

# PREVALENCE OF PANCREATIC DISEASES AMONG THE ADULT POPULATION OF OMSK

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**Key words:** epidemiology, Siberia, prevalence, pancreatic diseases, pancreatitis

Pancreatic diseases constitute a large part in the structure of the entire digestive tract pathologies in Russia [5, 6] and worldwide [5, 6]. Analysis of contemporary trends in total morbidity of the population is of considerable interest from the point of view of rational planning in modern health care.

**Aim of study** is to examine the rates of total prevalence of pancreatic diseases among the adult population in the Russian Federation (RF) in the Omsk region and the Siberian Federal District (SFD) from 2003 till 2012, as well as to conduct the analysis of the structure of prevalence of pancreatic diseases among the adult population of Omsk.

## **Materials and methods**

Observed nosological forms (according to ICD-10 [3]): pancreatic diseases (K85, K86.0, K86.1, K86.2, K86.3, K86.8, K86.9); acute pancreatitis (K85); chronic pancreatitis of alcoholic etiology (K86.0); another chronic pancreatitis (K86.1); other pancreatic diseases (K86.2, K86.3, K86.8, K86.9).

Sources of information are: statistical materials of the Central Research Institute of Health Organization and Informatization (CRI HOI), RF Ministry of Health from 2003 till 2012, statistical health care indices of the Omsk region, public health, industry activities and services in 2003-2012.

We studied absolute and intensive indices (per 100,000 of the population —  $\text{‰}$ ) of the total morbidity (primary and repeated during the current year appeals to the outpatient clinics concerning the studied nosological forms).

To calculate the intensive indices of morbidity of the adult information, we used the data of the Federal Service of State Statistics on the population size.

The study analyzed of the evaluation of structure of pancreatic diseases in the adult population of Omsk on the basis of two outpatient clinics: the city polyclinic No 12 and MSD clinic No 7 (NFM-7).

Background information for 2012-2013 was taken from the database of city-wide computer program MedInfo. Employees serving program previously had conducted depersonalization of personal data under the provisions of the RF Federal Law №-152 "On Personal Data".

Medical records at the time of sampling consisted of 70033 adults, that was significantly more than the minimum sample determined in accordance with generally accepted methodology — 58266 people. [1] Consequently, the results of a sample survey of morbidity are representative to the whole adult population of Omsk.

Each of the observed nosologies considered absolute and calculated intensive indices of morbidity of the adult population as a whole and by age groups. When comparing the mean values of continuous variables with a normal distribution of variables, we used methods of parametric statistics, particularly Student's t-test was calculated. The same criterion was used to evaluate the statistical significance of the difference of shares. When necessary, a determination of nonparametric U Wilcoxon-Mann-Whitney test was made [2]. Statistical significance of differences between the compared sets of the nature of the distribution was assessed by  $\lambda$  criterion [4]. Differences were considered significant upon  $\lambda$  value, equal to and/or greater than the critical value of 1.36.

### **Results and discussion**

In statistical materials of the RF Ministry of Health CRI HOI, data on the incidence of adults with acute and chronic pancreatitis are absent, but they are included in the appropriate group "pancreatic diseases". Fig. 1 shows distinct trend growth of the total prevalence of pancreatic diseases among the adult population of RF and SFO. In the whole of Russia, this figure increased from 540.2 ‰ in 2003 to 957.2 ‰ in 2012. On the territory of SFO incidence of pancreatic diseases in the adults also increased significantly — up to 977.2 ‰ in 2012.

At the same time, prevalence of pancreatic diseases among the adult population of the Omsk region at the same period remained almost at the same level: 564.7<sup>0</sup>/<sub>0000</sub> (2003) and 510.4<sup>0</sup>/<sub>0000</sub> (2012).

Analysis of the prevalence of pancreatic diseases, including chronic pancreatitis, among the adult population of Omsk was carried out in a representative sample of the patients presented by the patients of the city polyclinic No 12 and MSD clinics No 7 (total 70033 people). Statistical design took into account gender and age of patients. Results are shown in Table 1, on Fig. 2.

