

Kardiyoloji hastalarında bitkisel ürün kullanımı

Herbal supplement usage in cardiac patients

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ÖZET

Amaç: Tamamlayıcı ve alternatif tıp (TAT) uygulamaları günümüzde giderek yaygınlaşmaya başlamıştır. TAT geleneksel tıp uygulamaları dışında kalan bütün sağlık hizmetlerini, yöntemlerini, uygulamalarını ve bunlara eşlik eden kuram ve inançları kapsayan geniş bir sağlık alanıdır. Bu çalışma bir kardiyoloji kliniğine yatan kalp hastalarında kullanılan bitkisel ürünleri, nasıl kullanıldıklarını incelemek üzere planlanmıştır. **Yöntemler:** Kesitsel-tanımlayıcı nitelikteki bu çalışma, Nisan 2016-Haziran 2016 tarihleri arasında Özel Defne Hastanesi Kardiyoloji Servisi'nde yatan 18 yaş üstünde olup görüşmeyi kabul eden 199 hastada 20 sorudan oluşan anket yüz yüze görüşme yöntemi ile yapılmıştır.

Bulgular: Çalışmamıza katılan hastaların %28.6'sı (n=57) bitkisel ürün kullandıklarını, %71.6'sı (n=142) bitkisel ürün kullanmadıklarını söylemiştir. Bitkisel ürün kullananların sadece %14.03'ü (n=8) ürünü hekimine danışarak kullandığını söylerken, %85.9'u (n=49) hekimine danışmadan kullandığını söylemişlerdir. Çalışmaya katılan hipertansiyonlu hastaların %35.7'si bitkisel ürün kullanmaktadır. En sık kullanılan bitkisel ürünler %22.5 limon, %17.5 nar ekşisi ve %17.5 yeşil çay idi. Çalışmaya katılan kalp damar hastalarının %23.5'i bitkisel ürün kullandığını beyan etmişlerdir. Bitkisel ürün kullananların %25'i yeşil çay, %25'i zencefil, %18.8'i ada çayı kullandıklarını söylemişlerdir.

Sonuç: Kardiyoloji hastalarının önemli bir kısmı bitkisel ürün kullanmaktadır. Büyük bir kısmı sorumlu hekimlerine danışmadan kullandıklarını belirtmektedirler. Hastaların hekimlerine danışmadan bitkisel ürün kullanmaları istenmeyen sonuçlara yol açabilir.

ABSTRACT

Objective: Complementary and alternative medicine (CAM) has become more and more widespread around the world. CAM is a broad term that refers to all medical healthcare services, methods, and practices that are not part of standard medical care, as well as the accompanying theories and beliefs. The aim of the present study was to investigate the use of herbal medicinal products in cardiac patients, as well as the methods of administration of the products.

Methods: This descriptive cross-sectional study included 199 patients aged over 18 years who were hospitalized in the Defne Hospital department of cardiology and volunteered to participate in a 20-item survey between April 2016 and June 2016.

Results: The study results indicated that 28.6% (n=57) of the patients were using herbal medicinal products and 71.6% (n=142) said they did not. Only 14.03% (n=8) of those who used herbal medicinal products said they used them in consultation with their physician; 85.9% (n=49) had used herbal medicine without consulting their doctor. Of the participants with hypertension, 35.7% of them reported using herbal medicinal products. Of these, 22.5% of them were consuming lemon, 17.5% pomegranate syrup, and 17.5% green tea. Of the participants with cardio-vascular diseases, 23.5% of them stated that they were taking herbal medicinal products. Of these, 25% were consuming green tea, 25% ginger, and 18.8% sage.

Conclusion: Herbal medicinal supplements were used by a large portion of the cardiac patients in this study. Furthermore, most of the patients stated that they were using these products without informing their physician, a practice that can have unwanted consequences.

Complementary, and alternative medicine (CAM) has nowadays become increasingly widespread all around the world. CAM is a broad healthcare field that encompasses all medical healthcare services, methods, and practices that are not part of the standard medical care, as well as accompanying theories and beliefs.

