

Characteristics of patients with type 2 diabetes of short duration in Poland

Rationale, design and preliminary results of the ARETAEUS1 study

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ABSTRACT

INTRODUCTION There is a paucity of Polish data describing the characteristics of and assessing treatment goals in patients with relatively newly diagnosed type 2 diabetes.

OBJECTIVES The aim of the study was to describe the baseline characteristics of patients with newly diagnosed type 2 diabetes, who participated in the ARETAEUS1 study, and to assess to what degree diabetic control criteria recommended by the Polish Diabetes Association clinical practice guidelines are met.

PATIENTS AND METHODS This cross-sectional questionnaire-based study was conducted from January to April 2009. It involved patients of any age and gender, diagnosed with type 2 diabetes after January 1, 2007, and recruited by randomly selected physicians, both diabetologists and non-diabetologists.

RESULTS We analyzed 1714 valid questionnaires from 333 physicians: 1150 from non-diabetologists and 564 from diabetologists. Mean age of patients was 60 years, mean body mass index – 30.6 kg/m², proportion of females – 50%. The levels of median glycated hemoglobin (HbA_{1c}), total cholesterol and triglycerides, mean low-density lipoprotein (LDL) cholesterol, as well as blood pressure were above the thresholds recommended in the guidelines (i.e., <6.5% for HbA_{1c}, <4.5 mmol/l for total cholesterol, <2.6 mmol/l [or <1.8 mmol/l in patients with coronary heart disease (CHD)] for LDL cholesterol, <1.7 mmol/l for triglycerides, and <130/80 mmHg for blood pressure). Cardiovascular disease risk factors were common: hypertension was reported in over 75% of patients, lipid disorders in nearly 75%, CHD in 27% (previous acute coronary syndrome or stable CHD), previous stroke in 4%, and previous transient ischemic attack in 5.5%. Diabetic foot was reported in 1.7% of patients, nephropathy in 7%, retinopathy in 9% (in the group of diabetologists) and in 21% of patients (in the group of non-diabetologists).

CONCLUSIONS We observed a relatively high prevalence of cardiovascular disease risk factors and late diabetes complications in patients with diabetes diagnosed within the previous 2 years.

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INTRODUCTION Diabetes mellitus is a chronic disease with a number of micro- and macrovascular complications. In diabetic patients the risk of cardiovascular disease is 2–4-fold higher than in the general population.¹ It is estimated that 1.6–3.7% of the Polish population live with diabetes², and the prevalence of type 2 diabetes has risen alarmingly over the past decade, mainly as a result of sedentary lifestyle and growing obesity.

Although type 2 diabetes patients are at an increased risk of developing cardiovascular disease, there is no conclusive proof that intensive blood glucose control could decrease or revert that risk in patients with long-lasting disease. The results of three major prospective clinical trials published in 2008 and 2009: ACCORD (Action to Control Cardiovascular Risk in Diabetes)³, ADVANCE (Action in Diabetes and Vascular Disease: Preterax and Diamicron Modified Release Controlled Evaluation)⁴ and VADT (Veterans Affairs Diabetes Trial)⁵ did not show any significant effects of tight glucose control on cardiovascular morbidity and mortality in patients with long-standing type 2 diabetes. Although improved glucose control prevents microvascular complications, the absence of a reduction in macrovascular events implicates no reversibility of atherosclerosis and an additive effect of nonglycemic risk factors that often accompany diabetes, such as hypertension, hyperlipidemia, and hypercoagulability. Interestingly, one of the previous landmark studies in patients with newly diagnosed type 2 diabetes – a randomized multi-centre trial, UKPDS (The United Kingdom Prospective Diabetes Study) – demonstrated that randomization of patients to intensive glucose control by either sulfonylureas or insulin resulted in a decreased risk of clinically evident microvascular complications but showed no effect on cardiovascular mortality.⁶ In the same study, intensive glucose control with metformin appeared to decrease risk of all-cause mortality and myocardial infarction.⁷ The results of a 10-year follow-up of the UKPDS survivor cohort, published last year⁸, show that although between-group differences in glycated hemoglobin (HbA_{1c}) levels were lost after the first year since the study termination, the benefits of an intensive treatment to control blood glucose levels were sustained or more evident during 10 years after randomized interventions had been stopped. The finding of the so-called “legacy effect”, although difficult to explain, attracts attention to the benefits of glucose control in the early stages of diabetes.

