



SPLEEN MORPHOLOGY AND PANCREAS OF RATS AND ITS CHANGES UNDER ALCOHOLIC INTOXICATION

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Article history:	Abstract:
Received: August 20 th 2021 Accepted: September 20 th 2021 Published: October 25 th 2021	This article deals with the spleen morphology and pancreas of rats and its changes under alcoholic intoxication in the world.
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INTRODUCTION.

Problems are faced by the population living in conditions of environmental instability - food contamination with industrial toxicants. These factors lead to various diseases of internal organs and cause morphological and functional changes in them (Djumaeva Kh.Sh., Ilyasov A.S. 2021). Alcohol intoxication has always been a national problem in Russia. Every year, 500-700 thousand Russian citizens die prematurely, which is 30-35% of all violent deaths. For comparison, we note that in the United States this figure is 4.4%. The population of Russia is annually decreasing by 800 thousand people. Health professionals believe that alcohol is responsible for the decline in life expectancy in Russia, which currently stands at 59 years. Alcohol is associated with 72% of homicides, 42% of suicides, 53% of deaths under the influence of other external factors. In addition, alcohol consumption leads to death in 68.0% of cases with liver cirrhosis, 60.0% in pancreatitis, 23.0% in cardiovascular diseases, 25.0% in other diseases. In different regions of the Russian Federation, mortality from alcohol intoxication varies from 30.0 to 46.0%. The average Russian has 15 liters of ethyl alcohol per year (in the USA - about 8 liters). The situation is aggravated by the frequency of consumption in Russia, in contrast to the USA, France and other countries, of strong and low-quality alcoholic beverages (Nemtsov A. 2009).

In the world literature, in recent years, the studied morphological aspects of the problem of chronic alcohol intoxication provide a basis for the development of optimal diagnostic methods, predicting pathomorphological processes occurring against the background of chronic alcohol intoxication. One of the specific manifestations of chronic alcohol intoxication is a change in the organs of the immune system, in particular, the spleen (Orlovskaya A.V. et al. 2004).

On the question of the structure and function of the spleen as an organ of the peripheral immune system, it can be concluded that there are significant morphological features of the structure of alcohol-altered organs that can be used by clinicians when conducting differential diagnostics and choosing further treatment tactics (Balashova M.O. and others, 2001).

METHODS.

Literature data shows that the damage to the spleen ranges from 15.4% to 20.0% (Karandashev A.A. et al. 2004). The main morphological type of damage to the spleen is a one-stage rupture of the capsule and organ tissue. Such damage occurs as a result of tissue overstretching and exceeding the limits of their elasticity and strength during tensile deformation. The question of the cause of the rupture of the spleen should take into account not only the mechanism of the injury itself, but also the morphofunctional state of the organ. (Bykov V.L. 2000).

An increase in the frequency of injuries to the spleen, as well as the prevalence of its damage against the background of alcohol intoxication, does not raise doubts about the priority of studying the effect of chronic alcohol intoxication on the structure of the parenchymal organ (Myadel O.D. 2002). An analysis of domestic and foreign literature showed that no special studies on this problem have been carried out. An objective solution to the issue of increased traumatism of the alcohol-altered spleen and pancreas, due to the state of the connective tissue frame of organs, is possible only on the basis of morphological studies.

The priority remains the question of a comparative study of the morphological features of the spleen and pancreas tissue under conditions of alcohol intoxication, as well as the identification of degenerative, destructive changes and



morphofunctional features of the structure of the connective tissue frame of the spleen and pancreatic stroma and their cellular composition in an experiment with chronic alcoholism.

As you know, the spleen capsule covers it from all sides, except for a narrow area in the area of the hilum, and is represented by three layers, differing from each other in the thickness and direction of the fibers. It contains bundles of collagen fibers, elastic fibers, and in the inner layer - and reticular fibers. Trabeculae extend from the capsule inward, and it is covered with a layer of mesothelium.

When carrying out the morphometry of the investigated alcoholic spleens, a large scatter in the values of the thickness of the capsule is noted (Rakhimov BM, et al. 2003). Deviations from the values of the control group were determined as less than 78.9 and more than 110 microns. Moreover, about 41.3% of the investigated alcoholic spleens in the thickness of the capsule had a significantly thin capsule in comparison with the control group.

However, in almost the entire group of alcoholic spleens studied, there was a significant variability in the values of the capsule thickness in the same specimens, which microscopically manifested itself as an unevenness of the spleen capsule thickness (Tomilov L.F. 2002). When comparing the parameters of the thickness of the capsule of the control group and the studied alcohol-altered spleens, against the background of destructive changes, about 51% go beyond the interval 78.9-110 microns (Moldavskaya A.A. et al. 2009).