CAM has been classified in various categories. This classification involves natural products (herbs, vitamins, minerals, fish oil), mental, and physical applications (massage), other types of CAM (Chinese medicine, neuropathy, pilates, therapeutic touch). Among them most frequently herbal medicinal products are preferred.^[1] Nowadays complexity, cost, and limitations of modern medicine imposed on human life, phytotherapy (phytos=plant; and therapy) which means herbal therapy has

Submitted on: 11.07.2016 Accepted for publication on 06.30.2017

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attracted the attention of higher number of people, and herbal therapies have been prevalently used for the treatment of many diseases in every age group.^[2] Herbal medicinal products have been used for centuries in Far East Countries, and recently consumers in the Western World have been more frequently become familiar with these products. In USA more than 15 million people are using these products, and the number of CAM users is much higher than those consulted to physicians. Every year nearly 34 million US Dollars are spent for herbal medicinal products .^[3]

Complementary and alternative medicine is widely practiced for the treatment of cardiovascular (CV) disease, and prevention of risk factors. Inadequate scientific data are available about effectiveness, and safety of these products, physicians are generally not aware of nontraditional medical therapies. The patients do not declare the herbal medicinal products they used for fear of objection by their physicians in charge of their treatments or they think that use of herbal medicinal products is not worth informing physicians. Moreover the definition of the word “herbal” unfortunately has been identified among people with the concepts of “beneficial and completely innocent”. However components of various herbal or alternative products may increase blood pressure, lead to formation of thrombosis or interact with the CV drugs the patients used. Therefore physicians should know the current scientific evidence related to beneficial, and harmful effects of herbal medicinal products.^[4]

In all the world increase in the use of herbal medicinal products by the patients with CVD is a clinical distress for physicians. Less than 50 % of the patients who use herbal medicinal products inform their responsible physicians .^[5] Frequently physicians do not know the side effects, and drug interactions of the herbal medicinal products used by their patients.^[5] Interactions between the products used by the patients with cardiovascular disease, and other drugs used by them have been also reported.^[5] For example significant adverse effects of St. John’s wort, licorice root, and garlic used as herbal, and alternative treatments have been observed.^[6] Their concomitant use with some herbs or herbal medicines may induce harmful effects, even death. These adverse effects create concerns about their use by especially elder people, and patients with cardiac, renal, and hepatic failure.^[7]

Therefore use of herbal medicinal products by cardiology patients may lead to morbidity, and mortality. This study was planned to investigate how the cardiac

patients were using herbal medicinal products, and their side effects.

METHODS

This cross-sectional descriptive study was performed with 199 volunteered patients aged ≥ 18 years hospitalized in Cardiology Service of Private Defne Hospital between 2016 April, and June 2016. Written approvals of the chief physician, and ethics committee were obtained to conduct this survey study .

Data were collected using a 20-item questionnaire forms developed based on literature information, and responses of the patients were gathered through face-to-face interviews with the patients.

Table 1. Survey questions related to usage of herbal medicinal products

- 1 Have you ever used any herbal medicinal product or nutrient which you thought it would cure your disease?
- 2 What are the products you have used which you thought that they will cure your disease?
- 3 For which of your complaints have you used this herbal medicinal product?
- 4 Who advised this herbal medicinal product and nutrient which you thought it would cure your disease ?
- 5 What is your source of information related to the use of the herbal medicinal products and nutrients which you thought they would cure your disease? ?
- 6 For how long are you using the herbal medicinal product and nutrients which you thought they would cure your disease?
- 7 How often are you using the herbal medicinal product and nutrients which you thought they would cure your disease?
- 8 Have you informed your physicians about the herbal medicinal products, and nutrients you used to cure your disease?
- 9 Have you noticed any adverse effects while you were using herbal medicinal products?
- 10 If you did? What were the adverse effects?
- 11 Have you stopped taking this product after you had seen its adverse effect?
- 12 Have you consulted the physician after you had observed adverse effects of the product?

