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АНАЛІЗ ПОШИРЕНОСТІ І ХВОРОБЛИВОСТІ ДІАБЕТУ 1 ЙОГО НАСЛІДКІВ В ПОПУЛЯЦІЇ ЧЕРНІВЕЦЬКОГО РЕГІОНУ В 2014-2016

ANALYSING PREVALENCE AND MORBIDITY OF DIABETES AND ITS CONSEQUENCES IN THE POPULATION OF CHERNIVTSI REGION DURING 2014-2016

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АНОТАЦІЯ

Цукровий діабет (ЦД) у всіх його формах є важким соціально-скономічним тягарем для будь-якої країни в світі, незалежно від його доходу. У статті аналізується поширеність і захворюваність на діабет і його наслідками в населенні України та Чернівецької області протягом періоду 2014-2016 рр. Ми узагальнили 1 проаналізували дані, взяті зі звіту служби ендокринології в Чернівецькій області за 2014-2016 роки, а також дані статистичних звітів Центру медичної статистики в Міністерстві охорони здоров'я України за той же період. Збільшення поширеності діабету в Україні (-69,2%), збільшення захворюваності та поширеності діабету протягом 2014- 2016 року мас тенденцію бути негативним. Це можна пояснити недооцінкою великий відсоток пацієнтів з цукровим діабетом, велика кількість папістів з невиявленим або прихованим діабетом, поганою якістю медичної допомоги та збору статистичних даних. З іншого боку, згідно з даними Центру статистики охорони здоров'я в Міністерстві охорони здоров'я України збільшення поширеності діабету, розраховані на населення України на 2014- 2016 роки, склав і 55,1%, показник захворюваності первинної \ ідентифікація) діабет склав - 59.2%. отже, захворюваність та поширеність зросла майже в 2 рази, шо призводить до втрати працездатності, передчасної смерті і витрат на охорону здоров'я.

ABSTRACT

Diabetes mellitus (DM) in all its forms is a heavy social and economic burden for any country in the world, regardless of us income. The paper analyzes the prevalence and incidence of diabetes and its consequences in the population of Ukraine and the Chernivtsi region during the period of 2014-2016. We have generalized and analysed the data taken from the report of the endocrinology service in the Chernivtsi region for the 2014-2016 as well as the data of statistical reports of the Medical statistics Centre in the Ministry of Health of Ukraine for the same period. The increase m die prevalence of diabetes in Ukraine is (-69.2%), the increase in the incidence and prevalence of diabetes for 2014- 2016 tends to be negative. This can be explained by underestimation of a large percentage of patients with diabetes, a large number of patients with undiagnosed or hidden diabetes, by poor quality of care and collection of statistical data. On the other hand, according to the Center for Health Statistics in the Ministry of Health of Ukraine the increase of prevalence of diabetes, calculated on the population of Ukraine for 2014- 2016. was -r 55.1%, the incidence rate of primary (identification) diabetes was + 59.2%, consequently, the incidence and prevalence rose almost 2 times, leading to disability, premature death and health care costs.

Ключові слова. Цукровий діабет, захворюваність, захворюваність, ендокринології обслуговування, ускладнення, інвалідність

Keywords. Diabetes mellitus, incidence, morbidity, endocrinology service, complications, disability.

Diabetes has acquired the signs of "noncomunicabie epidemic " recently, winch covered about 400 million people worldwide, and according to experts of the World Health Organization (WHO) over ihe next 20 years the number of patients is expected to increase at least by 1.5 times. In Ukraine, the number of patients with diabetes reached one million back in 2006 and now is about 1.3 million people. In the Chemivtsi region 38 thousand patients with the condition have been registered.

Diabetes mellitus remains one of the most urgent problems of clinical medicine. This problem is not only characterized by high prevalence, but also by the rapid development of complications that cause disability and death of patients It is not surprising that this problem draws so much researchers and practitioners' attention. The fight against this terrible disease today is the urgent medical and social problem. This is determined, above all, by a significant increase in die number of patients, high incidence of disability, problems related to their treatment and clinical examination, the impact of diabetes on the development of vascular diseases and those of peripheral nervous system.

Diabetes mellitus is a serious chronic, progressive disease that requires medical care throughout the patient's life. Diabetes is characterized by the development of serious complications that require expensive treatment and is a major cause of premature mortality. At the same time, diabetes is steadily becoming younger, affecting more people of the working age annually.

The prevalence of the disease among people of different countries and ethnic groups is 1 - 3%. The incidence of diabetes in children and adolescents ranges from 0.1 to 0.3%. Taking into account undiagnosed forms, its incidence in some countries reaches more than 6%. Annually, the number of new cases is 6 - 10% relative to the total number of patients, leading to its doubling every 10-15 years. In economically developed countries, diabetes, due to this fact, has become both medical and a social problem.

