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IMPLEMENTATION OF THE PROGRAM OF PREVENTIVE EXAMINATIONS AT PRIMARY HEALTH CARE IN THE CITY OF ZAGREB 2009-2013

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SUMMARY

Background: *The program covered all persons who had not been in contact with a physician for two years or had failed to notice symptoms themselves or to timely respond to the symptoms observed. The aim of the present study was to analyze the results of the program and try to draw conclusions regarding the necessity further implementation.*

Subjects and methods: *This paper analyzes data on a cohort of 1375 subjects aged 45+, collected on preventive examinations by family physicians during the 2009-2013 period.*

Results: *Results show 24.4% smokers and 15.5% former smokers. Up to three alcoholic drinks per week consumed 18.5% respondents (27.8% male and 11.2% female). Overweight (body mass index 25-30) was recorded in 50.6% and 38.6%, obesity (body mass index >30) in 30.1% and 29.4%, hypertension in 14.6% and 11.8%, isolated systolic hypertension in 20.5% and 17.4%, and isolated diastolic hypertension in 3.3% and 3.0% of male and female subjects, respectively. Suspicion of one or more newly diagnosed disease was recorded in 52.9% (95% CI 50.2-55.5) of study subjects. Fifty-four subjects (7.4%; 95% CI 5.5-9.3) were suspected to have neoplasm and they were immediately referred for further diagnostic evaluation.*

Conclusions: *Timely manner suspicion of malignant disease is of crucial influence on the course of treatment and outcome of the disease. The study results confirm the importance of continuing the implementation of prevention programs.*

Key words: *risk factors - chronic noncommunicable diseases - preventive examinations - cardiovascular diseases*

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INTRODUCTION

Raising awareness of the inappropriate habits and behavior patterns as risk factors that influence the occurrence of chronic noncommunicable diseases is one of the continuous tasks of public health professionals. It is estimated that 86% of deaths and 77% of disease in the European region are caused by chronic noncommunicable diseases. In the next decade, the number of deaths caused by chronic noncommunicable diseases will increase by 17%, thus continuously raising health care costs (Poljičanin et al. 2012a).

Cardiovascular diseases are the leading cause of death in Croatia (Croatian National Institute of Public Health, 2013). In the City of Zagreb in 2013, 46% of the leading cause of death was cardiovascular disease with 3827 deaths and a rate of 484.4 deaths per 100,000 inhabitants. In primary health care, cardiovascular disease ranked the second most common reason for visiting family physician, with a share of 12.3% and 303,288 diagnoses, immediately following respiratory disease (Dr Andrija Štampar Institute of Public Health, 2013).

Despite the well organized public health network, a comprehensive system for cardiovascular disease monitoring and interventions does not exist (Džakula et al. 2009). Program Implementation of the Preventive Examinations in Primary Health Care in the City of Zagreb Program is part of a complex network of preventive activities carried out by a range of stakeholders in health care system. In 2004, the Ministry of Health and Welfare and the Croatian Institute of Health Insurance launched a program of preventive examinations of insured persons older than 45, paying the general practitioner/family medicine teams for the service provided. Since then, the program has been continuously carried out every year with some changes in the contents and scope of screening, age limit of the insured, or the method of financing the examiners, i.e. general practitioners/family physicians.

The aim of this paper is to analyze the results of the program in the default period and to try to conclude on the necessity of its continuation in the same or modified form.

SUBJECTS AND METHODS

All persons older than 50 who had not visited their family physicians for at least two years were invited for free physical examination and laboratory testing. A total of 1375 subjects were examined and interviewed during the 2009-2013 period.

Insured persons were informed about the review through media campaign posters in health centers or personally invited by their family physicians. During the

examination, the physician takes personal and family medical history, previous and present diseases, habits, especially smoking habits and consumption of alcohol drinks. Body height, body weight, blood pressure and body mass index (BMI) were determined and physical examination performed in each study subject. In women, breast palpation, mammography and Pap test findings in the past 3 years were recorded. Special attention was paid to nonspecific signs of malignancy and included targeted conversation and digital rectal examination. Laboratory testing included blood cholesterol, hemoglobin and glucose, semi-quantitative urine analysis and occult blood test. Finally, the physician diagnosed the possible newly discovered or suspected diseases as well as the measures taken. The individual forms were collected at Dr Andrija Štampar Institute of Public Health and data were entered in the respective database. Data were analytically processed and evaluated at the City of Zagreb level.

The results were expressed as percentage of prevalence and 95% confidence interval (95% CI). Statistical analyses were performed using the SPSS software (version 14.01; License: Croatian National Institute of Public Health).