The survey questionnaire forms contained eight questions to determine the sociodemographic characteristics of the patients, and 12 open-ended questions assessing data concerning use of herbal medicinal products (Table 1). Nearly five minutes were allowed for the completion of the questionnaire form. During question survey herbal medicinal product perception of the patients was evaluated. The use of the following herbal medicinal products were indicated by the patients: green tea, lemon, sage tea, ginger, pomegranate syrup, melissa, linden, thyme, hawthorn, garlic, pomegranate leaf, tribulus fruit, olive leaf, french

lavender, mulberry tea, black seed oil, daphne leaf, walnut extract, eastern hollyhock, juniper syrup, avacado, quince leaf, yarrow, stinging nettle, kiwi, and fish oil which were grouped according to Ramsey-Lewis classification [8] (Table 2). Various inconsistencies, and controversies exist in the description of nutraceutical products, and functional foods in many publications. A consensus has not been reached in international definitions, and they are termed as nutraceuticals, functional foods, healthy foods, and herbal medicinal products.

Table 2. Definitions of herbal medicinal products according to Ramsey-Lewis classification, and distribution of their used based on subjects' declaration of their use

Class		Frequency of their use in the study		
		n	%	
1	Food (animal products, meat products, plants Medical products, cosmetics, cigarette, and tobacco products, narcotics, psychotropic substances) and eatables (meat, fish, egg, milk products, vegetables, plants, spices, sweeteners, preservatives, antioxidants), eating, drinking, and nutrition	Lemon	11	5.5
		Pomegranate syrup	7	3.5
		Garlic	3	1.5
		Kiwi	1	0.5
		Samphire syrup	1	0.5
		Hawthorn	4	2
		Walnut juice	1	0.5
		Avacado	1	0.5
2	Medical products (natural products derived from plants, animals, and microorganisms bitki, elemental salts, monoclonal antibodies, and pharmaceutical formulations (tablet, capsule, injection, cream)	0	0	
3	Herbal medicinal products (herbal preparations, herbal medicines)	Green tea	12	6
		Sage tea	9	4.5
		Ginger	8	4
		Melissa	5	2.5
		Linden	5	2.5
		Pomegranate	3	1.5
		Tribulus fruit	3	1.5
		Olive leaf	2	1.0
		French lavender	2	1.0
		Mulberry tea	1	0.5
		Black cumin oil	1	0.5
		Daphne leaf	1	0.5
		Marshmallow	1	0.5
		Quince leaf	1	0.5
Yarrow	1	0.5		
Stinging nettle	1	0.5		
4	Nutraceuticals, and functional foods aid in the prevention and treatment of the diseases	0	0	
5	Enriched foods (bread with folic acid, iodinated salt, fluoridated toothpaste)	0	0	
	Dietary supplements(vitamin, mineral)		0.5	
6		1		

Table 3. Sociodemographic characteristics, and known diseases of the survey participants

	n	%
Gender		
Male	102	51.3
Female	97	48.7
Marital status		
Married	177	88.9
Single	20	10
Divorced	2	1
Öğrenim durumu		
Illiterate	45	22.6
Primary education graduate	85	42.7
Secondary education graduate	16	8
Lycée graduate	41	20.6
University graduate	12	6
Living place		
Hatay Province	193	97
Other	6	3
The first application when become sick		
Hospital	184	92.5
Family Health Center	10	5
Other	5	2.5
Diseases		
Hypertension	112	56.3
Cardiovascular disease	68	34.2
Heart failure	33	16.6
Hypercholesterolemia	26	13.1
Asthma	16	8.0
Renal failure	9	4.5
Thyroid disease	5	2.5
Arrhythmia	3	1.5
Gout	2	1.0
Chronic obstructive pulmonary disease	1	0.5
Hepatitis enfeksiyonu	1	0.5
Burger disease	1	0.5
Parkinson disease	1	0.5

