ORIGINAL ARTICLE

The role of specialized prevention clinics for the short term follow-up of acute coronary syndromes

Akut koroner sendrom sonrası erken dönem izlemde özelleşmiş korunma polikliniklerinin rolü

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ABSTRACT

Objective: This study aimed to investigate the effect of specialized prevention clinics and standard clinics follow-ups on secondary protection after acute coronary syndrome (ACS) on cardiovascular risk factors.

Methods: A total of 118 patients who received thrombolytic therapy after being diagnosed with ST-segment elevation myocardial infarction were followed up for 6 months. After ACS, patients in a specialized prevention clinic (Group 1) (n=67) and those in a standard clinic (Group 2) (n=51) were compared in terms of the change in their lifestyle, management of risk factors, and drug compliance.

Results: No significant difference was found between groups in terms of baseline clinical and laboratory findings except for triglyceride level (Group 1: median 174 mg/dL; Group 2: median 136 mg/dL; p=0.039). Six months after indexing, smoking cessation (72.4% *vs.* 50%, p=0.037), diet compliance (43% *vs.*19.6%, p=0.012), and exercise rates (31% *vs.* 13.7%, p=0.044) were significantly higher in Group 1. Although the weight control rate was higher in Group 1, no significant difference was noted between the groups (27% *vs.* 15.6%, p=0.219). The rate of systolic and diastolic blood pressures >140/90 mm Hg was significantly higher in Group 2 (23.5% *vs.* 9%, p=0.029) at 6 months. The median low-density lipoprotein cholesterol (LDL-C) value was significantly lower in Group 1 patients (Group 1: 91 mg/dL; Group 2: 102 mg/dL; p=0.042). Moreover, the rate of LDL-C ≤70 mg/dL or ≥50% reduction compared with baseline was significantly higher in Group 1 (32.8% *vs.* 13.7%, p=0.016). Although the recommended treatments were similar in both groups, the statin use rate was significantly higher in Group 1 (95.5% *vs.* 80.3%, p=0.021) at 6 months.

Conclusion: The results of the study showed that specialized prevention clinics were more effective during the management of cardiovascular risk factors after ACS.

ÖZET

Amaç: Akut koroner sendrom (AKS) sonrasında ikincil korumada yapılandırılmış poliklinik ile standart poliklinik takibinin kardiyovasküler risk faktörlerinin kontrolündeki etkisinin araştırılması.

Yöntemler: ST-segment yükselmeli miyokart enfarktüsü tanısıyla trombolitik tedavi alan 118 hasta altı ay takip edildi. Akut koroner sendrom sonrasında yapılandırılmış poliklinikte (Grup 1) takipli hastalar (n=67) ile standart poliklinikte (Grup 2) takipli hastalar (n=51); yaşam şekli değişikliği, risk faktörlerinin yönetimi ve ilaç uyumu açısından karşılaştırıldı.

Bulgular: Gruplar arasında trigliserit düzeyi dışında (Grup 1 medyan 174 mg/dL, Grup 2 medyan 136 mg/dL; p=0.039) bazal klinik ve laboratuvar özellikleri açısından fark saptanmadı. İndeks olaydan altı ay sonra Grup 1'de sigara bırakma (%72.4'e karşın %50; p=0.037), önerilen diyete uyma (%43'e karşın %19.6; p=0.012) ve egzersiz yapma oranları (%31'e karşın %13.7; p=0.044) anlamlı olarak daha yüksek idi. Kilo kontrol oranı Grup 1'de daha yüksek olmasına rağmen gruplar arasında anlamlı fark saptanmadı (%27'ye karşın %15.6; p=0.219). Altıncı ayda sistolik ve diyastolik kan basıncı >140/90 mmHg olanların oranı Grup 2' de anlamlı olarak daha yüksek saptandı (%23.5'e karşın %9; p=0.029). Grup 1 hastalarında medyan LDL-K değeri belirgin olarak düşük saptandı (Grup 1, 91 mg/dL, Grup 2, 102 mg/dL; p=0.042). Ayrıca LDL-K ≤70 mg/dL veya bazale göre ≥%50 azalma olanların oranı Grup 1'de belirgin yüksek idi (%32.8'e karşın %13.7; p=0.016). Altıncı ay kontrolde önerilen tedaviler açısından fark yok iken Grup 1'de statin kullanım oranı belirgin yüksek idi (%95.5'e karşın %80.3; p=0.021).