RESULTS

During the 2009-2013 period, 1375 persons underwent preventive examinations. The number of examinations continuously declined. The highest number of examinations (n=762) were performed in 2009, followed by 317 examinations in 2010, 102 examinations in 2011, 112 examinations in 2012 and 82 examinations in 2013. A total of 156 family physicians took part in conducting the review. The number of physicians that conducted preventive examinations was also on a continuous decline. Sixty-six physicians were included in the study in 2009, 53 in 2010, 17 in 2011, 13 in 2012 and only seven in 2013. During the 5-year period, 1736 newly diagnosed and suspected disease were detected in 727 subjects. Due to the reduced total number of participants, the number of newly detected and suspected disease decreased with time; 958 diseases were diagnosed in 2009 versus 168 diseases in 2013 (Table 1).

The mean age of study subjects was 61.5 years. Although the program has been designed for people older than 50, 59 (4.3%) subjects were younger than 50. Almost half of the participants (n=616; 44.9%) were in the 50-59 age group and one-third (n=397; 28.9%) in the 60-69 age group (Table 2). The analysis included 601 men and 774 women, yielding a 44:56 male to female ratio.

There were 24.4% of smokers and 15.5% of former smokers (Table 3). Taking up to three alcoholic drinks per week was reported by 18.5% respondents (27.8% male and 11.2% female) (Table 4). Overweight (BMI 25-30) was present in 50.6% and 38.6%, and obesity (BMI >30) in 30.1% and 29.4% of male and female

Table 1. Number of preventive examinations, family doctors as examiners, newly detected suspected diseases and persons with newly detected deseases according to years

	2009	2010	2011	2012	2013	Total
Preventive examinations	762	317	102	112	82	1375
Family doctors as examiners	66	53	17	13	7	156
Newly detected diseases	958	398	72	140	168	1736
Persons with newly detected diseases	417	160	39	50	61	727

Table 2. Subject distribution according to age groups and gender

Age (yrs)		<50	50-59	60-69	70-79	80-89	≥90	Total
Men	n	25	265	179	110	22	0	601
	%	4.2	44.1	29.8	18.3	3.7	0	100.0
Women	n	34	351	218	132	36	1	772
	%	4.4	45.5	28.2	17.1	4.7	0.1	100.0
Total	N	59	616	397	242	58	1	1373
	%	4.3	44.9	28.9	17.6	4.2	0.1	100.0

Table 3. Smoking habit according to gender

		Non smokers	Former smokers	<10 cigarettes/day	<20 cigarettes/day	>20 cigarettes/day	Unknown	Total
Men	n	285	139	26	78	59	14	601
	%	47.4	23.1	4.3	13.0	9.8	2.3	100.0
Women	n	518	74	68	81	23	10	774
	%	66.9	9.6	8.8	10.5	3.0	1.3	100.0
Total	N	803	213	94	159	82	24	1375
	%	58.4	15.5	6.8	11.6	6.0	1.7	100.0

Table 4. Alcohol consumption prevalence and number according to gender

		Does not drink	Abstinent	2-3 drinks/ week	1-2 drinks/ day	≥3 drinks/ day	Unknown	Total
Men	n	274	167	84	19	19	41	601
	%	45.6	27.8	14.0	3.2	3.2	6.8	100.0
Women	n	620	87	14	4	4	42	774
	%	80.1	11.2	1.8	0.5	0.5	5.4	100.0
Total	N	894	254	98	23	23	83	1375
	%	65.0	18.5	7.1	1.7	1.7	6.0	100.0

Table 5. Body mass index according to gender

		Underweight	Normal weight	Overweight	Moderate and severe obesity	Very severe obesity	Total
Body mass index (kg/m-2)		<18.5	18.5-24.9	25.0-29.9	30.0-39.9	≥40.0	
Men	n	4	110	299	172	6	591
	%	0.7	18.6	50.6	29.1	1.0	100.0
Women	n	5	238	294	208	16	761
	%	0.7	31.3	38.6	27.3	2.1	100.0
Total	N	9	348	593	380	22	1352
	%	0.7	25.7	43.9	28.1	1.6	100.0