Since the terms “nutraceuticals”, and “functional foods” carry ambiguous implications, instead the term “dietary supplements” has been used. Foods are defined as “food items”, “eatables”, “drinks”, and “nutrition”, and also “medical products”, and pharmaceutical formulations” have been used

Table 4. Herbal medicinal products used by the patients with cardiovascular disease

Diseases	n	%
Cardiovascular disease		
Users	16	23.5
Nonusers	52	76.5
Herbal medicinal products used		
Green tea	4	25
Ginger	4	25
Sage	3	18.8
Thyme	2	12.5
Melissa	2	12.5
Mulberry tea	1	6.3
Black cumin oil	1	6.3
Daphne leaf tea	1	6.3
Marshmallow tea	1	6.3
Quince leaf tea	1	6.3
Yarrow	1	6.3
Plane leaf	1	6.3
Linden	1	6.3
Nutraceutical used		
Lemon	2	12.5

Statistical Analysis

For the evaluation of data SPSS 13.0 package program was used. Categorical data were summarized using numbers, and percentages. For the comparison of categorical measurements *chi*-square test was used. For all tests level of statistical significance was set at 0.05.

RESULTS

Sociodemographic characteristics of the study participants, distribution of CV disease, and risk factors are summarized in Table 3. Accordingly, study population consisted mainly of hypertensive patients. The participants declared that they were using (n=57; 28.6%) or not using (n=142; 71.6%) herbal medicinal products. Sixteen out of 68 patients with cardiovascular disease (23.5%) stated that they were using herbal medicinal products, mostly green tea, ginger, sage, melissa, and lemon (Table 4).

Forty out of 112 (35.7%) hypertensive patients declared that they had used herbal medicinal products (Table 5). Also 10 out of 33 (30.3%) patients stated that they had used herbal medicinal products, most frequently green tea, melissa, ginger, hawthorn, marshmallow tea (Table 6). A total of 3 arrhythmic patients participated in the study, and

only one of them had used a herbal medicinal product.

Thirty-six (63.15%) patients used herbal medicinal products after recommendations of their acquaintances as relatives, partners, and neighbours, and under the influence of visual media (n=19; 33.3%). Only 3.5 % (n=2) of them had used these products according to recommendation of the physician (n=2) (Table 7).

The patients (/total n, 57) had used the herbal medicinal products every day (n=32; 56.1 %), every other day (n=6; 10.5%), once (n=14; 24.6%) or three times (n=1; 1.8%) a week, once a month (n=3; 5.3%), and two glassful every day (n=1; 1.8%).

Table 5. Herbal medicinal products used by hypertensive patients

Diseases	n	%
Hypertension		
Users	40	35.7
Nonusers	72	64.2
Herbal medicinal products used		
Green tea	7	17.5
Sage	6	15.0
Ginger	5	12.5
Linden	4	10.0
Tribulus	3	7.5
Thyme	3	7.5
Melissa	3	7.5
Olive leaf	2	5.0
French lavender	2	5.0
Marshmallow tea	1	2.5
Quince leaf tea	1	2.5
Yarrow	1	2.5
Plane leaf	1	2.5
Stinging nettle	1	2.5
Nutraceuticals used		
Lemon	9	22.5
Pomegranate syrup	7	17.5
Hawthorn	4	10.0
Garlic	3	7.5
Walnut extract	1	2.5
Samphire syrup	1	2.5
Avacado	1	2.5
Kiwi	1	2.5
Dietary supplement		
Fish oil	1	2.5

Eight study participants out of 57 said that they had been using herbal medicinal product after consulting their physicians, while it was learnt that 85.9 % (n=49) didn't consult them (Table 7).

Two patients declared development of adverse effect as a response to the open-ended question concerning whether any adverse effect had developed or not.

