ETIOLOGY OF CHRONIC PANCREATITIS

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CP is considered to be a polyetiological disease. Its main etiological factors are: 1) chronic alcoholism, 2) cholelithiasis and choledocholithiasis, 3) post-traumatic obstruction of the pancreatic ducts, 4) exposure to chemicals, including drugs, 5) hyperlipidemia, 6) insufficient protein nutrition (malnutrition), 7) hereditary predisposition (L-antitrypsin deficiency and other genetic factors), 8) hyperparathyroidism (hypercalcemia), 9) cystic fibrosis (the most common factor in children), 10) idiopathic factors (Horovitz, 1996). Alcoholism is recognized as the most common cause of CP; according to statistical data, alcohol abuse is observed in 75-90% of patients (L. James, 1988, A.A. Shalimov et al., 1998). The average period for the development of CP due to alcohol abuse is 18 years for men and 11 years for women (Horovitz, 1996). Despite the clear connection between alcohol abuse and the development of CP, it is known that CP occurs in only 10% of alcohol abusers (R. Rao, R. Prinz, 1993). There is a theory that each drinker has a different dose of alcohol that causes pancreatitis (JPDurbec, 1978). Recently, it has been proven that there is a dependence of the risk of CP on the daily consumption of alcohol and protein and a U-shaped dependence on the daily consumption of fat. Specific changes in the pancreas were found with consumption of 80 g of pure ethyl alcohol daily for several years (M. Cayot et al., 1978, H. J. Pusch, 1978). Typically, clinical symptoms of CP develop after daily consumption of alcohol in an amount of 100–200 g for 5–10 years (L. James, 1988). At the same time, the risk of developing CP increases in the presence of an additional factor – smoking, in which case the disease can develop in a shorter period of time. A typical combination of conditions in which CP actually develops is good socio-economic living conditions of the patient (Western European countries, Japan, USA), male gender, age over 35 years, high daily intake of protein and fat, daily consumption of more than 20 g of alcoholic beverages (in terms of pure ethyl alcohol). Since alcohol abuse is recognized as the most common etiological factor in the development of CP, the mechanisms of its influence on pancreatic function have recently been studied in sufficient detail. The effect of ethyl alcohol on the pancreas is represented as a combination of intoxication and stimulation of the function of the gland with a delay in the evacuation of its

secretions and an increase in intraductal pressure. The direct toxic effect of alcohol on acini cells has been proven. With long-term alcohol consumption, accumulations of lipids, swelling of mitochondria and thinning of their membranes, as well as degranulation of the cytoplasm of acinar and intraductal cells are noted in the basal cells of the acini. A study of the ultrastructure of pancreatic cells in patients with CP showed that the same changes were observed in the acini cells as in liver cells affected by alcohol (M. Noronha, 1981, M. Singh, 1982, 1983). This similarity is also expressed by cellular obesity, which occurs as a result of increased synthesis of triglycerides and cholesterol or, possibly, as a result of decreased oxidation of fatty acids (M. Singh, 1983). Alcohol has a membrane-damaging effect, disrupting cell synthesis processes and changing the morphological structure of acini cells. H. Sarles (1981) believes that alcohol stimulates the secretion of the pancreas, increasing the volume of pancreatic juice, and chronic alcohol intoxication for a long time leads to qualitative changes in the secretion of the pancreas: an increase in the concentration of protein substances in it while simultaneously reducing the concentration of bicarbonates (M. Bayer, 1972, DADreiling, 1973, O.Tiscornia, 1974, J.Sahel, 1979, MCNoel-Jorand, 1983). Increased protein secretion and bicarbonate deficiency causes the formation of a protein-rich secretion, in which enzyme activation occurs, destruction of protein colloid stabilizers and, as a consequence, sclerosis and obstruction of the excretory ducts (NEPlanche, 1982). With the toxic effects of alcohol, protein precipitates appear on the walls of the pancreatic ducts, which lead to the formation of stones and secondary calcification of the gland (C. Niederau, 1985, H. Sarles, 1986). As already noted, the protein lithostatin (PSP) plays a special role in sclerosis of the excretory ducts of the pancreas . PSP constitutes the main part of the protein precipitate from pancreatic secretions in patients with CP. If pancreatic juice is oversaturated with calcium carbonate, factors such as PSP reduce the formation of calcium carbonate crystals are of great importance in preventing sclerosis of the ductal system. In patients with CP who abuse alcohol, the amount of PSP may decrease and this leads to sclerosis of the pancreatic ductal system (NEPlanche, 1982). In addition, alcoholism increases the secretion of calcium ions by pancreatic cells, which increases the risk of calcification (J. Lohse, 1984). In addition to PSP, citrate a (citric acid) ions are an important factor in preventing the precipitation of calcium and protein in the pancreatic ducts . In dogs regularly receiving alcohol, a significant decrease in the concentration of citrate ions in pancreatic juice was observed (J. Lohse, 1983). Thus, drinking alcohol for a long time reduces the concentration of