According to (WHO), every 10 seconds one person with diabetes dies, that is, more than 3 million people die annually, which is more than from AIDS and hepatitis combined. At the same time, it often occurs, that diabetes is not referred to as the direct cause of death in cases where death leads to one of its later complications such as heart attack, stroke or kidney failure. These bare figures imply the specific people's fates and numerous personal tragedies. Today,the entire international community recognized an extreme risk of diabetes . In December 2006 the 61^{sl} session of the General Assembly of the United Nations adopted a special resolution №61 225 for diabetes which recognized diabetes as a severe chronic disease that endangers seriously both the well-being of individuals, and economic and social welfare of the nations as well as the world community as a whole. The main factors that affect the incidence of diabetes include the following:

1 Age. The incidence of the disease is largely dependent on age. The number of patients under 15 years is 5% of the total population with diabetes. Patients over 40 years old make up about 80%, and over 65 - 40% of the total number.

2. Sex. The sex of a person has little effect on the frequency of juvenile diabetes, but with increasing age there is a predominance of women in Europe, USA and Africa. In Japan, India, Malaysia diabetes occurs in men more frequently but in Mexico, the American Indians the incidence of the condition is the same in both sexes.

3. Obesity, hyperlipemia, hyperinsulinemia. arterial hypertension. Ail these diseases make a significant impact on the prevalence of diabetes in adults. The combination of several risk factors increases significantly (by 28.9 times) the likelihood of clinical diabetes.

4. National and geographical factors also affect the incidence of the disease. For instance, it is much less common in some countries of Southeast Asia, Oceania, North Africa, among the Inuit than in the population of Europe and the USA.

5. Excessive intake of cyanide with food (in the form of cassava), as well as the lack of protein in it can promote a particular type of diabetes in tropical countries.

6. The genetic factor is a common risk factor, especially in inherited type II diabetes. The first indications of hereditary nature of diabetes belong to the XVII century. The first hypothesis of the hereditary nature of the disease was formulated in 1896, but an intensive study of the hereditary nature of diabetes only began in the 20 - 30 years of the last century, and by the 60s it was proved that the main etiological factor of the disease is the genetic one. Genetically predisposed to type I diabetes people develop the disease in the presence of triggering factors, among which viral infection occupies a special place. Obesity is the main provking factor for type II diabetes . Disorders in glucose utilization and hyperglycemia are the first manifesting signs of total disorder in all types of metabolism, followed by the powerful tail of hormonal and metabolic changes that lead ultimately to the failure of almost all functional bodily systems.

Endocrinology Service of the Chernivtsi region is presented with the inpatient department of the center including 50 beds, outpatient department with a day hospital for 25 beds and I 8 endocrinological rooms at city clinics and CRH. Provision is 0.69 beds per 10 thousand of adult population (adults throughout Ukraine - 0.82). Today, as of 01.01.2017, 38,227 adult patients with diabetes mellitus have been registered. There was an increase in diabetics during 2014-2016.

Here are the data on the structure of diabetes pathology in the Chemivtsi region (Table 1).

Table № 1

	2014		2015		2016	
	abs. number	%	abs. number	%	abs. number	%
Total number of registered patients	80857	100	85750	100	86455	100
Including diabetes mcllitus:	36658	45,3	38037	44,35	38227	44,2
- insulin-dependent	1083	3,0	1123	3,0	1120	3,0
- insulin-independent	35575	97,0	36914	97,0	37107	97,0
separately: insulin requiring	4803	13,1	5318	13,9	5555	14,5

Analyzing the performance m the table one can sec thaï the structure of endocrine pathology of diabètes ut the adult population of Chemivtsi région is dominated by insulin-dependcnt diabètes mellitus (type II diabètes).

As of 01.01.2017 38,227 adult patients with diabetes mellitus were registered in the region. During 2014-2016 there was a growth in diabetic patients.

Prevalence and incidence of diabetes in the Chernivtsi region per 100 thousand people is presented in Table 2.'

Таблиця 2

Prevalence and incidence of diabetes mellitus

	Prevalence			Morbidity		
	2014	2015	2016	20I4	2015	2016
Diabetes mellitus						
In the region	5086,4	5271,3	5298,2	366,7	374,6	343,2
In Ukraine	2790,7	2861,6	2947,5	231,5	223,5	239,5

Prevalence of diabetes mellitus among the adults per ! 00 thousand people in the Chernivtsi region and Ukraine during 2014-2016 is displayed in fig. 1.