Table 6. Herbal medicinal products used by patients with heart failure

Diseases	n	%
Heart failure		
Users	10	30.3
Nonusers	23	69.7
Herbal medicinal products used		
Green tea	3	30.0
Ginger	2	20.0
Melissa	2	20.0
Marshmallow tea	1	10.0
Quince leaf tea	1	10.0
Yarrow	1	10.0
Plane leaf	1	10.0
Stinging nettle	1	10.0
Linden	1	10.0
Nutraceuticals used		
Hawthorn	2	20.0

Table 7. Data concerning herbal medicinal product

	n	%
Who recommended the herbal medicinal product		
Relative	36	63.15
Media	19	33.3
Physician	2	3.5
How often was the herbal medicinal product used?		
Every day	32	56.1
Every other day	6	10.5
Every day 2 glassful	1	1.8
Once a week	14	24.6
Three times a week	1	1.8
Once monthly	3	5.3
Have you used the product after consulting the physician?		
Yes	8	14.03
No	49	85.9

Table 8. Distribution of herbal medicinal product use by the patients with cardiovascular disease according to their sociodemographic characteristics

	Users of herbal medicinal product (n=57)			Nonusers of herbal medicinal product (n=142)			P
	n	%	Mean.±SD	n	%	Mean.±SD	
Age			58.3±1.7			59.9±1.1	0.4
Gender							0.8
Male	30	29.4		72	70.6		
Female	27	27.8		70	72.2		
Educational level							0.7
Illiterate	10	22.2		35	77.8		
Primary education graduate	25	29.4		60	70.6		
Secondary education graduate	5	31.3		11	68.8		
Lycée Graduate	12	29.3		29	70.7		
University graduate	5	41.7		7	58.3		
Marital status							0.1
Married	55	30.7		124	69.3		
Single	2	10.5		17	89.5		
Divorced	0	0		1	100		

; SD: Standard deviation

In these two users of green tea, and melissa dizziness, and insomnia were observed. Both of these patients indicated that they had stopped using these herbal medicinal products, and consulted their physicians. Herbal medicinal products had been used in this patient group most frequently with the intention to treat hypertension (n=40), cardiovascular disease (n=16), heart failure (n=10), and arrhythmia (n=1). Hundred and ninety-nine patients had CV disease. In addition to CV disease, they had asthma, renal failure, thyroid disease, chronic obstructive pulmonary disease, hepatitis, Burger disease, and Parkinson disease.

A statistically significant difference could not be found between herbal medicinal product users, and nonusers as for age, gender, and educational level (Table 8).

DISCUSSION

In our study we detected use of herbal medicinal product in 28.6% (n=57) of 199 patients hospitalized in cardiology clinic. In a study performed, herbal medicinal product use was observed in 53% of hypertensive patients.^[9] In another study, 50.7% of the patients had been using herbal medicinal products, and 48.7% of these patients had been using these products to treat their CV disease.^[10] Herbal medicinal products had been used more frequently in their study when compared with ours.

In another study, study population consisted of patients with diabetes (12%), hypertension (34%), coronary artery disease (26%), and heart failure (7%). In another study, 16% of the study participants had been using herbal medicinal products. Among them garlic (n=33), flaxseed (n=13), ginger (n=12) omega-3 (n=12), and turmeric (n=11) were the most frequently preferred herbal medicinal products. The patients indicated that they had been using these products for the treatment of hypertension (32%), and hyperlipidemia (23%).^[11] The rates of herbal medicinal product use were found to be lower when compared with our study results.

Patients with cardiovascular diseases participating in our study indicated that they had been most frequently using green tea, ginger, sage tea, thyme, melissa, and lemon. Green tea consumption has been shown to decrease CV mortality at a significant rate.^[12] In a study by Wood et al.^[13] the patients with cardiovascular disease had been using garlic, echinacea tea, flaxseed, herbal mixture, and parsley. In another study the patients had preferred parsley, garlic, green tea, mint, and black cumin.^[14]

Hypertensive patients who participated in our study had been using lemon, pomegranate syrup, green tea, ginger, and linden.

