Secondary Prevention of Coronary Heart Disease in Primary Health Care

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Abstract

Significant increasing in mortality from coronary heart disease (CHD) has seen in Bosnia and Herzegovina in the past decade. Little is known about current secondary preventive practices and treatments among patients with CHD in primary health care. The aims of this study were to evaluate the components of secondary prevention for CHD and to detect possible gender differences. This trial included 70 patients, aged 40-70 years, with established CHD from Family Medicine Teaching Center Tuzla. We evaluated components of secondary prevention (serum total cholesterol and blood pressure levels, smoking habits, body mass index, using aspirin, ACE inhibitors and lipid lowering drugs) in all participants. Results showed that significantly more men than women had diagnosis of CHD. 26/70 (37,14%) patients had myocardial infarction, with significantly higher number of men than women, but more women had angina only. Mean systolic blood pressure was 148,09±20,22 and diastolic 91,62±10,17 mmHg; mean total cholesterol level was 6,23±1,33 mmol/l; mean BMI was 27,9±3,32 kg/m^2. Blood pressure was managed according to guidelines in 19 (27,14%), and lipid concentrations in 11 (15,71%) patients. 55/70 (78,71%) patients took aspirin, only 18/70 (25,71%) patients took lipid lowering therapy, and 20/23 (86,96%) patients with heart failure took ACE inhibitors. 16/70 (22,86%) patients were current smokers, only 19/70 (27,14%) patients had healthy body mass index, while 21/70 (30%) patients were obese. Results of this study show a suboptimal secondary prevention in primary health care, which indicate more effective public health messages and changes in the healthcare system that promotes preventive strategies.

KEY WORDS: secondary prevention, coronary heart disease

Introduction

Cardiovascular disease is leading cause of death in industrial countries all over the world and represents a continuing crisis of epidemic proportions. Significant increasing of mortality from cardiovacular disease has seen in central and eastern europian countries, which is related to tranzitional changes in sphera of economic and political relations, as well as to total tranzitional changes which have happened in the past decade in central and eastern Europe. Conflict in Bosnia and Herzegovina (1992-1995) as well as the period after that, have resulted in many social and psychological breakdowns in people who lived through it. Migrations, political and economic instability in the country, increasing of mental health disorders, smoking and alcohol consumption, and unhealthy diet had negative effects on people health. These current and past adverse situations have resulted in increasing prevalence of cardiovascular disease, especially coronary heart disease. According to the limited statistical data, we can conclude that cardiovascular disease is leading cause of morbidity and mortality in our country, for men, as well for women, causing 50 % deaths of total mortality. In addition, because of inadequate health culture in community (high prevalence of smoking, alcohol consumption, obesity, physical inactivity, unhealthy diet and obesity) we can expect a further trend in increasing of cardiovascular morbidity and mortality (1). Numerous studies had shown that effective secondary prevention can reduce the risk for subsequent coronary events or death in patients with pre-exiting coronary heart disease (2,3). Optimal secondary prevention includes controlled blood pressure <140/90 mmHg, serum total cholesterol level <4,5 mmol/l, prophylactic use of antiplatelet agents and lipid lowering therapy, and interventions to change behavior and modify lifestyles (smoking cessation, regular physical activity, moderate alcohol consumption, healthy diet and weight reduction in overweight and obese). The integral part of primary care physicians for patient's health is prevention of disease and health promotion. Most people with coronary heart disease come in primary care office with aim that primary healthcare professionals be a persons who will suggest and give advice regarding to regular using antihypertensive medications, antiplatelets agents, lipid lowering therapy, as well as lifestyle modifications, so family physicians and general practitioners have been encouraged to target them for secondary prevention. However, many investigations have shown that secondary prevention of coronary heart disease is suboptimal (4,5,6). Little is known about current secondary preventive practices and treatment among patients in primary health care. That´s why we studied secondary preventive treatment among patients with coronary heart disease in primary care, so that we could assess our current secondary preventive practices.

Methods

We included 70 randomly selected patients aged 40-70 years from Family Medicine Teaching Center Tuzla. Every consecutive patient with established coronary heart disease, who came in family physician office for examination during the period September-November 2004, was included in this study. Notes from medical records were reviewed to ensure that patients were documented by hospital or cardiologist letter as having coronary heart disease. We had placed a limit of 70 patients for data collection. All patients gave informed consent to the study before attending the clinical assessment. Main outcome measures were components of secondary prevention for coronary heart disease: blood pressure and cholesterol management, body mass index, non-smoking, and using of aspirin and lipid lowering therapy. According to the Third Joint European Societies Recommendations on Prevention of Coronary Heart Disease in Clinical Practice criteria used to define appropriate secondary prevention were blood pressure <140/90 mmHg, total cholesterol level <4,5 mmol/l; normal body mass index below 25 kg/m^2, not currently smoking and using prophylactic medications (aspirin and lipid lowering therapy) (7). Blood pressure was measured in sitting position after rest for five minutes, using standarized equipment and technic. After measuring body weight and body height, we calculated the body mass index in all patients. According to the guidelines patients were overweight if their body mass index was >25 kg/m^2 or obese if body mass index was ≥30 kg/m^2 (7). We collected data on aspirin, ACE inhibitors and lipid lowering medications use from medical records, and smoking status by questionnaire (8). All patients were referal to laboratory for measurement of total cholesterol concentration from venous blood sample after fasting for twelve hours at least. Serum total cholesterol concentration was measured by biochemical analyzer Lysa 300 plus using standarized method. According to the guidelines, the blood cholesterol goals were a total cholesterol level below 4,5 mmol/l for patients with coronary heart disease (7). We used standard statistical methods for analysis. The hi-square test with significance P<0.05 and independent samples t-test respectively were used for comparing proportions and means between

male and female. We expressed effect size as the difference between groups with a 95% confidence interval.