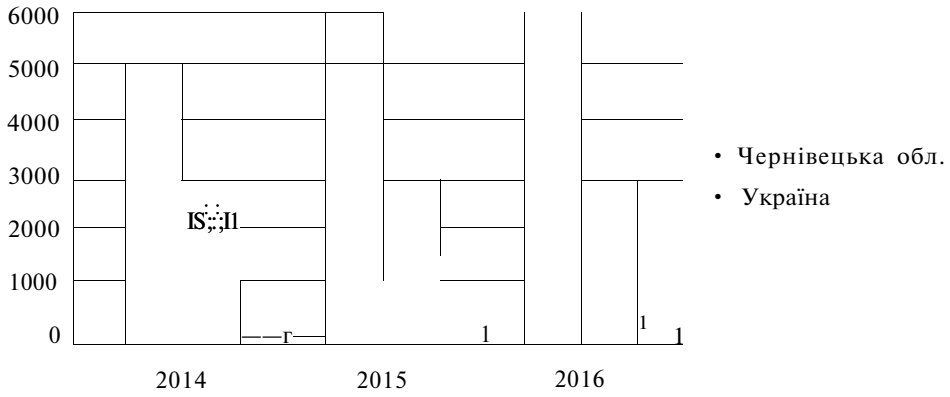

Fig. I Prevalence of diabetes mellitus in the Chernivtsi region and Ukraine during 2014-2016

3.0% of the registered patients are those with type 1 diabetes while 97% are the patients with type 2 diabetes. 48.5% of the total number of patients with diabetes are given the diet therapy, 37.6% take hypoglycemic tablets. 4.8% are given hypoglycemic tablets plus insulin and 9 1% are treated using the insulin therapy.

5141 patients of the total number of patients with diabetes types I and 2 receive the insulin therapy (13.9%) while the benchmark is 17.5%. 450 patients, representing 1.2% of all patients with diabetes were administered insulin for the first time.

The incidence of diabetes among adults in Chernivtsi region and Ukraine during 2014-2016 is shown in lltture 2.

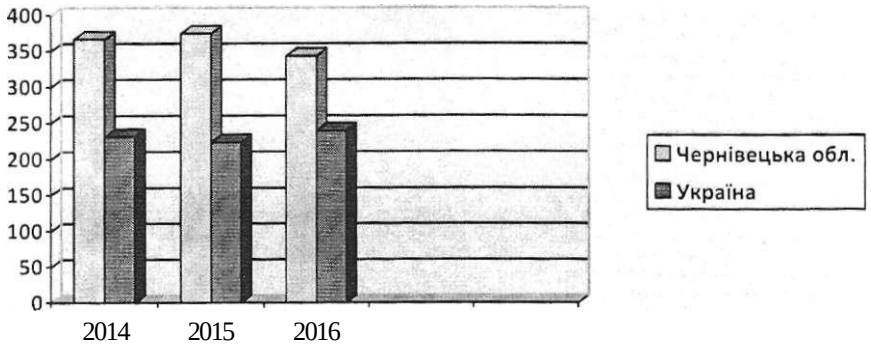

Fig. 2 The incidence of diabetes among adults in Chernivtsi region and Ukraine during 2014-2016

Diabetes mellitus is a complicated chronic and, so far. incurable disease that has numerous additional complications. Actually, it is the action of these complications that causes the severity of diabetes and aggravates the patient's condition.

The complications are caused by a chronic increase in blood sugar They mamly result from the irresponsible attitude to the therapy, but they often appear as the fust signs of diabetes (type II diabetes) in patients who did no; know about the disease earlier.

Such complications as skin lesions and infections can occur within a few months after the onset of the disease, although complications occur more frequently only after 10-15 years of the disease onset in the absence of adequate treatment.

Complications of diabetes develop gradually and at first do not affect the health and quality of patient's life at all. It is tins fact that leads to late diagnosis which reduces the effectiveness of treatment, as those complications which had become apparent often require a longer treatment, which is not always effective at late stages of the disease Therefore, the more thoroughly the patients control blood sugar, the less is the likelihood they have complications of diabetes.

Some organs arc more susceptible to the damaging effect of high blood sugar and they suffer in the first place, being so-called "target organs' of diabetes.

Complications of 1 and 2 type diabetes among adults in the Chernivtsi region during 2014-2016.

During 2014 there were 17923 diabetic complications, winch is 48.9% of the patients with diabetes They include:

- diabetic nephropathy - 2135 (abs.n.); 5.8% (of the number of patients with diabetes);
- diabetic retinopathy - 381 1 (abs.n.); 10.4% (of the number of patients with diabetes);
- gangrenes - 93 (abs.n.); 0.25% (of the number of patients with diabetes); BM-0.3%.
- lower limb amputations- 33 (abs.n.): 4.6 per 100 thousand adults:

BM-5..5 per 100 thousand people;

- diabetic cataract - 938 (abs.n.); 2.6% (of the number of patients with diabetes);
- diabetic neuropathy - 5660 (abs.n.); 15.4% (of the number of patients with diabetes);
- angiopathies of the lower extremities - 4963 (abs.n); 13.5% (of the number of patients with diabetes):
- diabetic foot - 290 (abs.n); 0.79% (of the number of patients with diabetes).