Sonuç: Çalışmamızın sonuçları yapılandırılmış polikliniklerin AKS sonrasında kardiyovasküler risk faktörlerinin yönetiminde daha etkin olduğu göstermektedir.

Received: August 12, 2016 *Accepted:* April 04, 2017

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Cardiovascular diseases (CVDs) cause death in 45% of women and 38% of men aged less than 75 years in Europe.[1] Coronary artery disease (CAD) is the leading cause of death in Turkey as well as worldwide. CAD is a chronic disease defined as the sudden clinical manifestation of ACS, characterized by unstable angina, ST-segment elevation myocardial infarction (STEMI), and non–ST-segment elevation myocardial infarction (NSTEMI). In the hospital, the mortality of patients with STEMI is higher than that of patients with NSTEMI (7% *vs*. 3.5%), but their 6-month mortality was similar to each other (12% and 13%). In long-term follow-ups, patients with NSTEMI also had more co-morbid disease, thus doubling the mortality rate.[2–4] According to the 2012 The Turkish Adult Risk Factor Study (TARF), our country has 420 thousand coronary cases per year; 120 thousand of them are in the form of known cases of CAD, and the annual mortality rate is higher than the mortality rates in Europe by 32%.[5,6] In the Global Registry of Acute Coronary Events (GRACE) records, a significant reduction in in-hospital mortality and cardiogenic shock was found in all the patients with ACS, parallel to the development of pharmacologic and interventional therapies. Besides, a significant reduction in the rates of developing myocardial infarction was achieved in patients with NSTEMI.[7] However, despite all these developments, short- and long-term protection, which is important in reducing the risk of recurrence of the disease, is still not at the desired level. Evidence-based treatment is not performed in 25% of patients with NSTEMI,[7] and according to the CRUSADE data (Can Rapid Risk Stratification of Unstable Angina Patients Suppress Adverse Outcomes with Early Implementation of the ACC/AHA Guidelines), the compliance to treatment recommended by the guidelines is limited to 74%.[8] In terms of secondary protection, even Turkey has a limited data. It has been shown that Turkey is behind the targets according to the results of the EUROASPIRE III (European Action on Secondary Prevention through Intervention to Reduce Events) study.[9] The same study showed that more than half of the patients had increased physical activity and only 7% were taken to the cardiac rehabilitation program after indexing.

Abbreviations:

ACE	*Angiotensin-converting enzyme*
ARB	*Angiotensin receptor blocker*
CAD	*Coronary artery disease*
CVDs	*Cardiovascular diseases*
DBP	*Diastolic blood pressure*
DM	*Diabetes mellitus*
ESC	*European Society of Cardiology*
HDL-C	*High-density lipoprotein cholesterol*
HT	*Hypertension*
LDL-C	*Low-density lipoprotein cholesterol*
NSTEMI	*Non–ST-segment elevation myocardial infarction*
SBP	*Systolic blood pressure*
STEMI	*ST-segment elevation myocardial infarction*
TARF	*The Turkish Adult Risk Factor Study*

This study aimed to prospectively evaluate the cardiovascular risk factors of patients undergoing thrombolytic therapy with STEMI diagnosis and appropriate interventional therapy after reperfusion.

At the same time, it was investigated whether a specialized prevention clinics follow-up (made by a single physician) was superior to standard clinics in achieving the goals in the guidelines of the European Society of Cardiology (ESC) prevention.

