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Kardiyoloji polikliniğine başvuran hastalarda bitkisel kökenli alternatif tedavilerin ve tamamlayıcı besin ürünlerinin tüketim prevalansı

The prevalence of use of alternative treatments of herbal origin and complementary nutritional product consumption in patients admitted to out-patient clinics of cardiology

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ÖZET

Amaç: Kardiyoloji polikliniğine başvuran hastaların bitkisel kökenli alternatif tedaviler ile tamamlayıcı besin ürünlerini tüketim sıklığını ve bu ürünleri kullanan hastaların demografik özelliklerini, eşlik eden hastalıkları ile ilaç kullanma oranlarını belirlemek.

Çalışma planı: Haziran 2011 ile Mart 2012 tarihleri arasında kardiyoloji polikliniğine başvuran hastalara yaş, cinsiyet, eğitim durumu, meslek, kronik hastalık, ilaç, alternatif ve tamamlayıcı tedavi ürünlerinin kullanımı ile bu ürünlerin ne amaçla, kimin tavsiyesi ile başlandığını sorgulayan anket formları verildi. Toplanan formlardaki veriler analiz edildi.

Bulgular: Toplam 454 hasta ile anket yapıldı. Hastaların %48'i kadın, ortalama yaşları 49±13 idi. Hastaların %12'sinde diyabet, %34'ünde hipertansiyon, %26'sında koroner arter hastalığı, %7'sinde kalp yetersizliği vardı.

ABSTRACT

Objectives: To detect the prevalence of alternative treatments of herbal origin and nutritional complementary product consumption in patients admitted to the outpatient cardiology clinics and to determine drug usage rates, demographic characteristics, and comorbidities of these patients.

Study design: Patients admitted to the outpatient cardiology clinic between June 2011 and March 2012 were given questionnaires containing questions inquiring age, gender, education, occupation, chronic illness, use of medications, alternative and complementary medicine, the index purpose and the person who recommended intake of these products. The datain the collected questionnaire forms were analyzed.

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Hastaların %58'inde kronik bir hastalık, %49'unda her hangi bir kardiyovasküler hastalık, %57'sinde ilaç kullanma öyküsü bulunuyordu. Vitamin ve mineral kullanımı dahil edildiğinde alternatif ve tamamlayıcı ürünleri kullanan 75 (%16) hasta saptandı. Vitamin ve mineraller hariç tutulduğunda 56 (%12) hastanın en az bir ürün, 24 (%5) hastanın birden fazla sayıda ürün kullandığı belirlendi. Sarımsak (n=33), keten tohumu (n=13), zencefil (n=12), omega 3 (n=12), zerdeçal (n=11) en çok tercih edilen ürünlerdi. Hastaların %32'si hipertansiyon, %23'ü hiperlipidemi tedavisi, %20'si daha sağlıklı olmak için bu ürünleri kullandıklarını belirtti. Alternatif ürünleri kullanan grupta kadın hasta oranı kullanmayan gruba kıyasla daha fazla olup (p=0,04), yaş ortalamalarının da daha yüksek olduğu saptandı (p=0,004). Eğitim düzeyinin yüksek olması, ilaç kullanma, kronik hastalık, hipertansiyon ve kardiyovasküler hastalık öyküsü, bu ürünleri kullananlarda kullanmayan hastalara göre anlamlı olarak fazlaydı.

Sonuç: Kardiyoloji polikliniklerine başvuran hastalarda bitkisel kökenli alternatif tedaviler ile tamamlayıcı besin ürünlerinin yaygın olarak kullanıldığı belirlendi. Yaşlı, eğitim düzeyi yüksek, kadın cinsiyette olan, ilaç kullanan ve kronik bir hastalığı bulunan hastalarda bu ürünlerin daha fazla tüketildiği saptandı.

