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PREVENTIVE PROGRAM OF EARLY DETECTION OF CHRONIC KIDNEY DISEASE. ACTION "WARNING KIDNEY" - BYDGOSZCZ 2010.

PROFILAKTYCZNY PROGRAM WCZESNEGO ROZPOZNAWANIA PRZEWLEKŁEJ CHOROBY NEREK- AKCJA „UWAGA NERKI" – BYDGOSZCZ 2010.

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S u m m a r y

Chronic kidney disease (CKD) is a significant health problem in Poland and all over the world. It is estimated that in Poland CKD affects more than 4 million people (it is about 10-13% of the Polish population). Early detection of CKD is of great importance because of the possibility of an effective therapy to protect kidney function especially in patients with high risk of developing CKD. The aim of the study was to analyze the results of the program for early detection of kidney disease conducted in Bydgoszcz in 2010.
347 subjects took part in preventive action of early detection of kidney disease. They underwent free laboratory tests: urinalysis, serum creatinine level, eGFR calculation. Moreover, in each patient's blood pressure was measured. Besides laboratory tests results, all patients were given comprehensive information concerning further nephrological management. 347 people were evaluated in this local Preventive Program of Early CKD detection. There were two fold more women than men. The largest group among the respondents were people aged between 50 and 70 years of age, in stage 2 (63.1%, GFR> 60 ml/min) and 3-stage kidney disease (31.4%, eGFR <60 ml /min).

S t r e s z c z e n i e

Przewlekła choroba nerek (PChN) stanowi znaczący problem zdrowotny w Polsce i na świecie. Szacuje się, że w Polsce na choroby nerek choruje ponad 4 mln osób co stanowi ok. 10-13% społeczeństwa. Wczesne wykrywanie PChN ma ogromne znaczenie dla możliwości podjęcia skutecznej terapii, mającej na celu ochronę funkcji nerek zwłaszcza w grupach wysokiego ryzyka rozwoju PChN.
Celem przedstawionej pracy jest analiza wyników programu wczesnego wykrywania chorób nerek przeprowadzonego na terenie Bydgoszczy w roku 2010.
W programie profilaktycznym udział wzięło 347 osób, którym wykonano badanie ogólne moczu, oznaczono stężenie kreatyniny, wyliczono eGFR oraz zmierzono ciśnienie tętnicze. Pacjentom wydano ulotki informacyjne na temat dalszego postępowania po uzyskaniu wyników badań laboratoryjnych.
Na badania profilaktyczne zgłosiło się 347 osób, dwukrotnie więcej kobiet niż mężczyzn, najliczniejszą grupę stanowiły osoby w wieku pomiędzy 50 a 70 rokiem życia. Najliczniejszą grupę stanowili badani w stadium 2 (63,1%, GFR> 60 ml/min) i w stadium 3 PChN (31.4%, eGFR <60 ml / min).

Key words: chronic kidney disease, glomerular filtration rate, serum creatinine level, prevention program.

Słowa kluczowe: przewlekła choroba nerek, filtracja kłębuszkowa, stężenie kreatyniny, program profilaktyczny.

Key words: sport of people with disabilities, a medical college, a physical education college, male students, female students, profession, views.

Słowa kluczowe: sport niepełnosprawnych, uczelnia medyczna, uczelnia wychowania fizycznego, studenci, studentki, zawód, poglądy.

INTRODUCTION:

Chronic kidney disease (CKD) is a significant health problem in Poland and all over the world. Based on epidemiological studies, it is estimated that in Poland CKD affects more than 4 million people (which is about 10-13% of the Polish population), and reaches more than 600 million people in the world [1,4]. Early detection of CKD is of great importance because of the possibility of an effective therapy to protect kidney function especially in patients with high risk of developing CKD. These groups compromise patients with diabetes, hypertension, atherosclerosis, cardiovascular disease, and these ones with congenital kidney diseases. In each patient at high risk of CKD, urinalysis assessment of albuminuria and serum creatinine allowing the evaluation of glomerular filtration rate (eGFR ml/min) should be performed at least once a year. On the basis of GFR we can classify one severity of kidney disease – stages of CKD [2,3]. The program of early detection of CKD in Poland has been conducted for several years under the auspices of the National Consultant of Nephrology, the post of whom, until 2011, was held by Professor Boleslaw Rutkowski. The most important achievements of this program were: introducing of automated testing glomerular filtration rate (eGFR) by MDRD formula in most Polish diagnostics centers; improvement of public awareness of the need for research in the field of prevention of renal diseases, both among patients and primary care physicians and other medical specialties [1,2]. Since 2005, on the second Thursday of March the World Kidney Day is celebrated in Poland. It is an important initiative of the International Society of Nephrology (ISN) and the National Kidney Foundation (NKF). The idea of that day is to raise awareness of kidney diseases prevalence in Polish society and to give information about kidney diseases protection. Social prevention program "Warning kidney" was initiated by the Chapter Trust Award "Golden Otis", in cooperation with the Polish Federation of Patients' Dialtransplant "(PFPD). The main objective of the program was to enable the largest group of people to perform some laboratory tests: serum creatinine level and calculation of the eGFR, allowing for early detection of CKD.

THE AIM OF STUDY:

The aim of the study was to analyze the results of the program for early detection of kidney disease conducted in Bydgoszcz in 2010.

MATERIAL AND METHODS:

On the initiative of the Polish Association of Dialysis Patients in cooperation with City of Bydgoszcz, Occupational Medicine Center in Bydgoszcz and the Department of Nephrology, Hypertension and Internal Medicine, University Hospital No. 1 in Bydgoszcz, in May 2010, preventive action of early detection of kidney disease was performed. Almost 347 persons underwent free laboratory tests: urinalysis, serum creatinine level, eGFR calculation. Moreover, in each patient's blood pressure was measured. Besides laboratory tests results, all patients were given comprehensive information concerning further nephrological management. Most of these patients were asked for a first visit in Outpatient of Nephrology, Hypertension and Internal Medicine Department, University Hospital No 1 in Bydgoszcz. During this visit they were given some details of severity of kidney disease (stage of CKD was assessed) and some practical information about nephroprotective treatment.

347 people were analyzed: 206 women (59.4%) and 141 men (40.6%), age –range from 16 to 88 years. The average age of the patients was 53.4 years (men 52.8 years, women 53.9 years, p = 0.4932). Table I. shows the age structure of the program participants.

Age	N	Percentage
10-20	13	3.7
21-30	20	5.8
31-40	43	12.4
41-50	49	14.1
51-60	101	29.1
61-70	75	21.6
71-80	41	11.8
81-90	5	1.4

Table I. *Number of patients in different age groups*

Tabela I. *Liczba badanych w poszczególnych przedziałach wiekowych.*

RESULTS:

Serum creatinine level and eGFR according to MDRD formula were calculated in all subjects. The following table presents the average values of creatinine level and eGFR for the entire study group of 347 persons and in the different ages groups.

	N	Mean	. SD	Min.	Max.
Serum Creatinine level [mg/dl]	347	1.06	0.17	0.73	1.90
eGFR[ml/min]	347	65.6	12.7	33.0	114.0

Table II. *Average value of creatinine level and eGFR for the entire study group.*

Tabela II. *Średnia wartość kreatyniny i eGFR dla całej grupy badanej.*

Age (years)	N	Serum creatinine level			
		Mean	SD	Min.	Max.
10-20	13	1.01	0.14	0.82	1.27
21-30	20	1.04	0.18	0.76	1.42
31-40	43	1.04	0.14	0.76	1.45
41-50	49	1.05	0.17	0.79	1.63
51-60	101	1.04	0.15	0.73	1.36
61-70	75	1.09	0.16	0.79	1.57
above 70	46	114	0.23	0.82	1.90