METHODS

The study was conducted on 67 consecutive patients who were admitted to the clinic with angina pectoris or equivalent complaints with STEMI diagnosis and reperfusion with thrombolytic therapy between January 2013 and January 2014. In addition to clinical complaints, STEMI was defined with ST-segment elevation in two adjacent contiguous electrocardiograms. After third-generation thrombolytic therapy, reperfusion was considered to have been achieved in cases according to two of these criteria: complete relief of angina, more than 50% decline in ST-segment elevation, and accelerating idioventricular rhythm. All hospitalized patients were given atorvastatin 80 mg/day or rosuvastatin 40 mg/day within clinic's ACS treatment approach. Again, according to the clinic's routine protocol, high-dose statin therapy was maintained during hospitalization, and after the patient was discharged, maintenance dose was adjusted to the patient's need. Coronary angiography and, if necessary, coronary angioplasty were performed on all admitted patients. Local ethics committee approval (no: 13-3/7) was taken for the study, and written informed consent was obtained from all patients.

Standard education was applied in the clinic according to the ESC secondary prevention guideline for all patients hospitalized and treated with STEMI diagnosis. This standard training was repeated at every visit for the admitted patients. Each patient was trained at least three times and checked at 6 months.

No patient left, was removed from the follow-up, or died. The content of this standardized training was covered drug utilization, nutrition, smoking, regular follow-up, and importance of exercise. All the trainings were given by the same physician and took about 30 min. Patients' drug utilization plans were prepared. Comprehensive diet education and food list were provided, and weight control was done at each visit. It was recommended for the patients to exercise for at least 5 days a week as 30- to 45-min walk at mid-pace, and whether they fit this program were questioned. All patients were checked in the first month after the discharge and then checked once in every 3 months. Patients who did not come for the control were called by telephone, and an appointment was made. At 6-month control, patients' drug use rates, diet adaptation, exercise rates, weight control, smoking, lipid levels, and blood pressures were evaluated.

A total cholesterol level of ≥174 mg/dL was considered "high total cholesterol," and low-density lipoprotein cholesterol (LDL-C) levels of ≥100 mg/dL were considered "high LDL-C." The targeted LDL-C value was found to be ≥70 mg/dL, which was recommended in the guideline of the ESC secondary prevention, or 50% or more reduction with respect to baseline LDL-C value in patients who did not achieve the first condition. CAD was defined as a history of myocardial infarction, coronary angioplasty, and/or coronary artery by-pass graft in a patient's medical examination. Hypertension (HT) was diagnosed for the patients with systolic blood pressure (SBP) of 140 mmHg or diastolic blood pressure (DBP) of 90 mmHg or when the patient was receiving any antihypertensive treatment. Diabetes mellitus (DM) was diagnosed when the patients' plasma glucose was found to be ≥126 mg/dL or when the patient was receiving antidiabetic treatment.

The study included 51 consecutive patients, who underwent similar treatment for STEMI in the intensive care unit and were followed up regularly in the general cardiology clinic between the same dates, as the control group. The demographic and clinical characteristics of the control group were recorded in the case report forms prepared for each patient. Standard education was applied in accordance with the ESC secondary prevention guideline to all the patients. At 6-month control, patients' drug use rates, diet adaptation, exercise rates, weight control, smoking, lipid levels, and blood pressures were evaluated. Test results of both clinics were compared at the 6-month follow-up to assess the importance of structured prevention clinics in secondary prevention.

Statistical analysis

The results were analyzed using the Statistical Package for Social Sciences 20.0 (SPSS Inc., IL, USA). Continuous variables were reported as means and standard deviations (mean±SD) or median (smallest–largest); categorical variables were reported as proportions (%) and number of cases. Nominal data were evaluated using the continuity-corrected chi-square test or Fisher's exact test. The distribution of the variables was assessed using the Kolmogorov–Smirnov test, and Levene's test was performed for variance equality. Student t test was used for two-group comparison with normal distribution and variance equality, and nonparametric Mann–Whitney U test (independent two-group data; LDL, HDL, total cholesterol, and blood pressure) was used for those without normal distribution. Differences were considered statistically significant if $p<0.05$.

