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The impact of the Polish national Programme of Cardiovascular Disease Prevention on the quality of primary cardiovascular disease prevention in clinical practice

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Abstract

Background: Despite a decline since 1991, cardiovascular diseases (CVD) are the major burden on public health in Poland.

Aim: To assess the impact of the national Programme of Cardiovascular Disease Prevention (PCVDP) on the quality of primary CVD prevention in clinical practice.

Methods: Sixty six primary care centres were invited to join the project (2–6 in each province). Half of these centres participated in the PCVDP (in other words, they were 'active' clinics) and the other half was included in the control group. A random sample of 300 patients aged 35–55, free of coronary heart disease, with no history of stroke or peripheral artery disease, and with medical documentation going back at least to 1 January 2005 was selected for the study in each centre. From the total of 3,940 patients in active clinics, 3,162 were judged to be eligible for the study and their medical records were reviewed. All were invited for examination. This was finally attended by 2,314 patients from active clinics and 2,101 from the control group.

Results: Before the introduction of the PCVDP, the percentage of patients with available information on risk factors in medical records was similar in the active and in the control clinics, and varied from more than 40% (hypertension) to less than 5% (weight and waist circumference). After the introduction of the PCVDP, the proportion of subjects with available information on risk factors greatly increased in the clinics which took part in the PCVDP. Knowledge of CVD risk factors was similar in the two studied groups. When asked, about 10% of patients in both groups could not list a single CVD risk factor. Smoking

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was the most frequently recognised risk factor (named by more than 60% of patients) and diabetes the least (less than 15%). No significant difference was found between the active and control clinics in the frequency of counselling as to smoking, diet, weight reduction or exercise. Only about 40% of smoking patients had received advice on smoking cessation. Counselling on diet had been received by about 40% of patients. Less than 20% of patients had been advised to reduce weight, with about 25% having received advice to increase their physical activity. Control of risk factors was poor and there was no significant difference between the active and control clinics in terms of the proportion of patients who reached prevention targets.

Conclusions: 1. The PCVDP appears to be effective in identifying high risk patients. 2. The effectiveness of the routine management of risk factors in primary care is very low. 3. Addressing via the PCVDP all decisions as to the extent and means of intervention on risk factors to primary care physicians appears to be ineffective. 4. There is a need to introduce an effective structured intervention on risk factors and add it to the PCVDP.

Key words: cardiovascular diseases prevention programme, cardiovascular diseases risk factors, intervention

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INTRODUCTION

Despite a decline since 1991, cardiovascular diseases (CVD) is the major burden on public health in Poland [1, 2]. Further, the substantial fall in CVD and coronary heart disease (CHD) mortality observed between 1992 and 1996 subsequently slowed, despite the sharply increasing number of invasive therapeutic procedures [3, 4].

There is overwhelming evidence that prevention remains the most effective means of reducing the threat to life posed by CVD. The largest epidemiological study of CVD carried out predominantly in European countries, The WHO MONICA Project, showed that the decline of CHD mortality could be attributed to the decrease in the incidence of the disease of 79% in men and 65% in women [5]. Later studies have shown that the contribution of risk factor changes explained the decline in CHD mortality of 50–76%, which is more than can be accounted for by the contribution of the improvement in treatment strategies (23–46%) [6–12].

In Poland in the last two decades, the control of CVD risk factors has improved [13, 14]. However, results from a large-population nationwide survey (Project WOBASZ) showed that the prevalence of CVD risk factors is still high [15–17]. There is still great potential in prevention methods which aim to reduce the main risk factors in order to further decrease CVD mortality rates in Poland.

In 2004, the National Health Fund (NFZ) introduced the Programme of Cardiovascular Disease Prevention (PCVDP) to primary care centres. The procedures of the PCVDP, funded by the NFZ, consisted of two main components: 1) screening of people registered in primary care centres to identify main risk factors; and 2) counselling on the reduction of risk factors [18]. The PCVDP was introduced around the time of the publication of the reports of the 3rd and 4th Joint European Societies Task Force on Cardiovascular Disease Prevention in Clinical Practice [19, 20], as well as of the activities of the Polish Forum of Prevention which allowed the preparation of a series of national recommendations agreed by eight Polish scientific societies. These recommendations have since become widely recognised [21].