Table III. *The average value of creatinine level in different age groups.*

Tabela III. *Średnia wartość kreatyniny poszczególnych grupach wiekowych.*

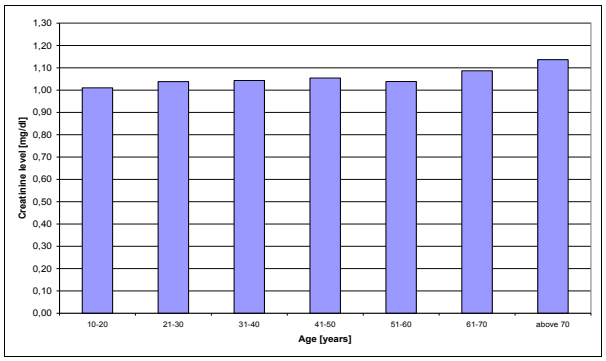

Figure 1. *The average value of serum creatinine level in different age groups.*

Rycina 1 *Średnia wartość kreatyniny poszczególnych grupach wiekowych.*

Age	N	mean	SD	Min	Max
10-20	13	86.6	13.8	69.0	114.0
21-30	20	78.4	11.7	53.0	96.0
31-40	43	71.8	9.6	54.0	97.0
41-50	49	64.8	9.8	45.0	92.0
51-60	101	65.3	10.4	44.0	98.0
61-70	75	61.8	10.4	40.0	95.0
above 70	46	55.9	12.9	33.0	90.0

Table IV. *Average value of eGFR in different age groups.*

Tabela IV. *Średnia wartość eGFR w poszczególnych grupach wiekowych.*

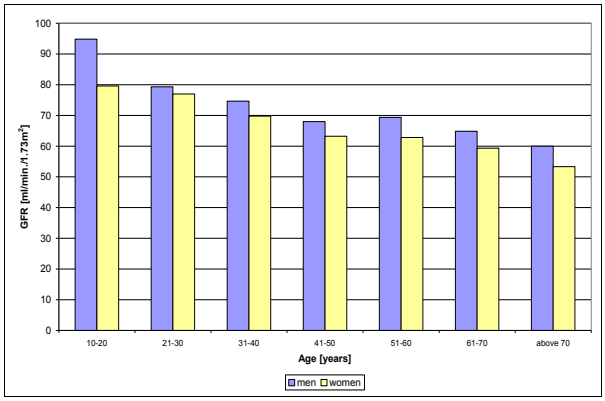

Fig.2 *The average value of eGFR in each age groups for men and women.*

Rycina 2 *Średnia wartość eGFR w poszczególnych grupach wiekowych dla kobiet i mężczyzn.*

On the basis of eGFR results patients were classified to one of the 5 stages of CKD.
Table 5 shows stages of CKD for the entire study group and separately for men and women. Table 6 shows the CKD stages for age.

CKD stage	Men (N=141)		Women (N=206)		Entire group	
	N	%	N	%	N	%
1	13	9.2	19	5.5	6	2.9
2	98	69.5	219	63.1	121	58.7
3	30	21.3	109	31.4	79	38.4
4	0	0.0	0	0.0	0	0.0
5	0	0.0	0	0.0	0	0.0

Table V. *Stages of CKD for the entire study group and separately for men and women.*

Tabela V. *Liczebność w stopniach zaawansowania PChN dla całej grupy badanej oraz dla kobiet i mężczyzn.*

Age	CKD stage					
	Stage 1		Stage 2		Stage 3	
	N	%	N	%	N	%
10-20	5	38.5	8	61.5	0	0.0
21-30	5	25.0	14	70.0	1	5.0
31-40	2	4.7	39	90.1	2	4.7
41-50	1	2.0	33	67.4	15	30.6
51-60	3	3.0	73	72.3	25	24.8
61-70	2	2.7	36	48.0	37	49.3
Above 70	1	2.2	16	34.8	29	63.0

