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Research Article

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Epidemiology of Type 1 Diabetes Mellitus in the Republic of Khakasia According to the State Register of Diabetes Mellitus

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Abstract

Background: *Clinico-epidemiological monitoring of diabetes in the Russian Federation shall be exercised through the State Register of patients with diabetes mellitus (SRDM).*

Aim: *To analyze the epidemiological indicators of type 1 diabetes (DM 1) among the adult population of the Khakasia Republic, according the SRDM.*

Methods: *Analysis of the State Register of diabetes in the Republic of Khakasia, Russia. Retrospective analysis data of prevalence, morbidity, age of onset the type 1 diabetes, life expectancy, diabetic complications for 2015 year was condacted. Statistical data analysis conducted using the package Statistica 8.0 and 7.0 SAS.*

Results: *In the Republic of Khakasia in 2015 registered 17, 445 diabetics, patients with type 1 diabetes were 772, 198 over the age of 18 years. The prevalence of DM 1 among the adult population accounted for 47.84 to 100.000 (male-53.70; female-43.04). Among persons over 18 years recorded 15 new cases of type 1 DM in 2015. The prevalence among the adult population DM 1 amounted to 3.62 to 100.000 (male-5.91; female-1.76). The average age of the onset of type 1 DM the children amounted to 6.92±0.61 years; in adults-31.36±0.51 years. The life expectancy of patients with type 1 DM for men was 49.86 years, for women 61.00 year, which was below statistics on the Republic of Khakasia. The average value of HbA1c was 6.92 %. Diabetic retinopathy was registered at 69.70% patients, neuropathy at 25.76%, and the diabetic foot syndrome at 7.56% patients. Diabetic nephropathy was registered at 31.81%, of which three patients was conducted hemodialysis and one peritoneal dialysis.*

Conclusions: *This study shown that in the Republic of Khakasia there is the trend towards an increase of prevalence and morbility of type 1 diabetes. Among the diabetic complications predominate diabetic retinopathy and diabetic nephropathy.*

Keywords: Type 1 Diabetes Mellitus, State Register of Patients with Diabetes Mellitus, Epidemiological Data, HbA1c, Complications, Nephropathy.

Introduction

Clinico-epidemiological monitoring of diabetes in the Russian Federation shall be exercised through the State Register of patients with diabetes mellitus (SRDM). Before 2014 analysis of the SRDM was held based on the annual summation of separate databases of subjects of the Russian Federation. The system has significant weaknesses: the information was evaluated statistically at the end of the calendar year; there was no possibility of the system of quality control data entry and updates the information regularly. From 2014 redeployment of the SRDM online-software to improve the effectiveness of the register as a scientific and analytical platform that allows it to receive full information for analysis diabetes care in Russia [1, 2].

Aim

Assessment of epidemiological indicators of type 1 diabetes mellitus (DM 1) among the adult population of the Republic of Khakasia, according the State Register of patients with diabetes mellitus.

Methods

Analysis of the State Register of diabetes in the Republic of Khakasia, Russia. Retrospective analysis data of prevalence, morbidity, age of onset the type 1 diabetes, life expectancy, diabetic complications for 2015 year was conducted. Statistical data analysis conducted using the package Statistica 8.0 and 7.0 SAS.

Results

In the Republic of Khakasia in 2015 registered 17,445 diabetics, patients with type 1 diabetes were 772. 198 over the age of 18 years (100 male and 98 female). The prevalence of DM 1 among the adult population accounted for 47.84 to 100.000 (male-53.70;

female-43.04). Among persons over 18 years recorded 15 new cases of type 1 diabetes mellitus in 2015. The prevalence among the adult population DM 1 amounted to 3.62 to 100.000 (male-5.91; female-1.76). According to GRSD, in the Republic of Khakasia recorded 15 new cases of diabetes mellitus type 1 in 2015 year (Table 1).

Table 1: The prevalence of type 1 diabetes mellitus among the adult population of Khakasia

Gender	The number of DM 1	Per 100,000
Male	11	5.91
Female	4	1.76
All	15	3.62

The average age of the diagnosis of type 1 diabetes among adults was 31.36 ± 0.51 year, among children 6.92 ± 0.61 years.

The life expectancy of patients with type 1 DM for men was 49.86 years: for women 61.00 year, which was below statistics on the Republic of Khakasia.

In SRDM were biochemical research data of all DM 1 patients. The average value of HbA1c was 6.92 % (normal range 4.0-6.0%). The average values of creatinine were 85.55 mmol/l, total cholesterol 4.98 mmol/l, and triglycerides 2.34 mmol/l (Table 2).

Table 2: Average values of biochemical parameters

Gender	HbA1c, (%)	Creatinine (µmol/l)	Total cholesterol (mmol/l)	Triglycerides (mmol/l)
Male	7.00	86.37	4.85	2.53
Female	6.84	84.90	5.08	2.19
All	6.92	85.55	4.98	2.34

Diabetic retinopathy was registered at 138 patients (69.70%), neuropathy at 25.76%, syndrome of diabetic foot at 7.56% patients [3, 4].

Diabetic nephropathy was registered at 63 (31.81%) patients. Three patients had treatment by hemodialysis and one peritoneal dialysis. Kidney transplantation is not implemented in 2015.

Diabetic retinopathy was registered at 138 (69.70%) patients with DM 1. Non-proliferative stage of retinopathy was revealed at 91 (45.96%) patients; preproliferative retinopathy at 25 (12.63%), proliferative diabetic retinopathy had 12 patients (6.06%), blindness-3 patients (1.52%). According to SRDM, the laser photocoagulation of retinae received 8 patients in 2015 [5, 6].

Diabetic neuropathy was registered at 51 (25.76%) patients with DM 1, of which 38 (19.19%) have distal neuropathy and 13 (5.86%) autonomous neuropathy.

Syndrome of diabetic foot was diagnosed at 15 (7.56%) patients with DM 1, of these, 5 patients identified the neuropathic form, 6 patients had ischemic form and 4 had neuroishemic form. Amputation on tibia level was performed at 1 (6.7%), high amputations at 2 (13.3%) diabetes patients [7-9].

According to the State Register of patients with diabetes mellitus, in the Republic of Khakasia in 2015 year registered 772 patients with type 1 diabetes mellitus. 15 new cases were revealed older than 18 years. For comparison, in the 2013 were registered 761 patients with DM1 and 10 new cases over the age of 18 years. The average life expectancy of adults with DM 1 was below the following statistics on the Republic of Khakasia.

Conclusions

1. According to the State Register of Diabetes Mellitus, in the Republic of Khakasia, the trend towards an increase in the prevalence and incidence of type 1 diabetes.
2. Diabetic retinopathy and diabetic nephropathy were the most common complications of type 1 diabetes.

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