The share of patients with acute pancreatitis (K85) accounted for only 3.3% of the analyzed samples (Table 1, Fig. 2). The average age of patients with this form of disease was 48,71±3,37 (men — 44,51±6,22, women — 51,51±3,81 (p>0,1)). Women were the majority among those who had applied — 60.0%. At the rate of 100000 people, the incidence of acute pancreatitis was very small — 35.70 cases.

Chronic pancreatitis of alcoholic etiology (K86.0) was diagnosed in 11.9% of patients (Fig. 2). The average age in this subgroup of patients was significantly higher — 57,58±1,99 (p<0,05). Women also dominated among the patients with CP of alcoholic etiology (61.8%) with a mean age of 60,74±2,39. Men in this group of patients were 38.2% and were on average younger — 52,47±3,37. The differences were statistically significant (p<0,05).

The prevalence of alcoholic etiology of CP as a result of the continuous sampling was 127.08<sup>0</sup>/<sub>0000</sub> (men — 110.2<sup>0</sup>/<sub>0000</sub>, women — 140.4<sup>0</sup>/<sub>0000</sub>). CP of alcoholic etiology was detected in the aged from 18 years to 91. The highest prevalence of CP of alcoholic etiology was observed in the older age groups: 70-79 — 273.7<sup>0</sup>/<sub>0000</sub>; 80 and older — 325<sup>0</sup>/<sub>0000</sub>.

The main part of the analyzed sample (65.8%) was represented by patients with a diagnosis of "another chronic pancreatitis" (K86.1), whose average age was 54,28±0,74, while men were significantly younger than women (p<0,001): 50,33±1,33 and 55,94±0,88 respectively. The total incidence of "another chronic pancreatitis" as a whole amounted 703.95<sup>0</sup>/<sub>0000</sub> (men — 473<sup>0</sup>/<sub>0000</sub>, women —

885.9<sup>0</sup>/<sub>0000</sub> (Table. 1)). Patients with the code K86.1 ranged in age from 19 to 87. The highest prevalence of other CPs occurred among patients who were older than 50 years: 50-59 — 858.3<sup>0</sup>/<sub>0000</sub>; 60-69 — 1082<sup>0</sup>/<sub>0000</sub>; 70-79 — 876<sup>0</sup>/<sub>0000</sub>; 80 and older — 1140<sup>0</sup>/<sub>0000</sub>.

Thus, there is a natural predominance of patients with "another chronic pancreatitis" (K86.1). Since coding takes place according to ICD-10, CPs not elsewhere classified, are traditionally included in this category.

Noteworthy is the large share of women both with acute pancreatitis (K85) and with chronic pancreatitis of alcoholic etiology (K86.0). This phenomenon can be explained by the fact that the sample was formed among the patients of outpatient clinics, i.e. morbidity was calculated by the appeals of patients to outpatient clinics.

Among the hospitalized patients the opposite ratio is often observed [5, 6]. At the same time, there is not enough information now on the incidence and appeals of the patients with pancreatic diseases, as the most well-known epidemiological studies of the last two decades have analyzed the cases of hospitalized patients [5, 6].

Table 1

**Prevalence of the pancreatic diseases in a representative sample of the adult population of Omsk (2012-2013)**

Groups of patients	Statistical data:					
	Number of patients, N	Mean value, $\bar{X}$	Median, P <sub>50</sub>	Standard deviation, S	Error of the mean, mx	Per 100000
<b>Pancreatic diseases (K85, K86.0, K86.1, K86.2, K86.3, K86.8, K86.9)</b>						
Men + Women	749	54.52	54.57	17.26	0.63	1069.50
Men	244	50.32	50.82	17.05	1.09	790.53
Women	505	56.54	56.84	17.01	0.76	1289.34
<b>Acute pancreatitis, K85</b>						
Men + Women	25	48.71	52.68	16.86	3.37	35.70
Men	10	44.51	47.96	19.66	6.22	32.40
Women	15	51.51	52.99	14.76	3.81	38.30
<b>Chronic pancreatitis of alcoholic etiology, K86.0</b>						
Men + Women	89	57.58	56.04	18.81	1.99	127.08
Men	34	52.47	51.43	19.67	3.37	110.16
Women	55	60.74	63.98	17.70	2.39	140.42
<b>Another chronic pancreatitis, K86.1</b>						
Men + Women	493	54.28	54.63	16.46	0.74	703.95