RESULTS

The baseline clinical features of the patients admitted to the study are summarized in Table 1. The mean age and gender distribution between the specialized prevention clinics (Group 1) and standard clinics (Group 2) patients were similar. No statistically significant difference was found between groups in terms of DM, HT, smoking history, hyperlipidemia, CAD, and family history ($p>0.05$). Also, no significant difference was observed between total cholesterol, LDL-C and high-density lipoprotein cholesterol (HDL-C), SBP, and DBP values measured during admission of both groups to the clinic. Only, Group 1 patients had significantly higher triglyceride levels [Group 1: median 174 mg/dL (50–611); Group 2 median: 136 mg/dL (46–444); $p=0.039$].

Table 2 summarizes the lifestyle changes of patients and drug adaptation data at 6 months. Smoking cessation rate was significantly higher in Group 1 than in Group 2 (72.4% *vs*. 50.0%, $p=0.037$). The rate of regular exercise by the patients at 6 months was significantly higher in Group 1 (31% *vs*. 13.7%, $p=0.044$). Similarly, on the rate of following the recommended diet was significantly higher in Group 1

Table 1. Baseline clinical characteristics and laboratory findings of specialized prevention clinics and standard clinic patients

Variable	Specialized prevention clinic (n=67)	Standard clinic (n=51)	*p*
Age, year (mean±SD)	55.2±10.6	57.2±11	0.338¶
Male sex, n (%)	47 (70.1)	43 (84.3)	0.073¥
Diabetes mellitus, n (%)	12 (18.2)	6 (11.8)	0.487¥
Hypertension, n (%)	22 (32.8)	15 (29.4)	0.844¥
Hyperlipidemia, n (%)	10 (14.9)	8 (15.7)	1.000¥
Coronary artery disease, n (%)	8 (11.9)	8 (15.7)	0.751¥
Family history, n (%)	17 (25.4)	18 (35.3)	0.334¥
Current smoker, n (%)	58 (86.6)	42 (82,4)	0.710¥
Total cholesterol (mg/dL) Median (min–max)	185 (107–340)	178 (90–271)	0.093*
Low-density lipoprotein cholesterol (mg/dL), Median (min–max)	121 (50–274)	114 (43–213)	0.218*
High-density lipoprotein cholesterol (mg/dL) Median (min–max)	36 (20–62)	37 (19–72)	0.847*
Triglyceride (mg/dL) Median (min–max)	174 (50–611)	136 (46–444)	0.039*
Systolic blood pressure (mmHg)	135±28	133±18	0.714¶
Diastolic blood pressure (mmHg)	80±16	80±15	0.897¶

¶Student's t-test; ¥Continuity-corrected chi-square test; *Mann-Whitney U test. SD: Standard deviation

Table 2. Comparison of lifestyle changes and drug adaptations of specialized prevention clinics and standard clinic patients at 6 months

Variable	Specialized prevention clinic (n=67)		Standard clinic (n=51)		*p**
	n	%	n	%	
Smoking cessation¶	42	72.4	21	50	0.037
Systolic/diastolic blood pressure >140/90 (mmHg)	6	9	13	25.5	0.030
Weight control	18	27	8	15.7	0.220
Diet adaptation	29	43	10	19.6	0.012
Physical exercise	21	31	7	13.7	0.044
Dual antithrombotic therapy	64	95.5	47	92.2	0.464¥
Statin	64	95.5	41	80.3	0.021
Beta-blocker	59	88.1	43	84.3	0.751
ACE/ARB	56	83.6	45	88.2	0.654¥

¶Among smokers; *Continuity-corrected chi-square test; ¥Fisher's Exact test. ACE/ARB: Angiotensin-converting enzyme inhibitor/angiotensin receptor blocker.