Results: A total of 454 patients were interviewed. The mean age of the patients was 49±13 years, and 48% of the participants were female. The participants had diabetes (12 %), hypertension (34%), coronary artery disease (26%), heart failure (7%), chronic illness (58%), cardiovascular disease (49%), and history of drug intake (57 %). Including vitamins, and minerals, 75 (16%) patients were using alternative and complementary medicine. When vitamins and minerals were excluded, 56 (12%) patients were using at least one product, while 24 (5%) patients were using more than one. Garlic (n=33), flaxseed (n=13), ginger (n=12), omega 3 (n=12), and turmeric (n=11) were the most preferred products. Of these 56 patients, 32% were using alternative medicine for the treatment of hypertension (32%), and hyperlipidemia (23%) , while 20% of them were using these products to become healthier. Alternative medicine use was more prominent in females (p=0.04), and older patients (p=0.004). Educational level, the frequency of drug intake, chronic illnesses, hypertension and cardiovascular disease were significantly higher in these patients when compared with non-users.

Conclusion: Alternative treatments with herbal products, and complementary nutritional products were determined to be widely used in patients admitted to outpatient cardiology clinics. Higher consumption rates of these products were detected in cases with advanced age and higher educational level and also in concomitant drug users, female patients, individuals with chronic diseases.

Alternative, and complementary treatments can be defined as therapeutical approaches rejected as a part of traditional medical therapy. They are not in conformity with beliefs and standards of most of the physicians, and not emphasized during the classical medical education. [1] As is known, complementary treatments are used as an adjunct to, while alternative treatments in place of traditional treatments. Individuals preferring alternative and complementary treatments usually resort to these methods to strengthen their health state, regress symptoms of chronic diseases or decrease the adverse effects of traditional treatment modalities. Belief in biological integrity of nature, individual's desire to gain more

effective control on his/her body, and to improve well-being are other reasons for their use.[2,3]

Meditation, yoga, relaxation exercises, acupuncture, massage, and herbal products are examples of alternative and complementary therapeutical approaches.[4] Based on available from USA data, these modalities have been used by higher (38 %) percentage of USA population.[5] As is known, in our country, alternative treatments are becoming more prevalent.[6-8] Among these modalities, mostly alternative treatments with herbal products, and nutritional supplements are preferred.[9] The patients do not regard these products as drugs, and do not communicate with their physicians on this issue. Besides, physician do not question their use during history taking process, so adequate exchange of opinions does not take place on potential drug-herbal medicine interactions, and resultant side effects.[10]

Data on the use of alternative products in cardiovascular disease in our country is lacking. In our study we aimed to detect the prevalence of alternative herbal medicine and complementary nutritional product intake in patients admitted to our outpatient cardiology clinic. We also aimed to determine demographic characteristics, concomitant diseases and the use of drugs of the patients preferring these treatments.

PATIENTS AND METHOD

Questionnaire forms were distributed to the volunteered patients who admitted to the outpatient clinic of cardiology between June 2011, and March 2012, and their ages, gender, occupation, height, body weight, and educational level were interrogated. Body mass indexes were calculated using the formula [body weight (kg)/height $(m)^2$]. Smoking habits, regular exercise routines (if any), hypertension, diabetes, coronary artery disease, heart failure, rhythm disorders, chronic comorbidities, and drug use were questioned. Patients with chronic diseases as diabetes, hypertension, coronary artery disease, chronic renal failure, chronic obstructive pulmonary disease, asthma, and rheumatoid arthritis were categorized under the heading of 'chronic disease', and those with more than one chronic disease were classified in 'multiple chronic disease' categories, respectively. Hypertension, coronary artery disease, and valvular disease were included in the group of cardiovascular diseases. Use of antihypertensives, antidiabetics, antiaggregants, lipid-lowering drugs, and oral anticoagulants was also interrogated. As alternative treatment with herbal medicine, and nutritional supplements including vitamins, minerals, fish oil, garlic, echinacea, ginseng, immunoglycans, stinging nettle, flaxseed, canola oil, carnitine, coenzyme Q, ginger, turmeric, glucosamine, ginkgo bloba, and alike were indicated as separate items, and their usage was investigated. The patients were questioned about the reason of using these products. We also wanted to learn the person who recommended their use, and whether they informed the physician that they had been using these products. Patients who did not informed the physicians were asked about their reason(s), and were requested clear-cut responses. Excluding patients using vitamins and mineral supplements; users and non-users of alternative products were compared. Data retrieved from questionnaire forms were analyzed. Approval of the study was obtained from the Institutional Ethics Committee.