There are studies, based on screening programs and cross-sectional design studies, describing the prevalence of impaired glucose tolerance and diabetes^{9–13} or its complications^{14,15}, as well as hypertension^{16–19}, obesity^{20,21}, dyslipidemia^{22,23}, and metabolic syndrome^{24,25} in the Polish population. There are also studies which assess diabetes control or diabetes care and their quality in the Polish or Eastern European population with types 1 and 2 diabetes lasting 4–10

years.^{26–32} However, there is a paucity of data assessing treatment goals and means in patients with relatively newly diagnosed type 2 diabetes in Poland. The ARETAEUS1 study was designed to describe a population of patients with type 2 diabetes diagnosed within the previous 2 years, and to examine, among others, the prevalence of cardiovascular risk factors. We aimed to examine the pattern of medication use, prevalence of hypertension and lipid disorders, treatment goals and results in relation to the current guidelines of the Polish Diabetes Association³³, as well as frequency of micro- and macrovascular diabetic complications.

As diabetic care is delivered in Poland both by primary care physicians and diabetes specialists, it was essential to encourage both non-diabetologists and diabetologists to provide data into the study.

PATIENTS AND METHODS Study objectives

ARETAEUS1 was a cross-sectional questionnaire-based study conducted in Poland. The aim of the study was to describe the baseline characteristics of patients with newly diagnosed type 2 diabetes and to assess to what degree the diabetic control criteria recommended by the Polish Diabetes Association clinical practice guidelines³³ are met. We define newly diagnosed diabetes as diabetes diagnosed within the previous 2 years according to the current criteria outlined in clinical practice guidelines. The criteria for the diagnosis of diabetes according to the Polish Diabetes Association guidelines³³ are consistent with those of the American Diabetes Association³⁴. In addition, we aimed to compare the populations of patients treated by non-diabetologists (mainly primary health care physicians) and diabetologists.

Patient inclusion criteria We included patients of any age and gender who were diagnosed with type 2 diabetes within the previous 2 years (after January 1, 2007; the study was conducted from January to April 2009).

Recruitment of clinicians and their patients We invited a random sample of non-diabetologists (mainly working in primary health care institutions) and, using a separate set, diabetologists (specialists or physicians who completed their training in diabetology, and who work in diabetes outpatient clinics) to participate in the study. Random samples were drawn from a database containing data of about 85% of all physicians practicing in Poland. Random selection was stratified according to the size of the place of residence (5 categories). Each physician received a letter explaining study goals and patient inclusion criteria together with short questionnaires (described below) to be completed for each eligible patient. The duration of data collection was 1 month for each physician who was asked to recruit at least 5 patients fulfilling inclusion criteria. Physicians who were not able to enroll at least 3 patients

