

Statistical characteristics of number and structure of hospitalizations and treatment of patients with acute and chronic pancreatitis in the surgical departments in Kemerovo region

V. I. Podoluzhniy¹, V. A. Pelts², I. A. Radionov¹

¹Kemerovo State Medical University, Russia

²Regional Clinical Hospital of Emergency Medical Care

n. a. M. A. Podgorbunsky, Kemerovo, Russia

Key words: acute pancreatitis, chronic pancreatitis, epidemiology, surgical treatment, mortality

Introduction

Pancreatitis (acute and chronic) is one of the most common diseases of the gastrointestinal tract, leading to enormous physical and financial losses to society. The incidence of acute pancreatitis (AP) worldwide ranges from 4.9 to 73.4 cases per 100,000 population, with a pronounced tendency to an increase in the frequency and chronicity of the process [3, 4, 5, 7, 13, 15]. Complicated clinical forms of chronic pancreatitis in the form of ductal pancreatic hypertension, wirsungolithiasis, severe fibrous reorganization of the pancreatic parenchyma with calcifications, duodenostasis, biliary and portal hypertension, also in the case of chronic pain, need prompt treatment. It is recommended to use early surgical intervention [10], since it gives a higher quality of life compared with conservative therapy [6]. The authors use as a drainage pancreatic duct surgery, and resection methods of surgical intervention [8, 9, 16, 17]. Considering the numerous reports on the increase in the number of patients with this pathology in the world surgical practice and the lack of information about the situation in Kuzbass, we considered it necessary to conduct this study. It is important for planning the required number of specialized beds, as well as training medical personnel for the pancreato-biliary surgical profile.

Aim

Determine the volume of hospitalizations and treatment of patients with acute pancreatitis in the surgical departments No. 1 and No. 2 of the Regional Clinical

Hospital of Emergency Medical Care n. a. M. A. Podgorbunsky of Kemerovo and surgical departments of Kemerovo region from 1993 to 2016. Dynamics of the implementation of planned operations in primary chronic pancreatitis (PCP) from 1996 to 2017 in the regional hepatological center (surgical department No. 2 of the Podgorbunsky Design Bureau of the Small Medical Care in Kemerovo) is analyzed.

Materials and methods

A comparative analysis of the volume and structure of the treatment of patients with AP for two decades in the surgical departments of the region and in the OKB SMP n. a. M. A. Podgorbunsky. To understand the changes occurring in urgent abdominal surgery over time, we compared the numbers of treated patients for two equal periods of time — from 1993 to 2002 and from 2007 to 2016. A detailed analysis of the form of the disease and the nature of the treatment carried out in AP was carried out by us according to the results of the work of the surgical department No. 1 of the OKB SMP n. a. M. A. Podgorbunsky for 2007–2016.

In parallel, in a comparative aspect, the number of planned operations for PCP at the regional hepatological center after 1996 was analyzed. In the nineties of the last century, the clinic worked out surgical technologies for the treatment of chronic pancreatitis and after 2000 they began to be performed on an ongoing basis. They compared two decades: 1996–2005 and 2006–2017. For a more convincing analysis of the dynamics of the number of planned interventions, two five-year periods were also compared — from 2001 to 2005 and from 2013 to 2017. The study used the methods of descriptive statistics: sample size (n), average (M), standard deviation (m). The non-parametric Mann–Whitney test was used to test the statistical significance of differences in mean values in independent samples. The critical level of significance was assumed to be 0.05. Statistical processing was performed using the SPSS STATISTICA application software packages. V. 24.

Results and discussion

Analysis of the number of hospitalizations and the number of patients treated with AP (primary and biliary) in the surgical departments of the region showed an increase in the average annual number of hospitalized patients by 79.7% over the last

decade (Table 1). The incidence of AP per 100 000 population in the first decade (1993–2002) was 64.32 and in the second (2007–2016) 125.35. The study of the results of treatment of patients with AP in surgical wards No. 1 and No. 2 of the OKB SMP n. a. M. A. Podgorbunsky also confirmed a statistically significant increase in the number of average annual hospitalization of patients.

Table 1

The comparison groups of the average annual admission of patients with acute pancreatitis to the surgical departments of the region and to the surgical departments No. 1 and No. 2 of the Regional Clinical Hospital of Emergency Medical Care n. a. M. A. Podgorbunsky of Kemerovo by decades

Surgical disease	Group 1 (n-10) 1993–2002 (M±m)	Group 2 (n-10) 2007–2016 (M±m)	P
Acute pancreatitis (hospitalization in the surgical departments of the region)	1929 ± 356.2	3467.1± 188.5	0.0001
Acute pancreatitis (hospitalization in surgical wards №1, 2)	163.3±95.3	364.9±87.7	0.001

A detailed analysis of the form of the disease and the nature of the treatment we carried out at the surgical department number 1 (emergency department) for 10 years. He showed that in 76.8% of cases there was mild (abortive, edematous) pancreatitis, pancreatic necrosis was diagnosed in 23.2%, requiring 15.1% of surgical intervention — minimally invasive in 10.7% and laparotomic in 4.4%. Mortality in pancreatic necrosis was 7.9% (Table 2).

