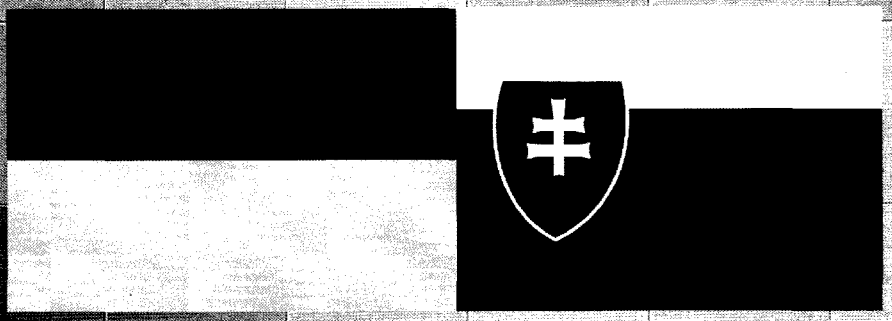
№ 1 (1) 2014

EV 4944/14 ISSN 1339-5882 № 20221 – 10021P

INTER medical journal



First issue of the "INTER medical journal"
aim, perspectives and [illegible]

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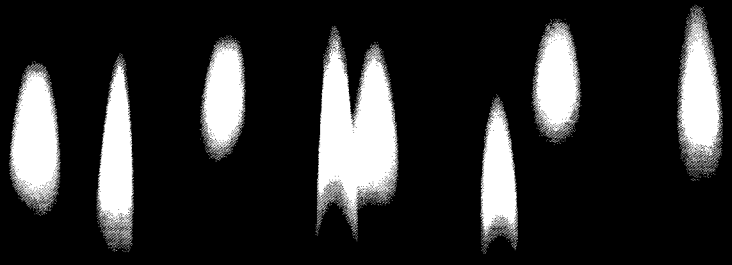

Remember all the victims in Ukraine...

EV 4944/14 ISSN 1339-5882

SOME OF THE PATHOGENETIC MECHANISMS OF THE PANCREATITIS DEVELOPMENT IN TRANSCARPATHIA

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Summary. The paper presents characteristic features of the chronic pancreatitis development in Transcarpathia and their dependence on the clinical form, coprogram analysis, presence of Helicobacter infection, circulating autoantibodies to glutamate decarboxylase (GADA) and islet cells (ICA). Gastropathy is detected in 52-56% of the patients with chronic pancreatitis, 30% of which were associated with Helicobacter infection. Patients with chronic pseudotumor pancreatitis display more pronounced manifestation of maldigestion accompanied by steatorrhea. All forms of chronic pancreatitis show similar signs of amylorrhea. Occurrence of creatorrhea is more frequent in patients with chronic parenchymal pancreatitis. Patients with chronic pancreatitis reveal high frequency of circulating autoantibodies to GADA antigens showing the highest values in the cases of calculous pancreatitis.

Key words: chronic pancreatitis, coprogram, circulating autoantibodies, circulating autoantibodies to glutamate decarboxylase (GADA) and islet cells (ICA), Helicobacter pylori.

Introduction

Occurrence of pancreatitis diseases grows worldwide. Thus, since 1988 the number of acute pancreatitis in the USA increased. It was noticed that among Afro-Americans disease develops more frequently. Increased tendency of hospitalizations with not only acute but also chronic pancreatitis observed in Great Britain as well. Unfortunately, pancreatitis disorder appears more often not only in adults, but also among children [5]. Approximately two-fold increase of pancreatitis disease occurred during the last 40 years. The increase in disease frequency happens not merely due to improvements in diagnostic techniques of chronic pancreatitis but also due to higher alcoholic beverages consumption in some countries, and adverse impact of negative environmental factors, which weakens different protective mechanisms [1, 2, 3, 6]. Earlier complications that lead to high mortality (5.1%) develop in 30% of the cases of chronic pancreatitis. They include purulent-septic complications, gastroduodenal ulcer, thrombosis of portal vein, stenosis of the common bile duct and duodenum. In future, especially without effective treatment, foreign-secretory deficiency of pancreas is progressing: secondary or symptomatic gastroesophageal disease is forming and the conditions for the development of diabetes arising [1]. Death rate with the disorder constitute 30% during the first 10 years, and more than 20% in the following 10 years. Risk of chronic pancreatitis transformation to pancreatic cancer constitute 5% and significantly increasing with longer duration of the disorder and age of the patient. People sick on chronic pancreatitis constitute 25% from all the patients in Ukraine that ask for medical help in gastroenterology, and in specialized clinics they take 9-12% of hospital beds. Among diseases of digestive organs specific weight of diseases of pancreas (DP) in 2011 was 12.7%, index of the spread was registered at the level of 2400,7, which exceeded index of 1990 three times and 2006 for 26%. This index reaches 2.5-3.9 thousand for 100 thousand of adults in the chain of Ukrainian regions. The important peculiarity is that almost half of the adults (48.4%) with DP are people of the working age [4]. Diseases of pancreas in Transcarpathia in 2009-2011 are at the 4th place among disorders of digestive organs in all general population. During the last years, the tendency to increase of the sickness and spreading of the diseases of pancreas, in particular chronic pancreatitis, remains.