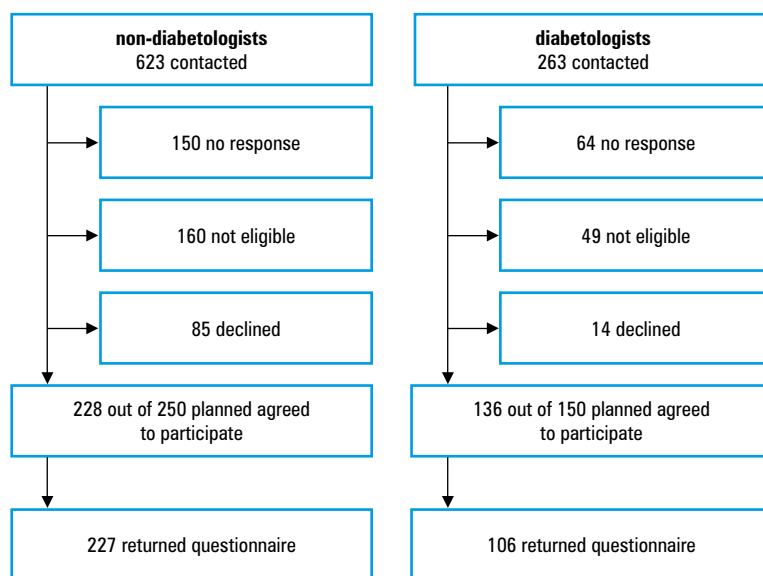


FIGURE Study flow of physicians participating in the ARETAEUS1 study

were excluded from the study and replaced by other randomly selected clinicians. The representative sample size of 240 physicians was calculated using Statcalc of EPIINFO v 6.0 (for random sampling in population survey or descriptive study) based on assumption of 95% confidence level, expected participation rate of 20% and the general population of 10,000 physicians. To take into account possible missing data, lower participation rate and subgroup analyses, and because of possibilities to conduct the study on a larger sample, the sample size was increased to 400 physicians. In the pilot study participation rates on 50% level for diabetologists and 25% level for non-diabetologists were achieved; therefore, to obtain an estimated sample size (150 diabetologists and 250 non-diabetologists) it was necessary to draw 300 diabetologists and 1000 non-diabetologists from the address database.

Questionnaire The questionnaire consisted of two parts and did not include personal data. First part concerned physicians (years from graduation, specialties and the mean number of patients with diabetes admitted per week). The second part contained 29 patient-related questions including gender, age, duration of diabetes, history of cardiovascular events (according to the report of a participating physician: CHD related acute coronary syndrome or stable coronary disease, and cerebrovascular disease related stroke or transient ischemic attack), hypertension (according to the report of a participating physician based on the current criteria outlined in clinical practice guidelines), lipid disorders (according to the report of a participating physician based on the current criteria outlined in clinical practice guidelines), and diabetes complications (according to the report of a participating physician: retinopathy, nephropathy and diabetic foot), weight, waist circumference, height, test results (blood pressure, HbA_{1c} and lipid levels).

In addition, the questionnaire contained two tables with questions regarding patients' treatment. We examined initial diabetic drug(s), diabetic drug(s) used within the first month after the diagnosis, and a currently used therapy. We enquired about the treatment of hypertension, hyperlipidemia and antiplatelet drugs. We also asked the questions about the potential reasons for non-usage of specific drugs (i.e. diabetic, anti-hypertensive, lipid lowering or antiplatelet drugs), such as adverse events, contraindications or no reimbursement. The data concerning medication use will be presented in another publication.

Statistical analysis In a full analysis we plan to describe the characteristics of physicians and patients taking part in the study, and the pattern of medication use. We also plan to examine these characteristics in relation to the choice of treatment and to compare the characteristics of those physicians who participated in the study with those who declined participation. We compared frequencies with χ^2 test. For the comparison of the means the t-test was used (for the normal distribution), and the Mann-Whitney U test (for non-normal distribution of the variable). The distribution was estimated on the basis of skewness coefficient and graphical picture. The t-test for equal or nonequal variances was used depending on the result of the Levene's test. All statistical analyses were conducted using SPSS v 14.0.

RESULTS We contacted 623 physicians from a randomly selected sample of non-diabetologists. 150 physicians did not respond, 160 were excluded as ineligible (e.g., maternity leave, health related leave, no patients fulfilling inclusion criteria), 85 declined participation (13.6%). They were replaced by other physicians in the same stratum, drawn from an additional set. Finally, out of 250 physicians scheduled for inclusion (according to a calculated sample size), 228 agreed to participate and 227 returned questionnaires. The study participation rate was calculated at 91% (227/250) (FIGURE).

We contacted 263 physicians from a randomly selected sample of diabetologists. 64 physicians did not respond and 49 were excluded as ineligible (e.g., maternity leave, health related leave, no patients fulfilling inclusion criteria), 14 declined participation (5%). They were replaced by other physicians in the same stratum, drawn from an additional set. Finally, out of 150 physicians scheduled for inclusion (according to a calculated sample size), 136 agreed to participate and 106 returned questionnaires. The study participation rate was calculated at 71% (106/150).