Statistical analysis

For all statistical analyses SPSS 17.0 (Chicago, Ilinois) program was used.

Demographic, and clinical characteristics of the patients were analyzed using descriptive statistics. Parametric variables were expressed as mean ± standard deviation, and compared with each other using Student t-test. Non-parametric variables were indicated as percentages (%), and for their comparisons *chi*-square test was employed. P< 0.05 was accepted as the level of significance.

Tablo 1. Distribution of demographic characteristics of the patients who were users, and non-users of alternative and complementary medicine (excl. vitamins, and minerals)

	All patients (n=454)		Group 1 (n=398)		Group 2 (n=56)		*p* -value
	%	Mean ± SD	%	Mean ± SD	%	Mean ± SD	
Age(yrs)		49±13.1		48.3±13.2		53.7±11.6	**0.004**
Gender							
Women	48		46		61		**0.04**
Men	52		54		39		
Educational level							
Bachelor's degree	13		11		30		**0.0001**
Other	87		89		70		
Occupational status							
Unemployed*	67		66		77		0.12
Employed	33		34		23		
Body mass index (BMS)(kg/m^2)		27.3±4.7		27.2±4.6		28±5.1	0.30
Obesity (BMS >30)	28		28		30		0.75
Smoking	31		32		27		0.53
Exercise	30		29		37		0.21

SD: Standard deviation; Group 1: non-users of alternative medicine; Group 2: Users of alternative medicine (excl. vitamins, and minerals): Other: Graduates from the schools which do not provide a bachelor's degree and illiterates; * Retirees were included in the 'unemployed' category.

Tablo 2. Comparison of chronic diseases, and drug usage of the patients who were users, and non-users of alternative, and complementary medicine (excl. vitamins, and minerals)

	All patients (n=454)	Group 1 (n=398)	Group 2 (n=56)	*p*
	%	%	%	
Hypertension	34	30	62	**0.0001**
Diabetes mellitus	12	12	12	0.82
Coronary artery disease	26	25	34	0.14
Heart failure	7	7	5	1
Drug usage	57	54	80	**0.0001**
Multiple drug usage	37	35	54	**0.008**
Chronic disease	58	55	77	**0.002**
Multiple chronic diseases	30	27	46	**0.005**
Cardiovascular diseases*	49	45	75	**0.0001**
Antihypertensives	34	30	59	**0.0001**
Antidiabetics	12	12	12	0.82
Oral anticoagulants	7	7	5	0.78
Antiaggregants	29	28	39	0.08
Hipolypidemics	5	5	4	0.75

Group 1: non-users of alternative medicine; Group 2: Users of alternative medicine (excl. vitamins, and minerals)* Hypertension, coronary artery disease, heart failure, valvular disease, all dysrhytmic patients.