Table 6. Hypertension according to gender

Diastolic blood pressure				Men	Women	Total	
≤90 mm Hg	Systolic blood pressure	≤140 mm Hg	n	354	502	856	Normotension
			%	61.6	67.8	65.1	
		>140 mm Hg	n	118	129	247	Isolated systolic hypertension
			%	20.5	17.4	18.8	
>90 mm Hg	Systolic blood pressure	≤140 mm Hg	n	19	22	41	Isolated diastolic hypertension
			%	3.3	3.0	3.1	
		>140 mm Hg	n	84	87	171	Hypertension
			%	14.6	11.8	13.0	
Total measured			N	575	740	1315	
			%	100.0	100.0	100.0	

subjects, respectively (Table 5). Hypertension (systolic pressure >140 mm Hg and diastolic pressure >90 mm Hg) was found in 14.6% and and 11.8%, isolated systolic hypertension in 20.5% and 17.4%, and isolated diastolic hypertension in 3.3% and 3.0% of male and female subjects, respectively (Table 6). Digital rectal examination was performed in 803 subjects and detected pathologic phenomena in 10.4% of female and 19.2% of male subjects.

Suspicion of one or more newly diagnosed diseases was recorded in 52.9% of study subjects (95% CI 50.2-55.5). In total, 727 newly diagnosed diseases were suspected, including disorders of lipoprotein metabolism (n=162; 22.3%), followed by hypertension (n=71; 9.8%), obesity (n=57; 7.8%) and non-insulin dependent diabetes mellitus (n=43; 6.3%). Neoplasms were suspected in 54 subjects (7.4%; 95% CI 5.5-9.3) and they were immediately referred for further diagnostic evaluation.

DISCUSSION

In 2003, the Croatian Adult Health Survey (CAHS) for cardiovascular risk was implemented as part of the activities aimed at health promotion. In 2008, in cooperation with community nurses, the project survey was broadened (Džakula et al. 2009). In CroHort study 5-year cumulative incidence was 5.6%, respectively 1% of the Croatian adult population develops diabetes each year (Poljičanin et al. 2012b). Results of the present study yielded a slightly higher incidence (6.3%). According to the CroHort study, the prevalence of obese adults in 2008 was 25.3% for men and 34.1% for women (Musić Milanović S et al. 2012). Taking into account the limited level of comparability, as elderly people were included in the present study, there was a higher proportion of obese men (29.1%) and a slightly lower proportion of obese women (27.3%).

In 2008, the prevalence of smoking was 25.3% in men and 22.4% in women. Six years later, the prevalence was slightly higher in men (27.1%) and unchanged in women (22.3%). Analysis of the habit distribution according to gender revealed that only 21.8% of men and 48.2% of women had never smoked, while all others were smokers or former smokers (Samardzić et al. 2012), which is in contrast to our results on a much higher proportion of nonsmokers (47.4% of men and 66.9% of women).

Therefore, the subjectivity of study participants should be taken into account. Sometimes persons describe themselves as nonsmokers, although being current, former or occasional smokers.

Alcohol consumption is traditionally part of human culture in many regions of the world, including Croatia. In a previous study, taking alcohol drinks was reported by 13.4% of men older than 65 and only 2.2% of the age-matched women (Vitale et al. 2012). Our study showed much higher shares, i.e. taking up to three alcoholic drinks per week was reported by 41.8% of male and 13% of female subjects.

If the pattern of hypertension management such as awareness, treatment and control continues until 2022, 80% of patients with treated hypertension will have controlled blood pressure levels with a potential annual saving of about 50,000 major cardiovascular events (Falaschetti et al. 2014). According to the Canadian Health Measures Survey that included 1706 Quebec inhabitants, the prevalence of hypertension in the ≥65 age group rose to 69.0% in women and 61.7% in men. In Canada, nearly one of four adults was diagnosed with hypertension in 2007-2008 (Blais et al. 2014). In women, both long-term overweight and recent overweight (in the last 5 years) were found to be significantly associated with the development of hypertension, whereas in men it was true only for long-term overweight (Ivičević Uhernik et al. 2012). In women aged 50-64, hypertension was associated with an increased risk of death compared to normotensive subjects (Mihel et al. 2012). Even 9.8% of subjects were not aware of their hypertension and the necessity of treatment.

CONCLUSIONS

The Program covered all persons who had not visited their physician for two years or had not noticed symptoms or timely responded to the symptoms observed themselves. Detecting cardiovascular risk, cardiovascular disease and malignant state as early as possible is extremely important, confirming the public health significance of such programs.

The number of preventive examinations decreased in the number of checkups and number of physicians taking part in program implementation. Nevertheless, the high number of newly discovered diseases and conditions indicated the need to continue program implementation. Certainly, it is necessary to additionally explore the reasons for the fall in the rate of responders, to change the criteria for patient inclusion and to improve the contents of the program.

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