Results

This trial included 70 patients mean aged 63,27 ± 8,09 years with established coronary heart disease; 43 men (61,43%) and 27 women (38,57%). Table 1. compares the characteristics of male and female patients with coronary heart disease. Significantly more men than women had diagnosis of CHD (P=0,0068). Diagnosis of myocardial infarction (with or without angina) had 26 (37,14%) patients; 21 (48,84%) men and 5 (18,52%) women. Significantly more men had diagnosis of myocardial infarction comparing with women (P=0,0106), but significantly more women than men had angina only (P=0,0106)). This diagnosis was present in 44 (62,86%) patients; 22 (51,16%) men and 22 (81,48%) women. Complications, as coronary artery bypass grafting had 10 (14,28%) patients and percutaneous transluminal coronary angioplasty had 2 (2,86%) patients. Of all 70 patients, heart failure was present in 23 (32,86%) patients; 14 (32,56%) men and 9 (33,33%) women. We didn't find a significant difference in number of patients with complications related to gender. 18 (25,71%) patients had diabetes; 10 (23,25%) men and 8 (29,63%) women. 16 (22,86%) patients were current smokers; 10 (23,26%) men and 6 (22,22%) women. Uncontrolled blood pressure was present in 51 (72,86%) patients; 32 (74,42%) men and 19 (70,37%) women. Of all 70 patients, 51 (72,86%) had unhealthy body mass index and significantly more women were obese than men (P=0,0087). Table 2. shows mean blood pressure and total cholesterol level, smoking status and body mass index in patients with coronary heart disease. Mean blood pressure was 148, 09 ± 20,22 mmHg for systolic, and 91,62 ± 10,17 mmHg for diastolic blood pressure; mean total cholesterol level was 6,23±1,33 mmol/l, and mean body mass index was 27,9 ± 3,32. There were no significant differences in mean blood pressure, total cholesterol level, smoking status and body mass index between men and women. Table 3. shows achieved optimal secondary prevention in patients with coronary hearth disease. Adequate blood pressure <140/90 mmHg had 19 (27,14%) patients; 11 (25,58%) men and 8 (29,63%) women. Serum total cholesterol level 4,5 mmol/l had only 11 (15,71%) patients; 6 (13,95%) men and 5 (18,52%) women. Of all 70 patients with coronary heart disease, 54 (77,14%) patients didn't smoke; 33 (76,74%) men and 21 (77,77%) women. Only 19 (27,14%) patients had body mass index below 25 kg/m^2; 14 (32,56%) men and 5 (18,52%) women. Antiplatelet agents were taken by 55 (78,71%) patients; 34 (79,07%) men and 21 (77,78%) women, while only 18 (25,71%) patients used

	TOTAL GROUP	MEN	WOMEN	P VALUE
	(n=70)	(n=43)	(n=27)	0,0068
Mean (SD) age (years)	63,27 ± 8,09	63,55 ± 9,14	62,81 ± 6,20	0,6118
Number of participants		43 (61,43%)	27 (38,57%)	0,0068
Original diagnosis:				
Myocardial infarction(with or without angina)	26 (37,14%)	21 (48,84%)	5 (18,52%)	0,0106
Angina only	44 (62,86%)	22 (51,16%)	22 (81,48%)	0,0106
Complications:				
Coronary artery bypass grafting	10 (14,28%)	7 (16,28%)	3 (11,11%)	0,5475
Percutaneous transluminal coronary angioplasty	2 (2,86%)	1 (2,32)	1 (3,70%)	0,7362
Heart failure	23 (32,86%)	14 (32,56%)	9 (33,33%)	0,9464
Diabetes	18 (25,71%)	10 (23,25%)	8 (29,63%)	0,5526
Smoking status:				
Current smoker	16 (22,86%)	10 (23,26%)	6 (22,22%)	0,9202
Non-smoker	54 (77,14%)	33 (76,74%)	21 (77,77%)	0,9202
Blood pressure ≥ 140/90 mmHg	51 (72,86%)	32 (74,42%)	19 (70,37%)	0,7108
Body mass index:				
BMI < 25 kg/m^2	19 (27,14%)	14 (32,56%)	5 (18,52%)	0,1985
BMI 25-29 kg/m^2	30 (42,86%)	21 (48,84%)	9 (33,33%)	0,202
BMI ≥ 30 kg/m^2	21 (30%)	8 (18,60%)	13 (48,15%)	0,0087

TABLE 1. Characteristics of patients with coronary heart disease

lipid lowering therapy; 12 (27,91%) men and 6 (22,22%) women. Of all 23 patients with heart failure, 20 (86,96%) patients took ACE inhibitors; 12 (85,71%) men and 8 (88,89%) women. We didn't find any gender differences in medical and lifestyle components for optimal secondary prevention of coronary heart disease.