Table 2

Forms of the disease and the nature of the treatment in acute pancreatitis in the surgical department No. 1 for 2007–2016

Indices	Abs.	%
Totally treated	2627	100
Edematous pancreatitis	2019	76.8

Pancreatic necrosis	608	23.2
Conservative treatment	2535	96.5
Surgery	92	3.5% of all patients, 15.15% with pancreatic necrosis
Minimally invasive surgery	65	2.5% of all patients, 10.7% with pancreatic necrosis
Laparotomic treatment	27	1% of all patients, 4.4% with pancreatic necrosis
Died	48	1.8% of all patients with acute pancreatitis and 7.9% with pancreatic necrosis

The increase in the number of patients with AP was inevitably accompanied by an increase in the number of planned surgical interventions for PCP, which is confirmed by the data on the number of surgeries in these patients in the surgical department No. 2 of the SMB n. a. M. A. Podgorbunsky of Kemerovo (surgical department No. 2 is the basic unit of the regional hepatological center since 1997). From 2001 to 2005, 51 people were operated on in the center, and in the last five years from 2013 to 2017 78 patients with PCP, while resections of the gland were performed in 18 cases (22.5%) and 51 anastomoses were drained (65.4%). Comparison of the number of operations over the past two decades also convincingly indicates an increase in the number of operated on: from 1996 to 2005 — 123 patients and from 2006 to 2017, 163 patients with PCP underwent surgical treatment.

Our findings are consistent with the results of studies by other authors, indicating the increasing number of patients with AP in recent years [1, 5, 7, 13], persistent high mortality rates for this disease [2] and an increased number of surgeries for PCP [12, 14]. The reasons for the increase were the increase in the number of patients with cholelithiasis [4] and the persistently high consumption of pure alcohol in Russia (from 10.1 to 18 liters per capita per year in different regions

according to the statistics department). In the structure of surgical operations for PCP, the authors use resection, and for ductal pancreatic hypertension — decompressive interventions [6, 8, 9, 16, 17]. If the head of the pancreas is affected, it is preferable to perform its resection with preservation of the duodenum [16, 17], and for decompressive operations, anastomosis is preferred over endoscopic stenting of the pancreatic duct [8]. Different types of interventions for PCP currently used in surgical practice require careful analysis of their outcomes and assessment of the quality of life of the operated on in a comparative aspect.

Conclusion

For 23 years, the number of hospitalized patients with AP increased statistically significantly. The incidence per 100,000 population has increased from 64.32 to 125.35. Over the past decade, mild pancreatitis occurred in 76.8% of patients, pancreatonecrosis — in 23.2%. Operated 3.5% hospitalized (15.1% with pancreatic necrosis). Mortality in pancreatic necrosis is equal to 7.9%. Acute pancreatitis is a predictor of chronic one, there is a clear trend towards an increase in the number of operations for primary chronic pancreatitis. The ratio of resection treatment and drainage anastomoses is one to three. In connection with the growing number of patients with PCP who need surgical treatment, further development of a set of measures is needed to optimize various surgical interventions for this disease, in particular, the widespread introduction of minimally invasive technologies.

Contribution of authors:

V. I. Podoluzhniy — idea, writing an article

I. A. Radionov — treating patients, collecting material and writing article

V. A. Pelts — treating patients, collecting material and writing article

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Aim. Determine the number of hospitalizations and treatment of patients with acute (AP) and primary chronic pancreatitis (PCP) in surgical departments No 1 and No 2 of the Regional Clinical Hospital of Emergency Medical Care n. a. M. A. Podgorbunsky (Kemerovo) and surgical departments in Kemerovo region from 1993 to 2017.

Methods. A comparative analysis of the number and structure of treatment of patients with AP over two decades was carried out. Number of PCP surgeries in the Regional Hepatology Center after 1995 was comparatively analyzed.

Results. There was an increase in number of average annual hospitalization of patients with acute (primary and secondary) pancreatitis over the past decade by 79.7% (incidence 64.3/100000 and 125.3/100000), as well as increased number of surgeries for PCP. In urgent patients, mild pancreatitis occurred in 76.8%, pancreatic necrosis — in 23.2%. Those who had destructive pancreatitis underwent surgery in 15.1% of cases. Mortality with pancreatic necrosis reaches 7.9%. Over the last decade, compared with the past one, 26.4% more patients were operated on for PCP. Pancreatic resections were performed in 22.5% of cases, draining anastomoses were installed in 65.4% of surgical cases.

Conclusion. Over 23 years, the number of hospitalized patients with AP has increased statistically significantly. 3.5% of hospitalized patients were operated on (15.1% with pancreatic necrosis). Mortality upon pancreatic necrosis reached 7.9%.

AP is viewed as a predictor of chronic pancreatitis, there is a clear upward trend in the number of surgeries for PCP.