(43% *vs*. 19.6%, p=0.012). However, the weight control ratios were significantly low in both groups, and no significant difference was found between the groups (Group 1: 27%; Group 2: 15.6%, p=0.219). During discharge, dual antithrombotic therapy and statin therapy were prescribed to the patients in both groups. Moreover, beta-blocker (Group 1: 92.5%; Group 2: 90%) and angiotensin-converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) were prescribed (Group 1: 88.1%; Group 2: 90%) to most

Table 3. Comparison of lipid profiles of specialized prevention clinics and standard clinics at six months

Variable	Specialized prevention (n=67)	Standard clinic (n=51)	*p*
Total cholesterol (mg/dL), median (min–max)	151 (89–309)	155 (96–284)	0.831*
LDL-C (mg/dL), median (min–max)	91 (34–231)	102 (54–236)	0.042*
HDL-C (mg/dL), median (min–max)	40 (25–68)	38 (25–60)	0.791*
Triglyceride (mg/dL), median (min–max)	155 (51–662)	136 (67–441)	0.021*
LDL-C ≤70 mmHg or ≥50% reduction with respect to baseline, n (%)	22 (32.8)	7 (13.7)	0.017¥
Systolic blood pressure (mmHg)	120±14	128±14	0.003¶
Diastolic blood pressure (mmHg)	74±10	80±13	0.009¶

HDL-K: Yüksek yoğunluklu lipoprotein kolesterol LDL-K: Düşük yoğunluklu lipoprotein kolesterol.
*Mann-Whitney U test; ¥Continuity-corrected chi-square test; ¶Student's t-test.

the patients in both groups. No significant difference was observed in the use rates of dual antithrombotic therapy in both groups (Group 1: 95.5%; Group 2: 92.1%, p=0.709) at the 6-month control. Similarly, no significant differences was found in the use rates of beta-blockers (Group 1: 88.1%; Group 2: 84.3%, p=0.750) and ACE/ARB (Group 1: 83.6%; Group 2: 88.2%, p=0.653) (Table 2). However, the statin use rate was significantly higher in Group 1 than in Group 2 (95.5% *vs*. 80.3%, p=0.021).

No significant difference was noted between the mean values of SBP and DBP in both groups (Group 1: 135±28/80±16 mmHg; Group 2: 133±18/80±15 mmHg, p=0.714 and 0.897) (Table 1). At the 6-month follow-up, the SBP/DBP ratio was found to be statistically higher in Group 2 than in Group 1 (12±14/80±13 mmHg *vs*. 120±14/74±10 mmHg, p=0.003 and 0.009) (Table 3). However, the rate of the patients with SBP/DBP >140/90 mmHg was significantly higher in Group 2 (23.5% *vs*. 9%, p=0.029) at 6 months (Table 2).

No significant difference was found between the total cholesterol values at 6 months [Group 1: median 151 mg/dL (89–309); Group 2: median 155 mg/dL (96–284), p=0.831)]. Similarly, no significant difference was observed in HDL-C values [Group 1: median 40 mg/dL (25–68); Group 2: median 38 mg/dL (25–60), p=0.791].

The median triglyceride level was significantly higher in Group 1 than in Group 2 [155 mg/dL (51–662) *vs*. 136 mg/dL (67–441), p=0.021]. The median LDL-C values were significantly lower in Group 1 than in Group 2 [91 mg/dL (34–231) *vs*. 102 mg/dL (54–236), p=0.042]. At the same time, the ratio of LDL-C ≤70 mg/dL or ≥50% reduction compared with baseline was significantly higher at 6 months (32.8% *vs*. 13.7%, p=0.016) (Table 3).