In 2007–2008 the Task Group for CVD Prevention of the POLKARD Programme of the Polish Ministry of Health initiated a study, the aim of which was to assess the impact of the PCVDP on the quality of primary CVD prevention in clinical practice.

METHODS

In each of the 16 Polish provinces ('voivodeships'), 2–6 primary care centres were invited to join the project. In the end, 66 clinics were recruited for the study; half of them participated in the PCVDP (these were the 33 'active' clinics); the remainder formed the control group (these were the 33 'control' clinics). A grand total of 12,289 people aged 35–55 years were considered for the study. Of these, 7,102 were eligible, i.e. they were free of CVD and with medical documentation going back to at least 1 January 2005. In total, 3,940 patients from active clinics and 3,162 from control clinics were included in the study; among patients of the active clinics 1,244 (31.6%) participated in the PCVDP. There was no significant difference in the mean age or sex distribution between the studied groups.

The study was conducted in two stages. Firstly, for all eligible patients, medical records were reviewed and information was collected using a standard questionnaire. The collected data included: 1) information on risk factors from the period before the introduction of the PCVDP (before 2005); 2) information collected during the PCVDP (active clinics only); and 3) most recent information on risk factors from the year prior to the date of final examination. For the second stage, eligible people were invited for an examination. Eventually, 2,314 people from active clinics and 2,107 from control clinics were examined (Fig. 1).

The standard protocol was applied to all the examination procedures. An interview was carried out according to the standard questionnaire. Knowledge of risk factors was

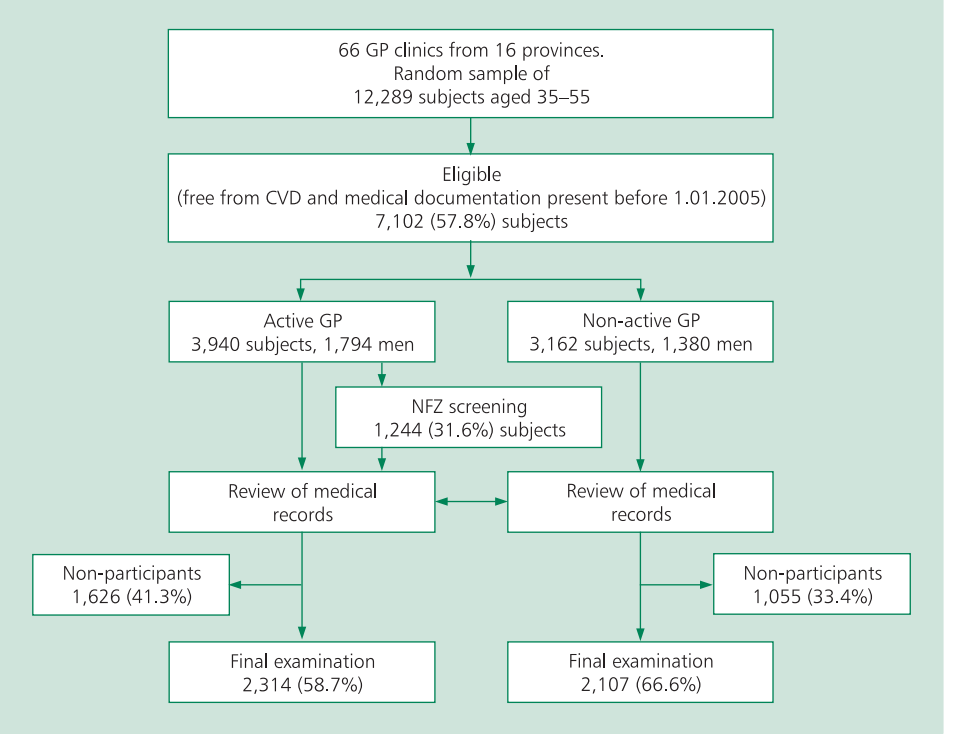

Figure 1. Study design and recruitment; GP — general practitioner; CVD — cardiovascular diseaes; NFZ — National Health Fund