The aim: to study individual pathogenic components in the progression of different forms of chronic pancreatitis in Transcarpathia.

Materials and Methods: 85 hospital bed patients with chronic pancreatitis (39 with chronic pseudotumor pancreatitis (ChPTP), 21 with chronic calculous pancreatitis (ChCP), 25 with chronic parenchymal (ChPP) pancreatitis), which were hospitalized in Gastroenterological Department of the Transcarpathian Regional Clinical Hospital of A. Novak in 2009-2012. Chronic pancreatitis was diagnosed based on patients complaints, disease anamnesis, physical data, ultrasound examination data and computer tomography of the pancreas, analysis of blood and urine for pancreatic amylase, morphological examination of the pancreas of the patients that underwent in their anamnesis acute pancreonecrosis, coprogram data according to Marselsko-Rimskaya (1989) with modification of Ya.S. Cimmerman (1995) classification of the disease of pancreas. We studied the frequency of H. pylori infection and circulating autoantibodies to glutamate decarboxylase (GADA) antigens and islet cells (ICA), data of the coprogram in patients with different forms of chronic pancreatitis. Detection of the autoantibodies to GADA atigens and ICA was carried out with ELISA (enzyme-linked immunosorbent assay) using test systems of Biomerica, Inc. Immunochromatography was used to detect Ag Helicobacter pylori in the feces with the help of test systems Cer Test Biotec SL., Spain.

Results and Discussion

The investigated group consisted of 25% women and 75% of men. The men/women ratio under chronic pseudotumorous pancreatitis was 5.5; under chronic

calculous pancreatitis was 6; under chronic parenchymal pancreatitis was 1.08. For chronic pseudotumorous pancreatitis, duration of the disease progression was 2.44±0.22. In the case of chronic calculous pancreatitis it was 5.43±0.63 and for chronic parenchymal pancreatitis it was 7.28±0.5 (Fig. 1).

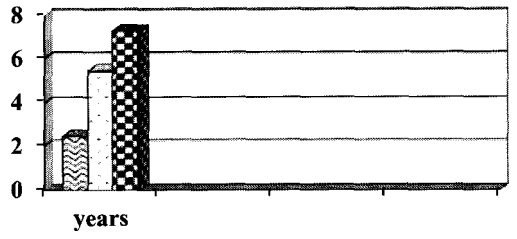

Figure 1. Duration of the disease in cases with different forms of chronic pancreatitis

Although longer duration of the disease progression was observed in patients with chronic parenchymal pancreatitis, we did not observe peculiarities in the development of chronic pancreatitis, which depended on the duration of the disorder.

Clinic progression for chronic parenchymal pancreatitis was characterized by pain that was experienced by 82% of patients, general weakness – 56%, weight loss – 44%, tendency to diarrhea - 36% of sick people. In the case of chronic calculous pancreatitis pain was experienced by 76% of the patients, general weakness – 57%, weight loss – 52%, tendency to diarrhea - 48% of the patients. Among the patients with chronic pseudotumorous pancreatitis, 84% experienced pain, 68% - general weakness, 44% - tendency to diarrhea, 40% - swelling of the belly. Fibroesogastroduodenoscopy results detected erythematous and erosive gastropathy in 54% of cases of chronic pseudotumorous pancreatitis, in 56% of chronic calculous pancreatitis, and in 52% of chronic parenchymal pancreatitis.

Characteristics of patients complains in dependence on the form of chronic pancreatitis are presented on Fig. 2.

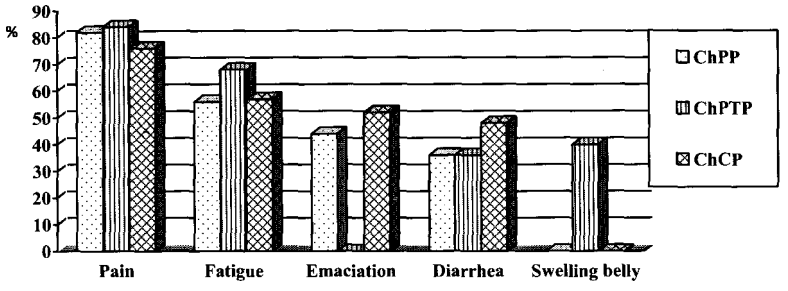

Figure 2 - Characteristics of the major complaints of the patients with chronic pancreatitis

Among the patients with chronic pseudotumorous pancreatitis that experienced gastropathy Helycobacter infection was manifested in 16 out of 21 cases (76%), among the patients with chronic calculous pancreatitis in 4 out of 12 (33%) and with chronic parenchymal pancreatitis in 6 out of 13 (46%) cases. During the clinical course, patients with chronic panctreatitis experiencing Helicobacter infection suffered more pronounced signs of pain syndrome and stomach dyspepsia compare to patients with chronic pancreatitis without Helicobacter infection.