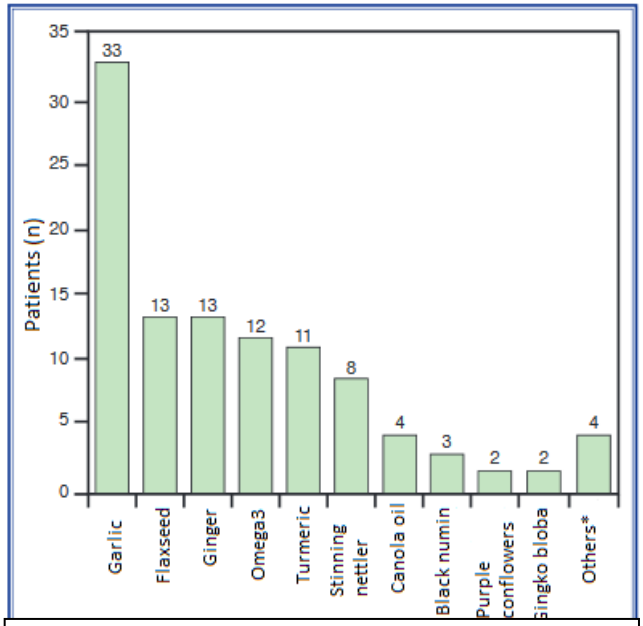

Figure 1. Alternative and complementary medicinal products used
* Glucosamine, carnitine, apple vinegar, panax

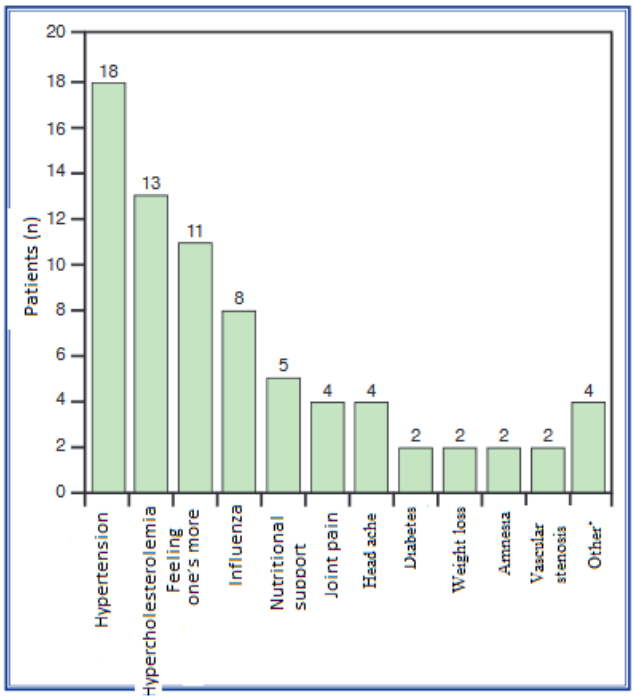

Figure 2. Reasons for preferring alternative, and complementary medicinal products
* Constipation, weight gain, as liver protectant, refraining from drug use

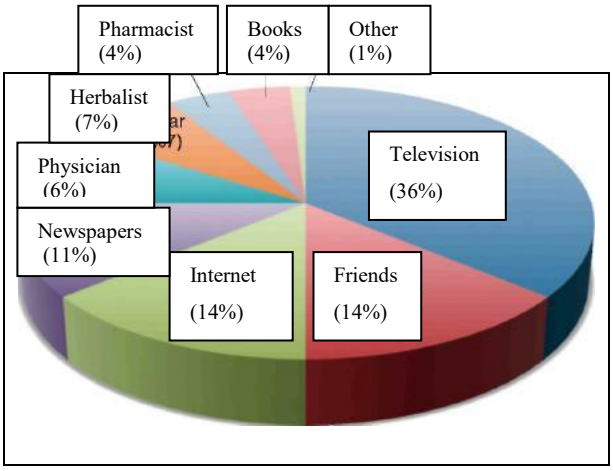

Figure 3. External factors effective on starting alternative, and complementary medicine