DISCUSSION

Management of intermittent risk factors and medical treatments are vital after in-hospital treatment, besides the management of CAD at the time of acute exacerbation. Management of risk factors and medical treatments are becoming more important, especially in Turkey where CAD is seen more frequently at a young age.[9] Many studies have shown that lifestyle changes with smoking cessation, following an appropriate diet, and regular physical activity reduce the new event risk in patients with CAD.[9–13] Coronary mortality was also found to be reduced by 50% relative to those who did not quit smoking after ACS.[10] In the EUROASPIRE II study, in which lifestyle changes, management of risk factors, and medical treatment were evaluated in secondary protection, it was found that 21% of the patients continued smoking average 1.4 years after discharge. In EUROASPIRE III study conducted with the participation of 22 European countries including Turkey in 2006–2007, 71.8% of the patients were found to have quit smoking in the control performed 1.2 years on average after discharge. The smoking cessation rate was 76.9% in Turkey. In the EURIKA (European Study on Cardiovascular Risk Prevention and Management in Usual Daily Practice) study in which patients with cardiovascular risk factors were evaluated, the proportion of

active smokers in Turkey was 23.7%, which was similar to that in European countries (21.3%).[14] The rate of smoking in both primary and secondary protection was extremely high in both Turkey and Europe. In EUROASPIRE III study, most of the patients were informed about smoking cessation verbally (90.7%) or in written (34.6%) but only 14.3% of the patients were able to get professional help or medication.

The present study found that the rate of smoking was higher at hospital admission. The rate of smoking cessation in Group 1 (72.4%) was significantly higher at 6 months, which was similar to the results of previous studies. However, 50% of the patients continued to smoke in Group 2 at 6 months. These results were significant in terms of showing the importance of strict follow-up and education in smoking cessation.

Regular physical activity is known to have protective effects on hypertension, obesity, lipid profile, diabetes, and coronary morbidity and mortality.[12,15] According to the EUROASPIRE III study, 59.1% of the patients had an increase in physical activity and 23.9% received professional help after coronary disease. Nevertheless, about half (57.8%) of the patients stated that they did mild and/or moderate exercise or did not exercise outside work (12.1%).[16] It was determined that 26.7% of the patients in Turkey did not perform any exercise outside work.[9] Regular exercise training (31%) was significantly higher than in Group 2 in the present study (13.7%). However, it was far from the desired level, although Group 1 was informed about exercise training and the importance of each control. This was important to show that the exercise was a way of life, perhaps from childhood, and that even after a serious disease such as ACS; the sedentary lifestyle would not change in a short time. More time and effort are required to ensure that more patients did exercise. Obesity is a serious cardiovascular risk factor in many ways.[13] Moreover, fighting with obesity is a long and difficult process. The EURIKA study found that more than 80% of obese patients received healthy dietary recommendations but only half of them had written recommendations, and only about one third to one fourth of them were directed by dieticians.[14] In the EUROASPIRE III study, only 51.8% of patients after cardiac event received dietary recommendations to lose weight and 39.3% of them were not attempted.[16] In this study, although all the patients were given a diet and weight control training in each control (written and oral), few patients followed this recommendation with caution. However, both weight control and the recommended dietary compliance rate were higher in Group 1. Similar to the difficulty of developing exercise habits, diet and weight control required long and intensive follow-up.

An important relationship exists between coronary death with high blood pressure, recurrent infarction, and stroke after ACS. Several randomized controlled studies showed a significant reduction in cardiovascular events with the achievement of targeted blood pressure after ACS.[17,18] In TARF and Turkish Hypertension Prevalence Surveys conducted in different years, the prevalence of hypertension was 33.7% and 31.8% in Turkey, respectively.[19,20] The control rate 20% in patients who received antihypertensive treatment in PatenT (Prevalence, Awareness and Treatment of Hypertension in Turkey) study and 24.2% in TURKSAHA (Treatment And Control Of Hypertension In Turkish Population) study.[21] In EURIKA, EUROASPIRE III, and EUROASPIRE II studies, the control rates were 40.3%, 44.8%, and 50%, respectively, in patients receiving treatment.[14,16,22] Patients in these two studies had higher numbers of controls due to the fact that they were private patients with cardiovascular risk factors. With regular follow-ups, the target blood pressures were reached in a large proportion of Group 1 patients and their mean blood pressures were lower than that in Group 2. This study demonstrated the importance of regular follow-up and training in the control of hypertension, an important risk factor for CAD.