During scatological study of the feces in patients with chronic pancreatitis attention was paid to the presence of the fiber, starch, undigested muscle fibers, neutral fat, fatty acids, and soaps (Table 1). Chronic pseudotumorous pancreatitis was characterized by the presence of the starch and fiber – 1.33±0.21; neutral fat - 1.83±0.17; fatty acids – 2.13±0.23; soaps – 1.5±0.5; undigested muscle fibers – 1.57±0.2. Chronic calculous pancreatitis: fiber – 1.5±0.5; starch, undigested muscle fibers and soaps – 1.2±0.2; neutral fat and fatty acids – 1.4±0.24. Chronic parenchymal pancreatitis: fiber – 1.56±0.12; starch – 1.44±0.13; neutral fat – 1.63±0.16; fatty acids – 1.71±0.16; soaps – 1.5±0.23; undigested muscle fibers – 1.92±0.23. All forms of chronic pancreatitis were found to be equally associated with the presence of fiber, starch and soap. Chronic pseudotumorous pancreatitis was associated with significant increase of neutral fat compare to the patients with chronic calculous pancreatitis, as well as significant increase of fatty acids compare to the patients with chronic calculous and chronic parenchymal pancreatitis. In the group of patients with chronic parenchymal pancreatitis, significant increase of undigested muscle fibers compare to the patients with chronic calculous pancreatitis was observed.

ChPTP
ChCP
ChPP

Table 1

Data of the scatological study of the feces in the patients with chronic pancreatitis

Indicators	ChPTP	ChPP	ChCP
Fiber	1.33±0.21	1.56±0.12	1.5±0.5
Starch	1.33±0.21	1.44±0.13	1.2±0.2
Undigested muscle fibers	1.57±0.2	1.92±0.23**	1.2±0.2
Neutral fat	1.83±0.17*	1.63±0.16	1.4±0.24
Fatty acids	2.13±0.23*	1.71±0.16***	1.4±0.24
Soaps	1.5±0.5	1.5±0.23	1.2±0.2

Footnote: comparison of the significance ($p<0.05$) - *between the patients with chronic pseudotumorous pancreatitis and chronic calculous pancreatitis;

** between the patients with chronic parenchymal pancreatitis and chronic calculous pancreatitis;

*** between the patients with chronic parenchymal pancreatitis and chronic pseudotumorous pancreatitis.

Circulating autoantibodies to GADA antigens were found in 29 (73%) of the patients with chronic pancreatitis: 2.02±0.07 Units/ml. Circulating autoantibodies to islet cells antigens were found in 6 (15%) of the patients: 1.32±0.09 Units/ml. Presence of the both types of circulating antibodies was found in 10%

of the patients with chronic pancreatitis. In the case of chronic pseudotumorous pancreatitis 2.04±0.17 Units/ml of the circulating autoantibodies to GADA antigens were observed. As well, in the case of chronic parenchymal pancreatitis their content was found at the level of 1.99±0.49 Units/ml, and at chronic calculous pancreatitis 2.32±0.42 Units/ml (Fig. 3).

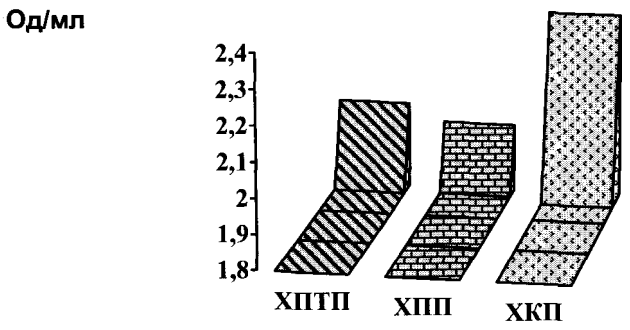

Figure 3 - Indicators of circulating antibodies to GADA in chronic pancreatitis

Conclusions:

1. Chronic calculous pancreatitis and chronic pseudotumorous pancreatitis 5.5-6 times more frequently detected among men in Transcarpathia. The major symptom of different types of chronic pancreatitis are the presence of the pain, which was observed in 76-84% of the cases. Chronic pseudotumorous and chronic calculous pancreatitis were associated with significant weight loss in 44-52% of the patients. Susceptibility to diarrhea equally manifested within all forms of chronic pancreatitis.

2. Among the patients with chronic pancreatitis in 52-56% of the cases manifestation of gastropathy was found, which in 30% was associated with helicobacter infection.

3. In the group of patients with chronic pseudotumorous pancreatitis, more pronounced signs of maldigestion accompanied by steatorrhea were detected. Amylorrhea appears equally in all types of chronic pancreatitis. Creatorrhea expressed stronger in the group of patients with chronic parenchymal pancreatitis.

4. Patients with chronic pancreatitis displayed high frequency of the circulating autoantibodies to GADA antigens, with the highest values in the group of chronic calculous pancreatitis.

5. The presence of the circulating autoantibodies to the islet cells antigens indicates their destruction and asymptomatic phase of the beginning diabetes. The detection of the circulating autoantibodies to GADA and ICA in a timely manner will give the opportunity to develop preventive measures as to the formation of insulin-dependent diabetes.

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