RESULTS

A total of 454 patients were included in the survey. Demographic characteristics (Table 1) , clinical particulars, and drug intake status (Table 2) of the, patients were also concisely tabulated. When vitamin, and mineral use was included in the analysis, a total of 75 (16 %) patients were using alternative and complementary medicinal products. If vitamin and mineral supplements were excluded, 56 (12 %) patients were using at least one, 24 (5 %) patients more than one product. Comparisons between groups of users, and non-users of alternative and complementary medicine (excl. vitamins, and minerals) can be seen in Table 1, and Table 2. Alternative and complementary medicine users were also receiving antihypertensives (n=33), antiaggregants (n=22), analgesics (n=9), and oral anticoagulants (n=3). Use of herbal products as alternative medicine (excl. vitamins, and minerals), and nutritional supplements, the reasons for their preference are summarized in Figure 1 and Figure 2, respectively. Apart from vitamins, and minerals 19 % (n=42) of a total of 222 patients with a cardiovascular disease were using alternative, and/or complementary medicine. External factors effective on starting alternative, and complementary medicine use are shown in Figure 3. We also detected that 79 % of the patients had not informed their physicians about their use of these products, and the most frequent cause of this concealment was the physicians' neglect to question their patients about the issue. Among other causes, disregarding these products as drugs with the assumption that they are natural remedies, minimization of their importance, and shying away from possibly unfavourable reaction of the physician can be enumerated.

DISCUSSION

In our study, we found that 12 % of the patients referring to our out-patient clinic of cardiology were using herbal products, and nutritional supplements (excl. vitamins, and minerals) as alternative and/or complementary medicine. Alternative and/or complementary medicinal products were used by 19 % (n=42) of all individuals with a cardiovascular disease (n=222). Most of the users of these products were female patients with a mean age higher than non-users. The alternative and/or complementary product users had a higher educational level, and the incidence rates of drug intake, chronic disease, hypertension, and cardiovascular disease were statistically significantly increased relative to those of the non-users.

Alternative and complementary medicine are becoming increasingly

prevalent in the world.[9,11-14] Recent studies have also reported increased use of alternative medicine in our country.[6,7,15,16] Biological therapies are most frequently used alternative treatment modalities.[5,9] Lack of any standardized pharmacovigilance mechanisms, and easy accessibility to these products by more and more people thanks to printed, and visual media contribute to increasing use of complementary and alternative medicine .[17]

In the USA, the prevalence of complementary and alternative medicine use was detected to be 38 %, and 18 % of the users were consuming natural products with omega-3 being the the most frequently utilized product.[5] This survey was a population-based screening study which investigated all modalities of alternative medicine. Our study included only patients who admitted to our outpatient clinic of cardiology, and only nutritional supplements, and alternative medicines of herbal origin were questioned. Also in a study performed in cardiovascular patients in Canada, garlic was detected to be the most frequently used alternative medicinal product similar to our findings.[18] Possible reasons of this preference might be its suitability to dietary habits of our community, and its known antihipertensive, and antiaggregant properties. [19] In a study which investigated the frequency of alternative medicine use in Europe, revealed that 63 % of the patients with acute coronary syndrome had been using alternative medicine, and 19 % of them were receiving biological remedies.[20] Two other studies which included only cardiovascular patients, the prevalence of alternative medicine was detected as 54, and 64 %, respectively.[17,21] The most probable reason for the difference between ours, and other studies was inability to inquire all modalities of alternative medicine apart from nutritional supplements, and herbal products.

In our study, alternative and complementary medicinal products were more frequently consumed by women, and patients with higher educational level. Similarly, other studies have also detected higher incidence of alternative medicinal product consumption among women, and highly educated patients [5,8,13] As a possible causative factor, it has been conceived that these two patient groups pursue printed, and visual media more attentively. Indeed in our study, we have concluded that most of the alternative medicine users, started to consume these products under the influence of television programs, and internet surfing. It can be inferred from all these information that media campaigns trigger an increase in the consumption of these products.