Discussion

The overall objective of coronary heart disease prevention is to reduce the risks for subsequent coronary events, and thereby reduce premature disability, mortality and to prolong survival. Opportunities for family physicians and general practitioners to undertake preventive activities for coronary heart disease and other cardiovascular diseases in clinical practice are possible, but it is not optimal realized in our country. We have attempted to measure the use of secondary prevention in Family Teaching Center Tuzla. It is well known that treatment with aspirin and lipid lowering therapy can reduce cardiovascular events in patients with coronary heart disease. Aspirin is available for the most of patients, and that's the reason why more than two third of patients in our study use that medication. In contrast, lipid management was largely neglected comparing with other studies, despite the efforts of family physicians who advocate cholesterol lowering for patients with coronary hearth disease (4,5). Lipid lowering therapy (preference is given to statins) is very expensive, and many patients, because of their limited financial resources, were not be able to buy it. That's why only about 25% of all patients in study used that medication and only 15,71% patients with coronary heart disease had recommended total cholesterol level below 4,5 mmol/l. In addition, high blood pressure remains poor managed in spite of availability most of antihypertensive medications. Findings from our study showed that only 27,14% patients have adequate blood pressure managing <140/90 mmHg, and for example, in EUROASPIRE II study 50% patients had controlled blood pressure (6). Lifestyle changes can modify coronary heart disease (9). Our results showed that 22,86% patients with coronary heart disease smoked, which is similar to other studies which analyzed secondary prevention in primary care (5,11). Numerous prospective investigations demonstrated substantial decrease in coronary heart disease mortality for former smokers compared with continuing smokers. Persons with diagnosis of coronary heart disease have expirience as much as a 50% reduction in risk of reinfarction, sudden cardiac death, and total mortality if they quit smoking after the initial heart infarction (12). In our study male patients showed higher levels of

	TOTAL GROUP	MEN	WOMEN	P VALUE
	(n=70)	(n= 43)	(n=27)	
Blood pressure (mmHg)				
Systolic	148, 09 ± 20,22	148, 64 ± 21, 58	147, 22 ± 18,15	0,8395
Diastolic	91, 62 ± 10,17	91, 93 ± 11, 22	91,11 ± 8,36	1
Total cholesterol (mmol/l)	6,23±1,33	6,3 ± 1,37	6,11 ± 1,28	1
Smoking	16 (22,86%)	10 (23,26%)	6 (22,22%)	0,9202
Body mass index	27,9 ± 3,32	27,32 ± 3,02	28,81 ±3,63	0,1791

TABLE 2. Mean blood pressure and total cholesterol level, smoking status and BMI

	TOTAL GROUP	MEN	WOMEN	P VALUE
	(n=70)	(n=43)	(n=27)	
Blood pressure < 140/90 (mmHg)	19 (27,14%)	11 (25,58%)	8 (29,63%)	0,7108
Total cholesterol < 4,5 mmol/l	11 (15,71%)	6 (13,95%)	5 (18,52%)	0,6095
Non-smoker	54 (77,14%)	33 (76,74%)	21 (77,77%)	0,9202
BMI <25 kg/m^2	19 (27,14%)	14 (32,56%)	5 (18,52%)	0,1985
Antiplatelet agent	55 (78,71%)	34(79,07%)	21(77,78%)	0,898
Lipid lowering therapy	18 (25,71%)	12 (27,91%)	6 (22,22%)	0,5963
ACE inhibitors	20 (86,96%)	12 (85,71%)	8 (88,89%)	0,8766

TABLE 3. Achieved optimal secondary prevention in patients with coronary heart disease

blood pressure and total cholesterol level, but in general, a gender-equal level of blood pressure control, lipid control and access to prophylactic drug treatment has been established for patients in secondary prevention of coronary heart disease in primary health care, which is similar to recent study from Sweden which investigated gender differences in secondary prevention of coronary heart disease (11). Weight loss in patients with coronary heart disease reduced coronary risk independently and by improving lipid profile, blood pressure and glucose tolerance. Most patients in our study, nearly half of them were overweight, with 30% patients who were obese. These findings put considerable capacity for secondary prevention through lifestyle modifications.

Conclusion

Results of this study show a suboptimal secondary prevention in primary health care, with a high prevalence of modifiable risk factors, unhealthy lifestyles, and inadequate use of prophylactic drug therapies. We need more effective public health messages, changes in the healthcare system that promotes preventive strategies, and more effective methods to educate healthcare providers. General practitioners and primary care teams should aim to identify all people with established cardiovascular disease and offer them comprehensive advice and appropriate treatment to reduce their risks. This will require important changes in clinical practice and primary health care system.

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