During 2015 there were 18665 diabetic complications which is 49,1% of the total number of patients with diabetes mellitus. They include:

- diabetic nephropathy - 2 194 (abs.n.): 5.8% (of the number of patients with diabetes):
- diabetic retinopathy - 3933 (abs.n.); 10.3% (of the number of patients with diabetes);
- gangrenes - 77 (abs.n.); 0.2% (of the number of patients with diabetes): BM-0.5%.
- lower limb amputations - 80 (abs.n.); 11.1 per 100 thousand aduts;

BM is 5.3 per 100 thousand people;

- diabetic cataract - 939 (abs.n.); 2.5% (of the number of patients with diabetes);
- diabetic neuropathy - 5833 (abs.n.), 15.3% (of the number of patients with diabetes);
- angiopathies of the lower extremities - 5294 (abs.n); 13.9% (of the number of patients with diabetes);
- diabetic foot - 3 I 5 (abs.n.); 0.8% (of the number of patients with diabetes).

Dur;:ig 2016 there were ¡8475 diabetic complications, which is 48.3% of the patients with diabetes. They include:

- diabetic nephropathy - 2148 (abs.n.), 5.6% (of the number of patients with diabetes):
- diabetic retinopathy - 3852 (abs.n.); 10.1% (of the number of patients with diabetes);
- gangrenes - 82 (abs.n.); 0.2% (of the number of patients with diabetes); BM-0.5%.
- lower limb amputations - 70 (abs.n); 9.7 per 100 thousand adults;

BM is per 100 thousand people;

- diabetic cataract - 929 (abs.n.); 2.4% (of the number of patients with diabetes);
- diabetic neuropathy - 5893 (abs.n.); 1 5.4% (of the number of patients with diabetes),

• angiopathies of the lower extremities - 5245 (abs.n.); 13.7" o (of the number of patients with diabetes);

• diabetic foot - 256 (abs.n.); 0.7% (of the number of patients with diabetes),

Data on the emergencies among the adult population in the Chernivtsi region during 2014-2016

Year	Total comas	Diabetic comas		Hypoglycemic coma	
		Abs.number	Deaths	Abs. number	Deaths
2014	17	8	3	9	2
2015	23	10	4	13	2
2016	25	13	л	12	1

Primary disablement in the patients of the working age with diabetes mellitus in Chernivtsi region during 2014-2016

	2014		2015		2016	
	number	Per 10 thousand people	number	Per 10 thousand people	number	Per 10 thousand people
Total	64	0.88	35	0,48	31	0,42

Mortality rate among the adult patients with diabetes mellitus in the Chernivtsi region during 2014-2016

Year	Total number of" patients	Number of deaths during the year	Including							
			Emergencies (comas)	nephropathy	gangrenes	Relatively multiple comlications	Heart attacks	Strokes	Malignancies	Other causes
2014	36658	1479	5	24	12	-	40	57	34	1307
2015	38037	1 156	6	23	7	11	39	48	40	982
2016	38227	1 198	4	22	12	5	53	95	59	948

The population mortality due to diabetes mellitus in 201 6 is 5.9 deaths per 1 00 thousand adults (43 cases). BM is 6,4 per 100 thousand people.

In 2015 these figures were 6.5 per 100 thousand adults (47 cases), in 2014 - 5.7 per 100 thousand adults (41 cases).

Today, the patients' ability to monitor their condition on their own has become an important issue. It is necessary to ensure that the patient should be very interested in the longest compensation of the illness. To this end. every patient should know all the manifestations of the illness and the features of its course.

The endocrinologist has to organize and conduct training with these patients. The endocrinology center has arranged and equipped a room "self-monitoring for patients with diabetes" which has been operating successfully. In 2016 the room of the "School of self-monitoring for the patients with diabetes" housed 1156 discussions and 24 1 0 lectures for 2 1 596 patients.

A huge amount of research on the control of diabetes and causes of complications has been carried out and they all show that complications of diabetes can be avoided and the patient can live as a healthy person, but under one condition - if you do learn to manage diabetes and to live in peace with it as well as to keep blood sugar level similar to that in a healthy person.

Improving diabetes control is possible by the introducing national clinical protocols. The introduction of clinical guidelines and unified clinical protocols on management of diabetes in Ukraine, based on evidence-based medicine and best practical experience of other countries, taking into account national peculiarities of the country will improve the quality of diabetes care, especially at the primary level of care.

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