bruising in individuals using anticoagulants (Dogu, 2012). Beyth studied subjects using OAC drugs and found that the most common haemorrhages in order of frequency were gastrointestinal system haemorrhages, urinary haemorrhages, intracranial haemorrhages, and soft tissue haemorrhages (Beyth, 2001). 63.3% of the study patients had a chronic disease other than the disease for which warfarin was indicated. We know that chronic diseases and multiple drug use due to them is increasing in our society. According to the "Chronic Diseases Report" published in 2006 by the Ministry of Health General Directorate of Curative Services, there are 22 million individuals with chronic illnesses in our country (Nadar et al. 2003).

The 74% of the patients in the study group were using drugs other than anticoagulants. Because OAC drugs interact with many drugs and patients with chronic diseases use multiple drugs both effects and adverse effects/toxicities of OAC drugs increase. Ouirke et al found that drug interactions were common (43%) causes of hemorrhage which is the most severe complication of OAC drugs. Especially commonly used anticoagulant, antibiotic, and cardiovascular system drugs may cause death due to complications they cause when they are used with OAC drugs (Ouirke et al. 2007). Presence of chronic patients and drug interactions affect OAC dose (increase/reduce its effect). This affects the level of satisfaction of patients (Asiret & Ozdemir, 2012).

Presence of acute and chronic diseases can change the distribution of drugs. Other drugs taken together may affect the absorption of OAC drugs negatively. Some cholesterol medications (lovastatin), thrombolytics (streptokinase), Parkinson's disease drugs (tolcapone), some drugs used in cardiac diseases (amiodarone, propranol) may increase the effect of OAC drugs. In addition, antihistamines, corticosteroids, some antiepileptic drugs (aminoglutethimide) and diuretics can reduce the effect of oral anticoagulants (Asiret & Ozdemir, 2012). Therefore, including information about chronic

diseases and drug interactions with OAC drugs to the patients'/relatives' education program will contribute to the safe continuation of OAC treatment and will also have a positive effect on patients' satisfaction level.

Most (74.7%) of the study subjects were using OAC for more than 3 months. Mercan found that almost half of the patients (51.0%) were using the drugs for 1-5 years (Mercan, 2010). Mercan suggest that OAC should be used for long-term in chronic diseases such as Cardiac Valve Replacement or Atrial Fibrillation when no side effects are observed. This finding of that study was consistent with the literature. Mercan stated that 62.3% of the individuals in that study would use OAC drugs for lifetime (Mercan, 2010); similarly Connock et al and Appelboam & Thomas stated that OAC drugs should generally be used for a long period of time (Connock et al. 2007; Appelboam & Thomas, 2009). The 52.7% of the patients in the study were detected to have blood tests regularly.

Follow up of OAC drug dose is very important for drug overdose and dose regulation. The effect of the drug may vary between individuals and also in the same patient at different times. For this reason, along with regular drug use performance of regular INR tests is very important to increase the level of satisfaction. Studies showed that patients using anticoagulant drugs should regularly use their drugs, obtain INR tests, and attend to physician follow-ups (Carlquist & Anderson, 2011; Ansell et al. 2008).

### **Conclusion**

To improve quality of life, adherence, and satisfaction, the patient should be involved in choice of treatment. Raising the awareness of nurses about the issues affecting the satisfaction level of patients using OAC. Education about drugs should be given to individuals using OAC and this education should be individualized taking age, sex and education level into account.

Due to the prolonged use of OAC medicines and many side effects, they should be given a written source that they can refer to when they need counseling to help them in the home/work environment. Performance of studies on various and larger samples of patients using OAC. We suggest that this study will direct the nurses to exercise precautions that can minimize problems experienced by patients during treatment.

## Limitations of the Study

Because the study was performed in cardiac patients taking oral anticoagulants in a single hospital it can't be generalized to all cardiac patients. Patients included in this study were using drugs other than oral anticoagulants which might have affected them. These were the limitations of this study.

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