assessed by use of the open question: "Can you name any factors which increase the risk of myocardial infarction?", and the answers were classified by trained interviewers referring to the pre-prepared list of risk factors. Blood pressure (BP) was measured twice after a five minute rest in the sitting position, using an Omron M6 device. Body height and weight were measured using a standard beam weight in the standing position without shoes or outer clothes. Waist circumference was measured using a flexible tape half way between the lower edge of the ribs and the upper edge of the hips. Blood was collected in the sitting position (with limited use of tourniquet) using vacuum system tubes. Blood lipids and glucose were analysed in the local laboratories using local methods. However, when the clinics were being recruited, only those laboratories which had an internal quality control system and which participated in an external quality control programme were accepted.

The collected data was added to the central computer database and subjected to immediate quality control.

Statistical analysis

Results are presented by means of percent distribution. Differences between the studied groups (active *vs* non-active clinics) were adjusted for age, sex and the clustering effect of clinics to generate appropriate confidence intervals and statistical significance. Data was analysed using the GLIMMIX procedure with SAS v. 9.1 statistical software. A p value < 0.05 was considered significant.

RESULTS

Table 1 shows the percentage of subjects for whom information on risk factors was available in medical records both for the period before and after the introduction of the PCVDP. Before the introduction of the PCVDP, the percentage of subjects with available information on risk factors varied from more than 40% (hypertension) to less than 20% (cholesterol, triglycerides and glucose), and even down to under 5% (weight or waist circumference). There was no significant difference between active and control clinics. After the introduction of the PCVDP, the proportion of subjects with available information greatly increased in the active clinics. However, with the exception of BP, for no one risk factor was information available for more than 50% of participants in the study.

The basic characteristics of examined participants are presented in Table 2. There were no significant differences in age and sex distribution between the groups. Patients from active clinics were slightly better educated than patients from control clinics.

The proportion of subjects examined in the final examination who listed hypertension as a CVD risk factor was higher in the control clinics than in the active clinics (52% *vs* 34%), and no significant difference was found in the knowledge of other risk factors between the study groups. In both the active and the control clinics, there were differences in the proportion of patients who could list particular risk factors. More than 60% of those participating in the final examination listed smoking as a risk factor, and more than 50%

Table 1. Percentages of patients with available information on cardiovascular disease risk factors in medical records before and after Programme of Cardiovascular Disease Prevention screening

	Active clinics (n = 3,940)		Non-active clinics (n = 3,162)		P
	[%]*	95% CI	[%]*	95% CI	
Before screening period					
Smoking	12.3	7.2–20.1	8.0	4.6–13.6	0.82
SBP/DBP	41.4	31.0–52.6	49.6	38.6–60.7	0.25
TC level	15.1	10.8–20.8	15.9	11.3–21.8	0.83
HDL level	7.5	5.3–10.5	6.6	4.6–9.4	0.60
LDL level	6.7	4.8–9.3	5.9	4.2–8.3	0.59
TG level	9.8	6.9–13.7	9.7	6.8–13.2	0.96
Glucose level	15.3	10.7–21.9	15.7	10.8–22.2	0.97
BMI	1.8	1.1–3.2	0.8	0.4–1.4	0.04
Weight	3.9	2.4–6.5	3.1	1.8–5.2	0.51
Waist	0.6	0.3–1.2	0.2	0.1–0.6	0.10
After screening period					
Smoking	32.9	22.8–45.0	10.1	6.3–15.8	< 0.001
SBP/DBP	46.3	34.2–58.9	50.7	38.3–63.0	0.54
TC level	32.0	23.0–42.6	16.0	10.7–23.1	0.002
HDL level	25.6	17.7–35.4	10.4	6.7–15.7	< 0.001
LDL level	27.5	18.7–38.5	8.0	4.9–12.7	< 0.001
TG level	27.8	19.3–38.2	12.3	8.0–18.5	< 0.001
Glucose level	32.1	22.8–43.2	17.3	11.5–25.3	0.007
BMI	26.3	16.0–39.3	3.4	1.9–6.3	< 0.001
Weight	29.7	9.3–42.7	5.7	3.2–9.7	< 0.001
Waist	20.4	12.9–31.4	3.6	2.0–6.2	< 0.001