Decreasing risk of cardiovascular events by lowering plasma LDL-C has been demonstrated in both clinical and epidemiological studies.[23,24] The lowest recurrence of a cardiovascular event in secondary prevention was shown to be at the LDL-C ≤70 mg/dL level, and the ESC secondary prevention guideline also recommended LDL-C ≤70 mg/dL or 50% reduction to the baseline value.[25] In the EURIKA, EUROASPIRE II, and EUROASPIRE III studies, 58.8%, 58%, and 51% of the patients, respectively, did not reach the target LDL-C levels in lipid therapy.[14,16,22] The rate of achieving the target values suggested by the guideline was significantly higher in Group 1 than in Group 2 (32.8% *vs*. 13.7, p=0.016) at the 6-month control. Despite the frequent and regular follow-up in Group 1, the low number of patients achieving the desired

LDL-C target could be explained by not prescribing high doses of drugs, lack of compliance with the diet, and not reaching the desired levels of exercise.

Most of the patients received treatment recommended by the guideline at the 6-month control. In the EUROASPIRE II study, 86% of the patients were found to have received aspirin or another anti-thrombocyte drug; 63% received beta-blockers, 38% ACE, and 61% lipid-lowering treatment after discharge.[22] In the EUROASPIRE III study, 91% of the patients were treated with the anti-thrombocyte drug, 80% with beta-blocker, 71% with ACE/ARB, and 78% with statin therapy after discharge.[16] The EUROASPIRE III was a comparative study of Turkish and European data, and it was seen that the rates of use of anti-platelet drug (91.4%) and ACE/ARB (69%) were similar, but in Turkey, the use of beta-blockers (73.8%), especially statin (65%), decreased significantly during the follow-up period.[9] Both groups of patients were found to have received recommended treatments at the 6-month control. However, the statistically significant increase in the use of statins, especially in Group 1 patients, could be explained by regular follow-up by the same physician.

Follow-up in specialized prevention clinics has been shown to be more successful in many clinical diseases compared with standard clinics. This is the effect of the patient being followed up by the same person and/or people more closely and regularly and the relationship between the patient and the health care provider.

Cardiovascular protection was investigated in a specialized prevention clinic and standard clinic in this study to evaluate the importance of clinics in the early period after ACS. Management of cardiovascular risk factors, which are important in secondary protection, has been shown to be more successful in patients followed up in a specialized prevention clinic. Nutritional habits and regular exercise are associated with many factors such as family, social environment, economic situation, and education, and develop at early ages.[26] For this reason, even after a coronary event, it may not be possible to change these habits in a short time. As in other studies, the reason for high LDL-C levels, which were far from the target values, might be the difficulties in changing the eating habits. On the contrary, possible underlying genetic dyslipidemias might have made it difficult to achieve the targets.

Limitations

The most important limitation of the present study was the low number of patients, short time for follow-up, and inclusion of only one clinic. Patients monitored both in the standard clinic and in the specialized prevention clinic did not represent all patients who had a history of ACS; they might represent a group of patients with a higher health concern. This might have contributed to better results in both clinics. Therefore, extensive studies are required in which ACS is evaluated in a larger patient population.

Conclusions

After ACS, a significant increase in the drug adaptation, blood pressure control, and reaching the target LDL-C value show the importance of specialized prevention clinics at 6 months. However, smoking, diet compliance, and exercise do not necessarily mean that changes are needed at longer intervals, but longer and more effective methods are needed to achieve desired levels of smoking, diet compliance, and exercise.

Conflict-of-interest: None declared.

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Keywords: Acute coronary disease; LDL cholesterol; risk factors; secondary prevention.

Anahtar sözcükler: Koroner arter hastalığı; LDL-kolesterol; risk faktörü; ikincil korunma.