citrates and thereby further contributes to the development of pancreatic sclerosis. As found in an experiment on dogs, alcohol affects changes in motility and pressure gradient of the upper digestive tract, which can lead to reflux of bile into the pancreatic ducts (ESKlein, 1983, M. Morita, 1994). The components of bile that play the greatest role in stimulating the secretion of pancreatic juice and activating proteolytic enzymes are bile acids. Normally, the pancreatic ducts are permeable only to molecules with a mass of less than 3,000 daltons and are a barrier to larger molecules such as glandular enzymes and bile acids (RCFarmer et al., 1983, 1984). Animal experiments have shown that enteral or intravenous administration of alcohol increases the permeability of the ductal wall due to damage to their epithelial cells (KRWedgewood, 1986). In this case, the ductal epithelium becomes permeable to large molecules up to 20,000 daltons (HAReber, 1979). Increased ductal permeability during alcoholism contributes to the development of pancreatitis (KRWedgewood, 1986). Free radicals represent another damaging mechanism in patients who abuse alcohol (D. Basso, 1990). Patients with exacerbation of CP have a higher concentration of free radical oxidation products in the blood serum than patients without an attack. The main mechanism of action of free radicals in the pathogenesis of CP is the activation of granulocyte xanthine oxidase (MGSarr, 1987; SJWeiss, 1989; D.Basso, 1990). Studies have proven an increase in the concentration of 9-cis-11-translinolenic acid, which is the end product of the lipid peroxidation reaction, and other unsaturated fatty acids in the duodenal contents of patients with CP (A. Estival, 1981, RSFarmer, 1984). In patients with idiopathic forms of CP, activation of the microsomal cytochrome P-450 system is also observed (S. Uden, 1988). This enzyme system is the second largest source of free radicals (PBWatkins, 1990). With CP, the absorption of fat-soluble substances is impaired, the level of antioxidants - vitamins C and E, carotene, selenium, as a component of glutathione peroxidase, decreases; cysteine and methionine, as a component of reduced glutathione (Y. Twersky, 1989). A decrease in selenium intake correlates with an acceleration of theophylline clearance, which indicates an increase in the activity of the microsomal cytochrome P-450 system. In clinical studies, it was noted that a diet rich in antioxidants has a positive effect on the clinical course of CP and the level of antioxidants in the blood (S. Uden, 1989). An important role in the development of CP belongs to the inhibitory system of proteolytic enzymes. In animal experiments, it was found that alcohol changes the activity of trypsin inhibitors in pancreatic tissue (M. Singh, 1983) and increases the activity of proteolytic enzymes (M. Singh, 1982).

The outcome of the progression of CP, regardless of the causes of its occurrence, is the development of conditions associated with: a) with a decrease in pancreatic function - the appearance of maldigestion syndrome with steatorrhea and weight loss, diabetes mellitus, B12-deficiency anemia; b) with violations of the structure of the pancreas - the formation of pseudocysts; cholestasis due to compression of the common bile duct, thrombosis of the splenic vein with varicose veins of the esophagus; progressive calcification, development of pancreatic cancer, duodenal stenosis. The lethal outcome in CP is caused by the addition of various severe complications.

REFERENCES:

1. Danilov M. V. , Fedorov IN . D. Surgery pancreas glands – M .: Medicine , 1995. - 509 p .

2. Kuzin M. I. , Danilov M. V. , Blagovidov D. F. Chronic pancreatitis . – M .: Medicine , 1985. - 367 p . Experience use sandostatin at patients With chronic pancreatitis / Loginov A . S. , Sadokov A . WITH . Sadokov IN . M. And al . // Ter . archive . – 1995. – T.67 . – C.6062

3. Radzikhovsky A . P . Fistulas pancreas glands – K .: Science . d umka , 1987. - 222 p .

4. Shalimov A . A. Nichitailo M. E. , Radzikhovsky A . P . Surgery pancreas glands – Simferopol : Tavrida , 1997. - 553 p . 5.Beger HG, Buchler M. Duodenum-preserving resection of the head of the pancreas in chronic pancreatitis with inflammatory mass in the head // World J. Surg. – 1990. – Vol. 14, No. 1. – P.83-87.