*Adjusted for age, sex and design effects; CI — confidence interval; SBP — systolic blood pressure; DBP — diastolic blood pressure; TC — total cholesterol; HDL — high density lipoprotein; LDL — low density lipoprotein; TG — triglyceride; BMI — body mass index

Table 2. Socio-demographic characteristics of participants in the final examination

	Active clinics (n = 2,314)		Non-active clinics (n = 2,107)		P
	[%]*	95% CI	[%]*	95% CI	
Male	47.2	42.9–51.6	44.3	40.0–48.6	0.34
Age (mean)	44.6	44.3–45.0	44.8	44.4–45.1	0.65
Education:					
Primary	21.3	15.5–28.5	27.9	21.0–36.0	0.18
Secondary	58.0	51.3–64.5	55.8	49.1–62.3	0.64
University	17.5	13.6–22.3	12.8	9.6–16.8	0.09

*Adjusted for design effects; CI — confidence interval

named diet as another. About 40% listed low physical activity, 20% hypercholesterolaemia and less than 15% named diabetes. Around 10% of patients could not list a single CVD risk factor (Table 3).

The proportion of study participants who had received information on lifestyle modification and on risk factors is presented in Table 4. About 40% of patients received intervention on smoking cessation (there was no significant difference between the study groups). Most counselling was limited to verbal advice or distribution of leaflets. Less than 10% of patients had received pharmacotherapy and even fewer had been referred to specialist clinics. Counselling on modifying diet had been received by about 40% of study participants. Most patients who received any intervention on diet were advised to consume less salt, less fat, fewer calories and more fish, fruit and vegetables. A small proportion had been advi-

Table 3. Knowledge of cardiovascular diseases risk factors

	Active clinics (n = 2,314)		Non-active clinics (n = 2,107)		P
	[%]*	95% CI	[%]*	95% CI	
Smoking	66.5	61.4–71.6	69.6	64.5–74.7	0.37
Hypertension	34.4	27.9–41.6	51.7	44.1–59.2	< 0.001
Hypercholesterolaemia	20.3	15.8–25.8	20.3	16.4–26.6	0.84
Diet	54.0	47.3–60.7	54.6	47.9–61.2	0.89
Low physical activity	40.2	33.8–46.9	40.0	33.7–46.7	0.98
Diabetes	12.7	9.2–17.2	14.3	10.5–19.1	0.57
None of above is known	11.4	8.8–14.7	8.1	6.1–10.6	0.07

*Adjusted for age, sex and design effects

Table 4. Percentages of participants who received advice to change lifestyle prior to final examination

	Active clinics (n = 2,314)		Non-active clinics (n = 2,107)		P
	[%]*	95% CI	[%]*	95% CI	
Tobacco cessation (current smokers only):	41.0	31.0–51.7	34.6	25.5–44.9	0.35
Verbal advice or leaflets	37.7	27.6–49.0	29.8	21.1–40.3	0.25
Referred to specialist clinic	2.5	1.2–5.1	4.4	2.3–8.2	0.25
Pharmacotherapy	5.8	3.4–9.7	5.8	3.4–9.8	0.97
Other methods	3.8	2.1–6.7	3.5	1.9–6.3	0.84
Diet:	40.8	33.3–48.8	42.6	35.1–50.5	0.72
Less salt	26.5	20.4–33.7	23.0	17.6–29.5	0.41
Less fat	29.6	23.3–36.8	30.2	23.9–37.3	0.91
Fewer calories	26.6	20.5–33.6	25.7	19.9–32.5	0.84
More fruit and vegetables	32.2	25.2–40.1	34.7	27.5–42.6	0.62
More fish	27.3	20.9–34.9	30.4	23.6–38.2	0.52
Less sugar	20.1	15.1–26.3	20.0	15.1–26.1	0.98
Less alcohol	13.7	9.7–15.1	13.7	9.7–18.9	0.99
Reduce weight:	18.7	13.8–24.8	19.8	14.7–26.1	0.77
By diet	13.6	10.0–18.3	11.6	8.4–15.6	0.44
By regular physical activity	12.5	8.6–17.8	13.7	9.5–19.3	0.71
By pharmacotherapy	2.7	1.6–4.5	3.3	2.0–5.3	0.60
More physical activity:	24.2	18.2–31.4	25.0	18.9–32.3	0.85
Frequency	13.6	9.1–19.8	11.6	7.7–17.1	0.55
Individual professional programme	8.5	5.3–13.3	9.4	6.0–14.5	0.72
Fitness club	3.7	2.3–5.9	3.6	2.2–5.6	0.94
Jogging/walking	9.4	5.9–14.6	9.4	6.0–14.5	0.99