Altogether we received 1714 valid questionnaires from 333 physicians: 1150 from non-diabetologists and 564 from diabetologists. Most of diabetologists who participated in the study either completed or were in the course of specialty training. Most of them also reported a completed training in internal medicine and some also

TABLE 1 Specialties of physicians participating in ARETAEUS1 – percentages of valid questionnaires

	Non-diabetologists, % (n)	Diabetologists, % (n)
valid questionnaires total (n)	67.1 (1150)	32.9 (564) ^b
diabetology	0	90.6 ^a (510)
diabetology during training	0	8.4 ^a (47)
endocrinology	1.1 (12)	1.8 (10)
endocrinology during training	0.9 (10)	0 ^a
internal medicine	59.8 (682)	70.7 ^a (396)
internal medicine during training	6.4 (73)	1.1 ^a (6)
family medicine	46.6 (531)	3.2 ^a (18)
family medicine during training	6.2 (71)	0 ^a

a statistically significant differences between the frequency of questionnaires from diabetologists and non-diabetologists (χ^2 test, $p < 0.05$)

b 6 questionnaires come from an internal medicine physician who has worked in a diabetes clinic for >10 years

TABLE 2 Numbers of years since graduation of physicians participating in ARETAEUS1 – percentages of valid questionnaires

	Non-diabetologists, % (n)	Diabetologists, % (n) ^a
1–5	3.0 (34)	0
6–10	18.0 (205)	1.8 (10)
11–15	29.3 (334)	8.9 (50)
16–20	15.7 (179)	18.6 (104)
>20	33.5 (382)	70.7 (396)

a statistically significant differences between the frequency of questionnaires from diabetologists and non-diabetologists (χ^2 test, $p < 0.05$)

TABLE 3 The number of diabetic patients admitted per week by physicians participating in ARETAEUS1 – percentages of valid questionnaires

	Non-diabetologists, % (n)	Diabetologists, % (n) ^a
<10	35.3 (402)	0.9 (5)
11–30	53.08 (604)	17.9 (100)
31–60	8.8 (100)	32.9 (184)
>60	3.0 (34)	48.4 (271)

a statistically significant differences between the frequency of questionnaires from diabetologists and non-diabetologists (χ^2 test, $p < 0.05$)

in endocrinology (TABLE 1). Most of them graduated more than 20 years before the study was launched (TABLE 2) and reported seeing >60 diabetic patients per week (TABLE 3).

Most of non-diabetologists specialized in internal medicine or family medicine (TABLE 1). Most physicians in this group graduated 11–15 or over 20 years before the study was launched (TABLE 2) and reported admitting 11–30 of diabetic patients per week (TABLE 3).

Mean age of patients was 60 years, mean body mass index was 30.6 kg/m², 50% of patients were female and there were no differences in demographic characteristics between the groups. The median values of HbA_{1c}, total cholesterol and triglycerides and the mean values of low density lipoprotein (LDL) cholesterol and blood pressure (TABLE 4) were above the thresholds

recommended in the guidelines (i.e., <6.5% for HbA_{1c}, <4.5 mmol/l for total cholesterol, <2.6 mmol/l [or <1.8 mmol/l in patients with coronary heart disease (CHD)] for LDL cholesterol, <1.7 mmol/l for triglycerides, and <130/80 mmHg for blood pressure). There were also some significant differences between patients reported by diabetologists and non-diabetologists in the following: time from the diabetes diagnosis (271 vs. 304 days, respectively); the median, last recorded HbA_{1c} level (7.0% vs. 7.1%); the median, last recorded total cholesterol level in overall population (5.2 vs. 5.4 mmol/l); and the mean LDL cholesterol level in patients without CHD (3.1 vs. 3.4 mmol/l) (TABLE 4). LDL cholesterol level in patients with CHD, triglyceride level in overall population and last recorded systolic and diastolic blood pressure were similar in both groups. High density lipoprotein (HDL) cholesterol level was lower in patients treated by diabetologists as compared with non-diabetologists, both in female and male patients (in females mean 1.2 vs. 1.3 mmol/l and in males median 1.1 vs. 1.2 mmol/l) (TABLE 4). Over 80% of patients fulfilled the International Diabetes Federation criteria for the diagnosis of metabolic syndrome³⁵ (i.e., A. waist circumference ≥80 cm in females and ≥94 cm in males; B. diabetes and one of the following: C. triglycerides >1.7 mmol/l or treated with fibrates; D. HDL <1.3 mmol/l in females and <1.0 mol/l in males or treated with statin; E. high blood pressure systolic ≥130 mmHg or diastolic ≥85 mmHg or treated for previously diagnosed hypertension), significantly more of such patients were reported in the diabetologist group (TABLE 4).