In our study, we have revealed that most of the people using alternative treatments of herbal origin, and nutritional supplements were also under drug therapy. Therefore, it can be concluded that patients prefer to use alternative medicinal products in combination with their drugs, rather than in place of them. Other studies have also obtained similar outcomes.[22] Among them, garlic, and ginger can impair thrombocytic functions, and presumably they can also interact with many cardiovascular drugs.[22-25] Digoxin, oral anticoagulants, and antiarrhytmics can interact with many herbal products, alter their plasma levels, and increase their side effects.[4,21,26-30] Our survey demonstrated that majority of the patients did not inform their physicians that they had been using these alternative medicinal products which also increase the incidence of potentially adverse drug-herbal product interactions.[4,31]

Comparable studies also indicated that the patients had not share this vital information with their physicians.[10,32,33] In our study, the reasons of this lack of communication between patients, and their physicians can be attributed to physicians' disinterest in this issue, patient's assumption of alternative products as non-medicinal, harmless, natural remedies .[34,35] Other studies performed in our country also have led to similar conclusions.[7,8]

Various studies performed have indicated the preference of these alternative remedies mostly for the treatment of pain, influenza, anxiety, and depression. [5,9] Majority of our study participants were using these alternative products for the treatment of hypertension, and hyperlipidemia. The most important reasons for this finding were that most of our study participants consisted of patients with a history of hypertension. Also, some types of alternative medicine as meditation, exercise therapy, and acupuncture were not interrogated. Interestingly, most of the alternative medicinal product users were also receiving an antihypertensive drug, while consumption rate of cholesterol-lowering drugs was relatively low. We have thought that these products were used as an alternative treatment for hyperlipidemia, and as a complementary remedy for hypertension.

In our survey, patients with chronic diseases (incl. cardiovascular diseases) were using alternative medicinal products more frequently. The users alternative medicine were older than non-users. Previous studies also yielded similar outcomes.[21,36-38] A study performed in our country revealed that 86 % of the elder patients with chronic diseases were using various modalities of alternative medicine.[6] Chronicity, and annoying nature of the diseases might lead people to assume a more active role on their health state.[38] Patients with chronic diseases are usually advanced-aged people who use multiple drugs which will increase the possibility of potential interactions between alternative medicinal products and concomitant drugs.[39]

Many patients with any cardiovascular disease usually use multiple medications, and insensible use of these products might trigger side effects leading to adverse drug-herbal product interactions.[40] In some publications, authorshave reported induction of cardiovascular events by these alternative treatments.[41,42] Despite their increasing popularities, production, and consumption of herbal products, multivitamins, and those marketed as nutritional supplements are still not under control. Inadequate data about their safety, and effectiveness are available. Contents, and composition of their tablet forms are not usually standardized. The physicians, should be knowledgeable about these products because of pharmaceutical interactions with concomitant drugs, and potential side effects. They also should inquire about their use during medical history taking process, and the patients should be informed, and educated as far as possible.

Limitations of the study

Since our study was designed as a questionnaire study, criteria could be evaluated subjectively. Questions in the questionnaire forms distributed to the patients might prevent patients from giving open-ended responses. Questionnaire forms contain a total of 16 herbal products as alternative medicinal product, and nutritional supplements, and patients might not remember other out- of-the list products.

In conclusion, widespread use of alternative therapies of herbal origin, and

nutritional supplements has been ascertained among referrals to outpatient clinics of cardiology. These products were consumed more often by elder people, those with higher educational level, female patients, concomitant drug users, and individuals with chronic diseases.