*Adjusted for age, sex and design effects

sed to eat less sugar and drink less alcohol. Less than 20% of study participants had received counselling to reduce weight. Of those who had, most had been advised to do it by changing their diet and increasing their physical activity. About 3% had been advised to use pharmacotherapy. Of all the study participants, about 25% had been advised to increase physical activity. Most received simple advice to increase frequency of exercise. Other forms of increased physical activity had been advised to < 10% of patients. No significant difference was observed between the active and the control clinics in terms of counselling on diet, weight reduction or physical activity.

Table 5. Percentages of participants who reached treatment targets

	Active clinics (n = 2,314)		Non-active clinics (n = 2,107)		P
	[%]*	95% CI	[%]*	95% CI	
Not smoking	73.9	65.7–80.7	65.4	56.6–73.2	0.29
SBP/DBP < 140/90 mm Hg	67.5	62.7–71.9	67.6	62.9–72.0	0.98
TC level < 5 mmol/L	34.8	31.2–38.7	33.2	29.6–37.0	0.54
TC/HDL < 3 mmol/L	27.6	22.6–33.3	21.6	17.4–26.4	0.09
LDL level < 3 mmol/L	39.8	35.1–44.6	35.5	31.1–40.2	0.20
Glucose < 7 mmol/L	98.0	97.1–98.6	97.2	96.0–98.0	0.14
BMI < 25 kg/m^2	38.9	36.2–41.7	37.3	34.5–40.2	0.37
Waist < 102 cm M or < 88 cm W	69.3	59.0–78.1	72.8	63.5–80.4	0.71
Physical activity ≥ 3 times per week	14.6	11.3–18.8	12.4	9.5–16.1	0.36
Healthy diet	19.3	14.3–24.6	14.1	10.7–18.3	0.09

*Adjusted for age, sex and design effects; M — men; W — women; rest abbreviations as in Table 1

There was no significant difference between the active and control clinics in the proportion of participants in the final examination who reached prevention treatment targets. In general, about two thirds of patients were non-smokers, more than 65% had BP < 140/90 mm Hg and about 70% had a waist circumference below the limit of abdominal obesity. However, less than 40% had a body mass index below 25. About 20–40% of patients reached the treatment target for total cholesterol, LDL-cholesterol and total cholesterol/HDL-cholesterol ratio. Less than 20% reached three main dietary targets and less than 15% reported physical activity three times a week or more. Blood glucose concentration below 7 mmol/L was found in 98% of participants (Table 5).

DISCUSSION

Our study showed that information on risk factors was available in a low proportion of medical records in routine clinical practice. The PCVDP brought about an increase in the proportion of patients with available information on risk factors, and more patients received advice about changing their lifestyle. However, the differences between the clinics which participated in the PCVDP and those which did not were small. The PCVDP did not improve patients' knowledge of risk factors (about 10% could not list a single factor increasing the risk of CVD). The PCVDP did not increase the proportion of patients who had risk factors at treatment target.

There were some important limitations of our study. First, the observational design of the study did not allow full comparability between the studied groups. Second, the assessment of the exposure to risk factors during the period before the introduction of PCVDP could be done only using the data from medical records. At examination, although most information collected was based on standardised methods of measurement and data collection, blood lipids were determined in local laboratories. It is worth noting however, that these laboratories were participating in external quality control programmes, and that the results on blood lipids followed the pattern of other measurements using standardised methods. Despite these limitations, we were able to develop and introduce an applicable method of observation which allowed us to shed some light on primary prevention in clinical practice and the effectiveness of the PCVDP.