Frequency of cardiovascular disease risk factors was similar in both groups: hypertension was reported in >75% of patients, lipid disorders in nearly 75%. CHD was reported in 27% of patients – either previous acute coronary syndrome (over 10%) or stable CHD (over 20%). Previous stroke was reported in 4% of patients and previous temporary ischemic attacks in 5.5% (TABLE 5).

The frequency of diabetes complications is presented in TABLE 5. The most commonly reported complication was retinopathy, it was more commonly reported in the questionnaires submitted by non-diabetologists compared with those submitted by diabetologists. Nephropathy and diabetic foot occurred with similar frequency in both groups (7% and 1.7%, respectively).

Results regarding the beginning of diabetes treatment, current diabetes treatment and other treatments are being analyzed and will be presented in another publication.

DISCUSSION The results of recent trials (ACCORD, ADVANCE, VADT, UKPDS 80)^{3–5,8} involving large populations of patients have changed our understanding of treatment efficacy at different stages of type 2 diabetes. It seems that efforts of diabetes care should focus now on early detection and treatment of type 2 diabetes, with

TABLE 4 Selected baseline characteristics of the patient population in the ARETAEUS1 study

	Non-diabetologists ^a (n = 1150), % (n)	Diabetologists ^a (n = 564), % (n)
gender (%)		
female	50.8	48.9
male	49.2	51.1
age, mean (SD), years	60.0 (11)	59.0 (11)
time from diabetes diagnosis, mean (SD), days	304 (228)	271 (227) ^b
BMI, mean (SD), kg/m ²	30.4 (4.9)	31.0 (4.9) ^b
waist circumference, mean (SD), cm		
female	95.8 (13.8)	97.7 (12.7)
male	101.3 (13.4)	104.1 (12.4) ^b
HbA _{1c} level, median (IQR), %	7.1 (1.65)	7.0 (1.5) ^c
total cholesterol, median (IQR) mmol/l (n = 1580)	5.4 (1.5)	5.2 (1.6) ^c
LDL cholesterol, mean (SD), mmol/l		
patients without CHD (n = 880)	3.4 (1.01)	3.1 (0.93) ^b
patients with CHD (n = 340)	3.4 (1.06)	3.2 (1.03)
HDL cholesterol		
female (n = 659), mean (SD) mmol/l	1.3 (0.3)	1.2 (0.3) ^b
male (n = 663), median (IQR) mmol/l	1.2 (0.4)	1.1 (0.4) ^c
triglycerides, median (IQR), mmol/l (n = 1489)	1.8 (0.98)	1.8 (0.9)
blood pressure systolic/diastolic, mean (SD), mm Hg	137 (16)/83 (10)	138 (18)/83 (10)
metabolic syndrome diagnosed based on the criteria ^e (n = 1544), % (n)	81 (836)	87 ^d (450)

a total number of valid responses

b statistically significant differences between the groups of diabetologists and non-diabetologists (t-test, $p < 0.05$)

c statistically significant differences between the groups of diabetologists and non-diabetologists (Mann-Whitney U test, $p < 0.05$)

d statistically significant differences between the frequency of questionnaires from diabetologists and non-diabetologists (χ^2 test, $p < 0.05$)

e metabolic syndrome criteria according to International Diabetes Federation³⁵

Abbreviations: BMI – body mass index, CHD – coronary heart disease, HDL – high-density lipoprotein, IQR – interquartile range, LDL – low-density lipoprotein, SD – standard deviation