In a study performed among hypertensive patients, lemon, and garlic had been most frequently used herbal medicinal products.^[15] Garlic has been very much popularized among people because of presumptive sudden blood pressure lowering effect, however in a study performed with 7700 people any blood pressure lowering effect of garlic could not be found.^[16] Many studies have been performed concerning the use of garlic in the treatment of cancer, common cold, hypercholesterolemia, hypertension, and preeclampsia. Its blood-lowering effect in hypertension has been shown to have very little clinical significance.^[16] Still in another study, the authors detected that hypertensive patients were consuming lemon, and garlic believing in their blood-lowering effects.^[17] Lemon contains vitamin C (ascorbic acid). Preparations containing vitamin C have been found to be hardly effective in mildly hypertensive patients.^[18] In a meta-analysis performed by Borghi et al.^[19] positive effects of potassium, magnesium, L-arginine, vitamin C, cacao flavonoids, co-enzyme Q10, melatonin, and garlic in hypertensive patients has been demonstrated. However studies included in the meta-analysis had extremely high number of limitations.

In our study, patients with heart failure stated that they had most frequently used green tea, melissa, ginger, hawthorn, and marshmellow flower. In another study, hawthorn, coenzyme Q10, L-carnitine, D-ribose, vitamin D, some probiotics, omega-3 fatty acid had improved ejection fraction, cardiac output, and stroke volume with very mid side effects. In studies performed in scarce number of patients, some nutraceuticals (hawthorn, co-enzyme Q10, L-carnitine, D-ribose, vitamin D, some probiotics, omega-3 fatty acid) demonstrated favourable antioxidant, anti-inflammatory, anti-ischemic, and antiaggregant effects during early stage of heart failure.^[20] However, none of these herbal medicinal products have favourable effects on CV outcomes, and mortality. Respective percentages of our study participants with cardiovascular disease (25%), arrhythmic patients (100%), and hypertensives (17.5%) indicated that they had been using green tea. Green tea catechin consumption prevents development of atherosclerosis especially in human beings via decreasing plasma LDL cholesterol, and increasing HDL cholesterol. The results of various studies have demonstrated that long-term green tea catechin consumption prevented development of obesity induced by consumption of food with high fat content through its favourable effects on fat metabolism.^[21] Thanks to this mechanism of action decreases in the risk of diabetes, and coronary heart disease by consuming green tea have been detected. In a study

performed with a population of 8522 participants consisting of female and male patients in Japan, the risk of mortality from coronary heart disease in male patients who had drunk 10 cups of green tea (nearly 900 ml) every day was found to be 58% lower than those who had drunk three cups of green tea (nearly 280 ml).^[21] In a study performed with rats, phenols contained in green tea prevented development of myocardial infarction by improving oxidative stress.^[22] It was learnt that our study participants had used green tea every day. Protective effects of catechins against CV diseases via regulation of lipid metabolism, protecting vascular endothelium, and lowering blood pressure have been also demonstrated.^[23]

Another herbal medicinal product used by hypertensive patients is ginger which reportedly decreased inflammation secondary to hypertension.^[24] Besides in another study, ginger had lowered angiotensin converting enzyme-1 activity in hypertensive rats.^[25] Besides, anti-inflammatory effect of ginger extract has been also demonstrated.^[26] Ginger extract also demonstrated renoprotective effects in patients with renal injury triggered by oxidative stress.^[27] Favourable effects of sage tea on hyperglycemia, and hyperlipidemiavhave been revealed.^[28] Dose-dependent antiangiogenic effect of melissa plant has been also suggested.^[29] Antihypertensive, and antioxidant properties of thyme have been also reported.^[30] Hepatoprotective effects of linden have been shown to be due to its antioxidant properties.^[31] In animal experiments, and studies performed in diabetic women antihyperglycemic, and antihyperlipidemic effects of puncture vine weed have been demonstrated.^[32]