Although the study was carried out in all Polish provinces, participating clinics were recruited for the study on a voluntary basis, so the sample examined finally cannot be considered as representative of the whole country. On the other hand, the participating clinics were typical of Poland. The studied subjects appeared to have a slightly higher prevalence of smoking, and a lower prevalence of high BP and high total cholesterol, compared to the 700,000-plus primary care patients examined in the POLSCREEN Project between 2002 and 2005 [22]. Control of hypercholesterolaemia and hypertension in our sample was better than that found in the examination of the national sample screened in the WOBASZ Project [15, 16]. This however may be partly explained by the improvement in the risk factors management, which was recently described in Poland in outpatient clinics for patients with CHD [23].

The problem of poor control of CVD risk factors in Poland has been described in a general population [15–17], in primary care patients [22], in hospitalised CVD patients [24] and in those treated in outpatient clinics [22]. Even so, little is known about the methods of intervention on risk factors which have been used in clinical practice. In the study by Mierzecki et al. [25] over 90% of family physicians felt that health promotion should be a part of their daily work, and over 90% had educational materials in their waiting rooms. However, less than 50% felt competent to deal with the problem of smoking or physical activity, and only 60% felt competent to advise on nutrition. Accurate documentation of medical data

is a key factor in the management and treatment of patients at risk of CVD. It enables physicians to classify patients into intervention and treatment groups, and use appropriate resources for lifestyle modification and treatment. There is little scientific data on recording risk factors in medical records, particularly in Poland. In a recently published Italian study which involved 841 general practitioners, such information was available in a much higher proportion of patients [26].

There is scientific evidence that CVD prevention programmes work. Recently, this was confirmed in the EUROACTION Project, carried out in eight European countries including Poland. The results of this project showed that structured intervention was effective in lifestyle changes, in reducing risk factors and in increasing the use of cardioprotective medication. The important characteristic of EUROACTION was that trained nurses could manage the structured interventions situated in normal clinical practice [27]. The PCVDP included a well-designed structured examination which could measure risk factors and identify high risk individuals. However, the NFZ procedure did not include any type of structure intervention, which meant that all the decisions as to the means and extent of intervention were left to primary care physicians [18, 28]. Finally, nearly 90% of counselling was provided by physicians, and only about 30% of patients received any advice from other medical professions [29]. This may explain, at least partly, why successful identification of high risk persons was not followed up by effective care. In previous studies, primary care physicians have been shown to have time limitations, inadequate knowledge, and to be not fully aware as to the efficacy of intervention on risk factors [30, 31].

The PCVDP should be enriched with well-designed structured intervention. In the past, five Polish research centres gathered experience in primary prevention by participating in international projects or putting their own design into action. These experiences were used in preparing the proposal for structured intervention and the design of controlled implementation [32]. Putting the project into action would be an important step towards raising the effectiveness of primary prevention in clinical practice in Poland.

CONCLUSIONS

1. The PCVDP appears to be an effective tool for the identification of high risk patients.
2. The effectiveness of the routine management of risk factors in primary care practices is very low.
3. Addressing via the PCVDP all decisions as to the extent and means of intervention on risk factors to primary care physicians appears to be ineffective.
4. There is a need to introduce an effective structured intervention on risk factors and add it to the PCVDP.

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Wpływ ogólnopolskiego Programu Profilaktyki Chorób Układu Krążenia na jakość pierwotnej prewencji chorób układu sercowo-naczyniowego w praktyce klinicznej

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*Lista wykonawców projektu „Tworzenie regionalnych ośrodków referencyjnych prewencji chorób serca i naczyń na tle miażdżycy w zakresie strategii wysokiego ryzyka. Wprowadzenie zasad kontroli jakości i oceny skuteczności programów prewencji" zrealizowanego w ramach programu Ministerstwa Zdrowia POLKARD jest zamieszczona na końcu artykułu.

Streszczenie

Wstęp: W 2004 roku Narodowy Fundusz Zdrowia wprowadził Program Profilaktyki Chorób Układu Krążenia (PPChUK), którego wykonawcą są przychodnie Podstawowej Opieki Zdrowotnej (POZ).

Cel: Celem badania zorganizowanego przez zespół ds. prewencji chorób układu krążenia (działającego w ramach programu POLKARD Ministerstwa Zdrowia) było określenie wpływu PPChUK na jakość pierwotnej prewencji w praktyce lekarskiej.