the goal to achieve early targets of disease control, i.e., glucose, blood pressure and lipid values. Similar frequency of cardiovascular risk factors in groups of patients treated by non-diabetologists (mainly primary care physicians) and diabetologists in ARETAEUS1 indicates that primary care physicians need to maintain high level of awareness of type 2 diabetes complications and therapy. Traditional primary medical care in Poland responds quickly to acute problems, but may not adequately serve the needs of those with chronic illness such as diabetes. Multiple factors may contribute to a potential failure in adjusting a therapeutic regimen to respond to hyperglycemia, high LDL or blood pressure – the lack of clearly defined therapeutic goals, reluctance to treat asymptomatic conditions, time limitations, and others.

It should be stressed that although the patients of diabetologists had a significantly lower HbA_{1c} level compared with the patients of non-diabetologists, median HbA_{1c} results in both groups were above the threshold of 6.5% set by the Polish Diabetes Association standards of care.³³ However, HbA_{1c} levels were also similar or better than in other studies assessing diabetic control in Polish or Eastern European population with diabetes types 1 and 2 diabetes lasting 4–10 years.^{26–32}

We have also observed in our cross-sectional study that the median total cholesterol level, mean LDL level, median triglyceride level and mean blood pressure were above the thresholds recommended in the guidelines (i.e. <6.5% for HbA_{1c}, <4.5 mmol/l for total cholesterol, <2.6 mmol/l [or <1.8 mmol/l in patients with coronary heart disease (CHD)] for LDL cholesterol, <1.7 mmol/l for triglycerides, and <130/80 mmHg for blood pressure).

Treatments to achieve normoglycemia focus on increasing insulin secretion and/or responsiveness, or on decreasing the rate of carbohydrate absorption. Our results indicate that very often these targets are not achieved within the time frame of the study (mean follow-up <1 year). When diabetes is diagnosed the target values of blood pressure and lipid disturbances control become more stringent^{33,36} due to an increased risk of cardiovascular disease, and it will also be interesting to see what treatments were used in those patients and analyze why they proved insufficient to adequately control those modifiable cardiovascular risk factors (TABLE 4). Based on the currently available results of ARETAEUS1, showing late diabetes complications even in >20% of patients, we may speculate that in some cases the actual disease duration was much longer than 2 years.

In summary, our study identified a large number of patients with recently diagnosed type 2 diabetes mellitus, described the frequency of diabetic microvascular complications and of additional cardiovascular risk factors, and examined to what degree treatment effects corresponded to management targets of the current guidelines.

Contributors All of the authors contributed to the study concept, design, and implementation, and to the content and development of this report.

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TABLE 5 Cardiovascular disease risk factors and diabetes complications in the patient population in the ARETAEUS1 study

Risk factor (total number of valid questionnaires)	Non-diabetologists ^a (n = 1150), %	Diabetologists ^a (n = 564), %
cardiovascular risk factors		
hypertension (n = 1704)	78.7	76.0
lipid disorders (n = 1666)	74.8	72.1
previous acute coronary syndrome (n = 1619) ^b	10.1	11.0
stable CHD (n = 1621) ^b	23.7	19.4
previous stroke (n = 1588)	3.5	5.1
previous TIA (n = 1586)	6.0	4.4
diabetes complications		
retinopathy (n = 1054)	21.8	9.0 ^c
nephropathy (n = 1025)	8.6	5.3
diabetic foot (n = 1038)	2.2	1.2

a total number of valid responses

b for some patients myocardial infarction and stable CHD or acute coronary syndrome and stable CHD were reported

c statistically significant differences between the frequency of questionnaires obtained from diabetologists and non-diabetologists (χ^2 test, $p < 0.05$)

Abbreviations: TIA – transient ischemic attack, others – see **TABLE 4**

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Advanced Teaching Course on Thrombosis

12–17 October 2009, Kraków, Poland



Monday

FIBRIN CLOT STRUCTURE/FUNCTION.

Speakers: M. Blombäck, L. Muszbek, R. Ariens.

FIBRYNOLYSIS.