Table VI. *Stages of CKD for age.*

Tabela VI. *Liczebność w stopniach zaawansowania PChN dla grup wiekowych.*

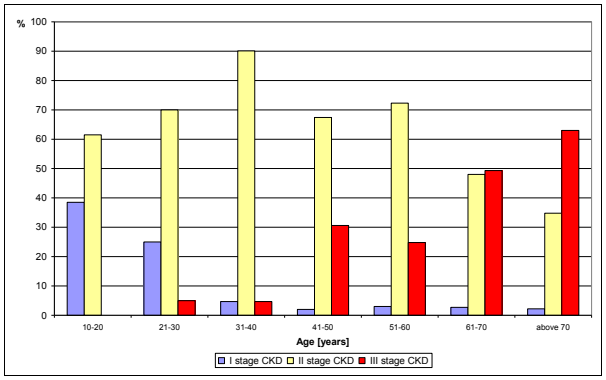

Figure 3. *The number of CKD stages in patients with different age range.*

Rycina 3. *Liczebność w stopniach zaawansowania PChN dla grup wiekowych.*

CONCLUSIONS:

347 people were evaluated in this local Preventive Program of Early CKD detection. There were two fold more women than men. This may indicate that women are more concerned about their health and more likely to seek preventive researches programs. The largest group among the respondents were people aged between 50 and 70 years of age, which confirms the age profile of those most interested in prevention programs.

Moreover, the largest group consisted of subjects in stage 2 (63.1%), which of nephrologist point of view can be considered as normal (GFR> 60 ml/min) and 3-stage kidney disease (31.4%) with eGFR <60 ml/min, who require further evaluation to determine the cause and to commence treatment of renal disease. The study clearly shows that there is a need for early detection of CKD for early diagnosis and early treatment to halt the progression of the kidney disease.

DISCUSSION:

The prevalence of CKD is increasing dramatically and the cost of treating it poses an enormous burden on healthcare systems all over the world. It is a worldwide problem with increasing number of patients who need both conservative treatment, renal replacement therapy (RRT) or renal transplantation. Moreover, it seems to be an interdisciplinary problem and many health care specialists, for example GP doctors, cardiologists, diabetologists, nephrologists, are dealing with renal diseases patients. It is estimated over 600mln of people all over the world is suffering from CKD. In Poland there is approximately over 4.0mln of patients with CKD and in particular there is increasing number of elderly patients on different form of RRT (annual growth rate of elderly people on RRT according to Polish Registry is 6-8% per year) [1]. Aging of Polish society and coexistence of cardiovascular disease, diabetes mellitus type 2, atherosclerosis are responsible for increment of patients with CKD. These patients require nephrologist consultation and conservative or (some of them) RRT treatment. According to epidemiological studies, there is strong evidence that renal diseases are most common in elderly population and therefore, it is a great challenge for early detection and treatment of this population. Another important problem is global cost of treatment i.e. RRT. In Poland it is estimated that costs of RRT reached 1.5mld PLN each year [1].

Early prophylaxis of CKD facilitate to apply pharmacological and non-pharmacological treatment and may cause inhibition of progression of CKD. The most important issue in relation with inhibition of CKD progression is: diagnostics and treatment of renal hypertension and proteinuria. Nephroprotection related with such pharmacological and non-pharmacological treatment may inhibit progression of CKD and can delay dialysis commencement. Another important reason for implementation of prophylaxis program in renal diseases is cutting down financial costs related with dialysis treatment and its complications. [5]. In summary, renal diseases are very common and important healthcare problems in Polish and worldwide population. It seems that many educational activities should be focused on prevention of renal diseases in society and among doctors as well. One of very important enterprise celebrated in Poland each year (since 2006) is World Kidney Day. World Kidney Day aims to raise awareness of the importance of our kidneys to our overall health and to reduce the frequency and impact of kidney disease. In 2013 World Kidney Day was focused on Acute Kidney Injury. "Stop Kidney Attack!" [1]. Another important initiative is Polish Dialysis Registry which was established in 1986 for collecting epidemiological data from all dialysis centers in Poland [6]. These data are published each year in form of annual report.

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