Metody: W badaniu uczestniczyło łącznie 66 przychodni z 16 województw Polski. W 33 przychodniach był prowadzony PPChUK. Pozostałe 33 przychodnie, w których do 2008 roku nie prowadzono PPChUK, zaliczono do grupy kontrolnej. Spośród osób zarejestrowanych w tych przychodniach, którzy byli w wieku 35–55 lat, nie mieli choroby niedokrwiennej serca, udaru mózgu lub miażdżycy tętnic obwodowych w wywiadzie oraz które miały dokumentację założoną przed 1 stycznia 2005 roku, wylosowano 3940 osób w przychodniach, w których był prowadzony PPChUK oraz 3162 osób w przychodniach, które nie przystąpiły do realizacji tego programu. Dokonano przeglądu dokumentacji medycznej wszystkich zakwalifikowanych osób i zaproszono ich do badania, w którym wzięło udział ostatecznie 2314 osób z przychodni, w których prowadzono PPChUK i 2107 osób z przychodni z grupy kontrolnej.

Wyniki: W okresie przed wprowadzeniem PPChUK informacje dotyczące występowania czynników ryzyka odnotowano w historii choroby od < 5% (masa ciała, obwód brzucha) do > 40% (ciśnienie tętnicze) pacjentów. Po wprowadzeniu PPChUK odsetek pacjentów, u których odnotowano informacje dotyczące czynników ryzyka, znacznie wzrósł, ale tylko

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w przychodniach, które w nim uczestniczyły. Znajomość czynników ryzyka chorób układu sercowo-naczyniowego była podobna w obu badanych grupach. Wśród osób, które zgłosiły się do badania, około 10% nie potrafiło wymienić żadnego czynnika ryzyka. Palenie tytoniu było najczęściej wymienianym czynnikiem ryzyka (> 60% badanych), a cukrzyca najrzadziej (< 15% badanych). Nie stwierdzono istotnych różnic między przychodniami, które uczestniczyły i nie uczestniczyły w PPChUK w zakresie częstości udzielania porad dotyczących zaprzestania palenia, diety, redukcji masy ciała i aktywności fizycznej. Tylko około 40% palących otrzymało poradę dotyczącą zaprzestania palenia tytoniu (w większości krótka porada ustna lub przekazanie ulotki). Porady dotyczące diety otrzymało około 40% badanych. Mniej niż 20% badanych otrzymało porady dotyczące obniżenia masy ciała, a 25% porady na temat aktywności fizycznej. Nie stwierdzono również istotnych różnic w odsetku badanych osób, które osiągnęły cele w zakresie eliminacji czynników ryzyka między badanymi grupami. Około 2/3 badanych nie paliło tytoniu, a ponad 65% miało ciśnienie tętnicze ≤ 140/90 mm Hg. Także około 70% miało obwód w pasie w pożądanym zakresie, choć tylko u 40% wskaźnik masy ciała wyniósł < 25. Około 20–40% badanych osiągnęło cele leczenia w zakresie stężenia cholesterolu całkowitego (TC) i cholesterolu LDL oraz wskaźnika TC/HDL. Mniej niż 20% badanych osiągnęło 3 podstawowe cele dotyczące diety, a mniej niż 15% podejmowało aktywność fizyczną co najmniej 3 razy w tygodniu.

Wnioski: 1. Program Profilaktyki Chorób Układu Krążenia okazał się skutecznym narzędziem w zakresie identyfikacji osób wysokiego ryzyka. 2. Skuteczność rutynowego postępowania w zakresie redukcji czynników ryzyka w przychodniach POZ jest bardzo słaba. 3. Przekazanie lekarzom POZ pełnej decyzji dotyczącej rodzaju i zakresu podejmowanej interwencji w celu zmniejszenia ryzyka okazało się nietrafnym rozwiązaniem PPChUK. 4. Konieczne jest zmodyfikowanie PPChUK przez wprowadzenie skutecznego programu strukturalnej interwencji.

Słowa kluczowe: Program Profilaktyki Chorób Układu Krążenia, czynniki ryzyka chorób układu sercowo-naczyniowego, interwencja

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