Men	146	50.33	50.82	16.07	1.33	473.02
Women	347	55.94	56,45	16.36	0.88	885.94
<b>Other pancreatic diseases (K86.2, K86.3, K86.8, K86.9)</b>						
Men + Women	142	54.44	53.77	18.80	1.58	202.76
Men	54	50.04	49.76	17.62	2.40	174,95
Women	88	57.14	58.61	19.09	2.03	224.68

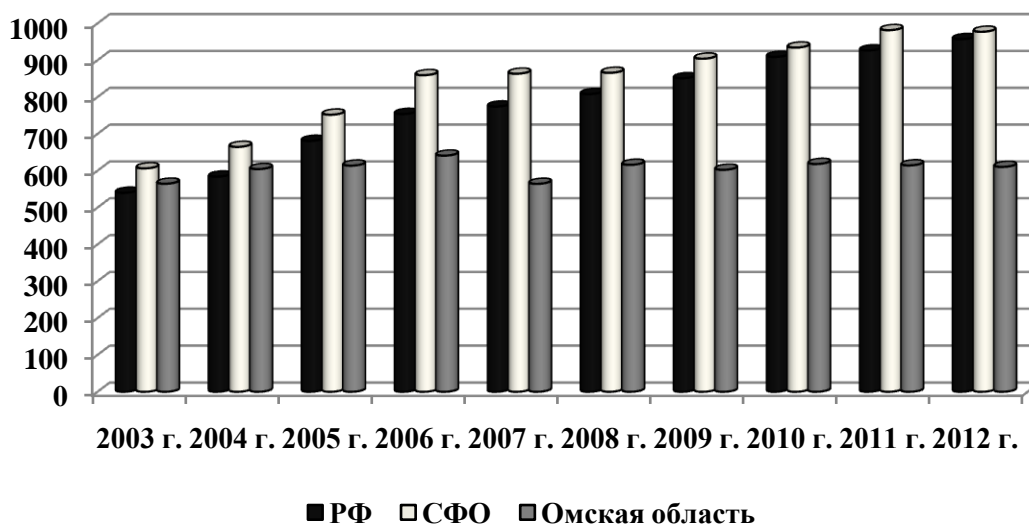


Fig. 1. Total prevalence of pancreatic diseases among the adult population (per 100 000) in the Russian Federation (RF), Siberian Federal District (SFD) and the Omsk region in 2003-2012.

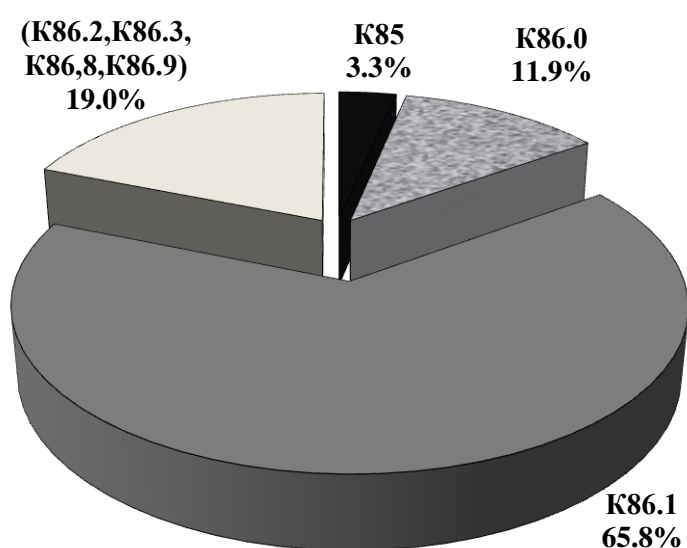


Fig. 2. Structure of general morbidity of the adult population of Omsk according to the results of a sample survey.

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The comparative analysis on prevalence of pancreatic diseases among the adult population on the territory of the Russian Federation, the Siberian Federal District and the Omsk region during 2003–2012 is carried out. Upon comparing territories, lower prevalence of pancreatic diseases on the territory of the Omsk region is revealed. The analysis of general prevalence of pancreatic diseases among the adult population of Omsk is conducted.