Because of their side effects herbal medicinal products should be used at appropriate doses. For example garlic may deteriorate thrombocytic functions, green tea induces arrhythmia, and tachycardia. Fenugreek used for hypercholesterolemia causes diarrhea, and hypoglycemia, mate tea induces arrhythmia, and tachycardia.^[33] Sage, and linden cause electrolyte imbalance, and dehydration because of their diuretic effects. Linden use leads to allergic reactions, and photosensitivity. If used in excess, garlic may increase the effects of anticoagulants because of its hypotensive, and blood-diluting effects. As reported in various publications, green tea use may cause intraoperative bleeding, CV adverse effects, and fluid-electrolyte disequilibrium.^[34]

Unfortunately, sufficient number of adequate randomized studies have not been performed so far. Moreover generally lower dosages have been used in studies, and their long-term outcomes have not been known. Since appropriate indications, doses, safety profile, benefit/risk ratios have not been determined in clinical studies, their place in complementary treatment of CV diseases has not been determined yet.^[7] Therefore with favourable results of scarce number of studies available, it is not proper to encourage the patients to use these drugs. Use of these products are more frequently promoted by written, and visual media. Indeed in this study, only 1% of the patients indicated that they had been encouraged to use herbal medicinal products by their physicians, while most of them (96.45%) preferred these products under the influence of their environment, and media. Besides, these dietary supplements, and herbal medicinal products sold under the name of nutraceuticals in our country without any auditing. The awareness of the people and the physicians should be raised especially about drug interactions or their effects. The physicians should inquire every product used by their patients apart from drugs. The patients should be attentive towards their patients using herbal medicinal products, and they should inform the pharmacovigilance units about suspect adverse effects. However many physicians do not inform these units.

Limitations of the study

Our study is a questionnaire survey, and data were based on the statements of the patients. Therefore as is the case with all survey studies data have a low reliability Besides open-ended questions might limit the responses given by the participants. Indeed, within this frame, only two patients expressed side effects due to herbal medicinal products. Generally side effects of herbal medicinal products are much more (59.2%) frequently reported in the literature.^[10] Therefore lower rates of side effects obtained in our study which are related to the open-ended questions constitute the main limitation of this study. Another important limitation of this study is failure to measure participants' level of perception, and awareness about herbal medicinal products. Besides in this study herbal medicinal product usage of inpatients was evaluated. Therefore our study group did not consist of all cardiology patients, but it comprise inpatients with more severe clinical manifestations. This condition might also effect rates of herbal medicinal product use. On the other hand, cardiovascular system drugs, and their interactions with herbal medicinal products were not analyzed which is another limitation of this study.

Another important limitation of our study was that herbal medicinal products (incl. functional foods) not herbal drugs were not inquired individually, but in combination. In fact, this is a general problem concerning many studies performed on this issue. Inconsistencies, and controversies exist about the definition of nutraceuticals, and functional foods. An international consensus has not been also reached about globally used terminology. They are called under the following terminologies: nutraceuticals, functional foods, healthy foods, herbal products, and herbal medicinal products. Since the terms nutraceuticals, and functional foods convey ambiguous meanings, dietary supplements have been used instead. . Other terms as 'foods', 'foodstuffs', 'eatables', 'drinks' and 'nutrition' are described as "medical products" and pharmaceutical formulations." In order to avoid confusion, herbal medicinal products have been grouped using Ramsey- Lewis classification (Table 2).

In conclusion inpatients in a cardiology clinic rate of herbal medicinal product use was at a high level (28.6%). Most of these patients used these products with the intention to treat their hypertension, and cardiovascular disease Most of these products are used without priorly informing their physicians Therefore physicians who are treating, and monitoring cardiac patients should inquire herbal medicinal product use. In this study, more frequently green tea, and lemon were used. Beneficial effects of these products surpass their harms. In our country, in addition to large-scale analytical studies, clinical studies which will determine effective, and toxic doses of these products, their interactions, and adverse effects should be performed.

Conflict of interest: None declared

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Anahtar sözcükler: Anket; bitkisel ürün kullanımı; kardiyoloji hastaları.

Keywords: Survey; herbal medicinal products; cardiac patients.