Speakers: R. Lijnen, C.S. Cierniewski, P. Declerc.

Tuesday

VENOUS THROMBOEMBOLISM.

Speakers: P.A. Kyrle, S. Eichinger, W. Tomkowski.

THROMBOSIS AND WOMEN'S HEALTH.

Speakers: K. Zawilska, I. Pabinger, M.B. Donati.

Wednesday

ANTIPHOSPHOLIPID SYNDROME.

Speakers: Ph. G. de Groot, Ph. Moerloose, J. Musial.

Thursday

PLATELETS.

Speakers: H. Deckmyn, M. Cattaneo, F. Violi, C. Cerletti.

ARTERIAL THROMBOSIS.

Speakers: P. Reitsma, L. Iacoviello, G. de Gaetano, G. Y. Lip.

Friday

TISSUE FACTOR.

Speakers: B. Osterud, B. Engelmann, T. Barrowcliffe, J. Crawley.

THROMBIN.

Speakers: J. Huntington, H. ten Cate, S. Butenas, A. Undas.

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Charakterystyka chorych na cukrzycę typu 2 o krótkim czasie trwania w Polsce

Przesłanki, metody i wstępne wyniki badania ARETAEUS1

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SŁOWA KLUCZOWE

badanie przekrojowe,
cukrzyca typu 2,
kontrola cukrzycy,
wytyczne
postępowania

STRESZCZENIE

WPROWADZENIE Mało jest polskich danych opisujących charakterystykę i oceniających cele leczenia u pacjentów z relatywnie świeżo rozpoznaną cukrzycą typu 2.

CELE Celem badania był opis wyjściowej charakterystyki chorych ze świeżo rozpoznaną cukrzycą typu 2 uczestniczących w badaniu ARETAEUS1 i ocena, do jakiego stopnia spełnione są kryteria kontroli cukrzycy zalecane w wytycznych Polskiego Towarzystwa Diabetologicznego.

PACJENCI I METODY Kwestionariuszowe badania przekrojowe przeprowadzone w okresie styczeń–kwiecień 2009. Badaniem objęto chorych w każdym wieku i obu płci, u których cukrzycę typu 2 rozpoznano po 1 stycznia 2007 roku. Chorzy zostali włączeni do badania przez losowo wybranych lekarzy, diabetologów i niediabetologów.

WYNIKI Do analizy włączono 1714 prawidłowo wypełnionych kwestionariuszy pochodzących od 333 lekarzy: 1150 od lekarzy niediabetologów i 564 od diabetologów. Średni wiek chorych wynosił 60 lat, średni wskaźnik masy ciała – 30,6 kg/m², kobiety stanowiły 50%. Mediana odsetka hemoglobiny glikowanej (HbA_{1c}), stężenia cholesterolu całkowitego i triglicerydów, średnie stężenie cholesterolu LDL (*low density lipoprotein*) i wartości ciśnienia tętniczego przekraczały próg określony w wytycznych (który wynosi dla HbA_{1c} <6,5%, dla stężenia cholesterolu całkowitego <4,5 mmol/l, dla stężenia cholesterolu LDL <2,6 mmol/l lub <1,8 mmol/l u chorych na chorobę wieńcową (ChW), dla triglicerydów <1,7 mmol/l i dla ciśnienia tętniczego <130/80 mmHg). Sercowo-naczyniowe czynniki ryzyka były częste: u ponad 75% chorych odnotowano nadciśnienie, u blisko 75% – zaburzenia lipidowe, u 27% – chorobę wieńcową (przebyty ostry zespół wieńcowy lub stabilną ChW), 4% przebyty udar mózgu, a 5,5% – napad przejściowego niedokrwienia mózgu. Stopień cukrzycowy odnotowano u 1,7%, nefropatię u 7%, retinopatię u 9% (w grupie diabetologów) i 21% chorych (w grupie niediabetologów).

WNIOSKI U chorych na cukrzycę rozpoznaną w ciągu ostatnich 2 lat obserwowano relatywnie dużą częstość występowania sercowo-naczyniowych czynników ryzyka i późnych powikłań cukrzycy.

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