Conflict of Interest: None declared

REFERENCES

1. Eisenberg DM, Kessler RC, Foster C, Norlock FE, Calkins DR, Delbanco TL. Unconventional medicine in the United States. Prevalence, costs, and patterns of use. N Engl J Med 1993;328:246-52.
2. Barnes J, Abbot NC, Harkness EF, Ernst E. Articles on complementary medicine in the mainstream medical literature: an investigation of MEDLINE, 1966 through 1996. Arch Intern Med 1999;159:1721-5.
3. Burstein HJ, Gelber S, Guadagnoli E, Weeks JC. Use of alternative medicine by women with early-stage breast cancer. N Engl J Med 1999;340:1733-9.
4. Miller KL, Liebowitz RS, Newby LK. Complementary and alternative medicine in cardiovascular disease: a review of biologically based approaches. Am Heart J 2004;147:401-11.
5. Barnes PM, Bloom B, Nahin RL. Complementary and alternative medicine use among adults and children: United States, 2007. Natl Health Stat Report 2008;12:1-23.
6. Koc Z, Avci IA, Saglam Z. The use of complementary and alternative medicine by older patients that have chronic diseases. HealthMED 2012;6:413-22.
7. Aydın S, Bozkaya AO, Mazıcıoğlu M, Gemalmaz A, Özçakır A, Öztürk A. What influences herbal medicine use? Prevalence and related factors. Turk J Med Sci 2008;38:455-63.
8. Algier LA, Hanoglu Z, Ozden G, Kara F. The use of complementary and alternative (non-conventional) medicine in cancer patients in Turkey. Eur J Oncol Nurs 2005;9:138-46.
9. Fox P, Coughlan B, Butler M, Kelleher C. Complementary alternative medicine (CAM) use in Ireland: a secondary analysis of SLAN data. Complement Ther Med 2010;18:95-103.
10. Robinson A, McGrail MR. Disclosure of CAM use to medical practitioners: a review of qualitative and quantitative studies. Complement Ther Med 2004;12:90-8.
11. McFarland B, Bigelow D, Zani B, Newsom J, Kaplan M. Complementary and alternative medicine use in Canada and the United States. Am J Public Health 2002;92:1616-8.
12. Xue CC, Zhang AL, Lin V, Da Costa C, Story DF. Complementary and alternative medicine use in Australia: a national population-based survey. J Altern Complement Med 2007;13:643-50.
13. Eisenberg DM, Davis RB, Ettner SL, Appel S, Wilkey S, Van Rompay M, et al. Trends in alternative medicine use in the United States, 1990-1997: results of a follow-up national survey. JAMA 1998;280:1569-75.
14. Kaufman DW, Kelly JP, Rosenberg L, Anderson TE, Mitchell AA. Recent patterns of medication use in the ambulatory adult population of the United States: the Slone survey. JAMA 2002;287:337-44.
15. Tokem Y, Aytemur ZA, Yildirim Y, Fadiloglu C. Investigation into the use of complementary and alternative medicine and affecting factors in Turkish asthmatic patients. J Clin Nurs 2012;21:698-707.
16. Araz N, Bulbul S. Use of complementary and alternative medicine in a pediatric population in southern Turkey. Clin Invest Med 2011;34:E21-9.
17. Krasuski RA, Michaelis K, Eckart RE. The cardiovascular patient's perceptions of complementary and alternative medicine. Clin Cardiol 2006;29:161-4.
18. Wood MJ, Stewart RL, Merry H, Johnstone DE, Cox JL. Use of complementary and alternative medical therapies in patients with cardiovascular disease. Am Heart J 2003;145:806-12.
19. Ackermann RT, Mulrow CD, Ramirez G, Gardner CD, Morbidoni L, Lawrence VA. Garlic shows promise for improving some cardiovascular risk factors. Arch Intern Med 2001;161:813-24.
20. Barraco D, Valencia G, Riba AL, Nareddy S, Draus CB, Schwartz SM. Complementary and alternative medicine (CAM) use patterns and disclosure to physicians in acute coronary syndromes patients. Complement Ther Med 2005;13:34-40.
21. Heck AM, DeWitt BA, Lukes AL. Potential interactions between alternative therapies and warfarin. Am J Health Syst Pharm 2000;57:1221-30.
22. Decker C, Huddleston J, Kosiborod M, Buchanan DM, Stoner C, Jones A, et al. Self-reported use of complementary and alternative medicine in patients with previous acute coronary syndrome. Am J Cardiol 2007;99:930-3.

23. Bordia A, Verma SK, Srivastava KC. Effect of garlic on platelet aggregation in humans: a study in healthy subjects and patients with coronary artery disease. Prostaglandins Leukot Essent Fatty Acids 1996;55:201-5.
24. Backon J. Ginger: inhibition of thromboxane synthetase and stimulation of prostacyclin: relevance for medicine and psychiatry. Med Hypotheses 1986;20:271-8.
25. Hermann DD. Naturoceutical agents and cardiovascular medicine; The hope, hype and the harm. ACC Current J Review September/October 1999:53-7.
26. Gaytan RJ, Prisant LM. Oral nutritional supplements and heart disease: a review. Am J Ther 2001;8:255-74.
27. Ernst E. Cardiovascular adverse effects of herbal medicines: a systematic review of the recent literature. Can J Cardiol 2003;19:818-27.
28. Izzo AA, Di Carlo G, Borrelli F, Ernst E. Cardiovascular pharmacotherapy and herbal medicines: the risk of drug interaction. Int J Cardiol 2005;98:1-14.
29. McRae S. Elevated serum digoxin levels in a patient taking digoxin and Siberian ginseng. CMAJ 1996;155:293-5.
30. Turfan M, Tasal A, Ergun F, Ergelen M. [A sudden rise in INR due to combination of Tribulus terrestris, Avena sativa, and Panax ginseng (Clavis Panax)]. Turk Kardiyol Dern Ars 2012;40:259-61.
31. Miller LG. Herbal medicinals: selected clinical considerations focusing on known or potential drug-herb interactions. Arch Intern Med 1998;158:2200-11.
32. Liu EH, Turner LM, Lin SX, Klaus L, Choi LY, Whitworth J, et al. Use of alternative medicine by patients undergoing cardiac surgery. J Thorac Cardiovasc Surg 2000;120:335-41.
33. MacLennan AH, Wilson DH, Taylor AW. Prevalence and cost of alternative medicine in Australia. Lancet 1996;347:569-73.
34. Barraco D, Valencia G, Riba AL, Nareddy S, Draus CB, Schwartz SM. Complementary and alternative medicine (CAM) use patterns and disclosure to physicians in acute coronary syndromes patients. Complement Ther Med 2005;13:34-40.
35. Krasuski RA, Michaelis K, Eckart RE. The cardiovascular patient's perceptions of complementary and alternative medicine. Clin Cardiol 2006;29:161-4.
36. Lee GB, Charn TC, Chew ZH, Ng TP. Complementary and alternative medicine use in patients with chronic diseases in primary care is associated with perceived quality of care and cultural beliefs. Fam Pract 2004;21:654-60.
37. Saydah SH, Eberhardt MS. Use of complementary and alternative medicine among adults with chronic diseases: United States 2002. J Altern Complement Med 2006;12:805-12.
38. Yeh GY, Davis RB, Phillips RS. Use of complementary therapies in patients with cardiovascular disease. Am J Cardiol 2006;98:673-80.
39. Ernst E. The risk-benefit profile of commonly used herbal therapies: Ginkgo, St. John's Wort, Ginseng, Echinacea, Saw Palmetto, and Kava. Ann Intern Med 2002;136:42-53.
40. Vatankulu MA, Tasal A, Erdoğan E, Göktekin Ö. Three case reports of the use of herbal combinations resulted in stent thrombosis: herbal combinations; friend or foe?. Turk Kardiyol Dern Ars 2012;40:265-8.
41. Güneş H, Küçükdurmaz Z, Karapınar H, Gül İ. Acute anterior myocardial infarction presented with cardiogenic shock in a patient on herbal medication. Turk Kardiyol Dern Ars 2012;40:262-4.
42. Atar Aİ, Er O, Güven A, Eryonucu B. Two cases of acute coronary syndrome after intake of clavis panax. Turk Kardiyol Dern Ars 2012;40:269-75.

Anahtar sözcükler: Anket; besin destekleri; bitkiler, tıbbi; kardiyovasküler hastalıklar/ilaç tedavisi; tamamlayıcı terapiler; Türkiye/epidemiyoloji.

Key words: Questionnaire; nutritional supplements; plants, medicinal; cardiovascular diseases/drug therapy; complementary therapies; Turkey/epidemiology.