Alcoholic damage to the pancreas is represented by acute and chronic pancreatitis. Morphological signs of alcoholic lesion of the pancreas were determined by V.V.Serov and S.P. Lebedev (1985). Ultrastructural examination of pancreatic biopsy specimens from patients with acute exacerbated chronic pancreatitis revealed the presence of intermediate filament aggregates in ductal and acinar cells. Similar intermediate filaments are found in hepatocytes in alcoholic hepatitis.

Acute pancreatitis often occurs in young people, occurs immediately after alcoholization with ethanol and is often characterized by total pancreatic necrosis leading to death. The development of acute pancreatitis in patients with alcoholism is associated mainly with hypersecretion, intraductal hypertension and reflux of duodenal contents in the ducts of the gland, arising after alcohol intake (Makhov V.M., 2004; Fedorova N.N., Begaliev A.M., 2010).

Under the influence of alcohol, the exocrine function of the pancreas is inhibited, and the secretion of water and bicarbonates decreases. There is a decrease in the volume of the liquid part of the pancreatic secretion, an increase in its viscosity and

protein precipitation occurs. Protein precipitates cause narrowing of the ducts, followed by their complete obstruction. With the progression of the process, this leads to an increase in pressure in the ducts of the gland and its edema. Protein and fats stimulate the secretory activity of the pancreas, which in conditions of obstruction of the ducts contributes to an increase in intraductal hypertension, the progression of edema and inflammation of the pancreas. Increased excretion with bile of products of free radical oxidation of fatty acids and peroxide compounds, which easily enter the pancreatic duct in the presence of duodeno-pancreatic reflux, supports the inflammatory process and promotes the formation of calcifications (Moiseev V.S., 2014). The authors identified several morphological forms of chronic alcoholic pancreatitis: 1. calcifying; 2. obstructive; 3. cystic. The evolution of alcoholic pancreatitis is as follows: repeated attacks of acute damage to the pancreas lead to atrophy and fibrosis of the acini, turning into chronic pancreatitis. The gland in chronic alcoholic pancreatitis is reduced in size, it is dense. On a section with fields of fibrous tissue, sometimes single or multiple cysts are visible on its surface, calcifications are found in large ducts (Apte M.V., Wilson J.S., 2003;).

The criteria for exacerbation of chronic pancreatitis that developed after alcohol intake (Fedorova N.N., Sentyurova L.G., 2010) is edema and necrosis of the gland tissue, sometimes total. And according to the authors, a feature of microscopic changes in the pancreas in alcoholic disease is the focal-widespread nature of the lesion. Along with sharply altered lobules, there are also intact ones.

Expressed periductal fibrosis, often combined with peri- and intralobular sclerosis. The ratio between the parenchyma and the stroma changes. V.S. Pukov, Yu.A. Erokhin (2004) in their studies found an increase in the fibrous component of the gland in alcoholic pancreatitis, a slight decrease in the exocrine tissue of the gland and a 3-fold decrease in the endocrine tissue. The acinar cells and islet apparatus are atrophic and often contain lipid inclusions. The islets of Langerhans are unevenly distributed. In the intralobular and interlobular ducts, protein plugs are found, sometimes microcalcifications. The epithelium of the ducts is atrophic or with foci of proliferation (papillary proliferation of the ductal epithelium), necrosis of the gland tissue with the reaction of polymorphonuclear leukocytes, sometimes there are cysts lined with cubic epithelium.

In alcoholic chronic pancreatitis (ACP), all forms of chronic pancreatitis identified according to the Marseilles-Roman classification can be detected: calcifying, fibro-inductive, obstructive and cystic. Calcifications, lipomatosis, fatty and hemorrhagic necrosis, inclusions similar to alcoholic hyaline,



perineural infiltration, thickening of the nerve sheaths, dystrophy, necrosis of ganglion cells, protein precipitates, thickening, metaplasia of the ductal epithelium in the M. Makhov. 2004).

Researcher A.V. Orlovskaya (2004) revealed that in those who died from acute alcohol poisoning, the following changes in the spleen are found: thickening of the capsule in 69% of cases, thickening of trabeculae in 100% of cases, hypoplasia of follicles in 78% of cases, plethora of veins of trabeculae in 100% of cases, sclerosis of the wall of the veins of trabeculae in 95% of cases, sclerosis of the adventitia of the walls of follicular arteries in 100% of cases, plethora of sinuses of the red pulp in 100% of cases, exposure of the stroma of the red pulp in 92% of cases, myelosis in 90% of cases and fibrosis in 95%.

CONCLUSION.

The obtained data of changes in the connective tissue frame and morphofunctional changes in the spleen and pancreas indicate increased organ trauma against the background of chronic alcohol intoxication. But in the world literature, the morphogenesis of the spleen and pancreas of rats and its changes in alcoholism are insufficiently and contradictorily sanctified. And also there is little information about the methods of detoxification of parenchymal organs from the effects of ethyl alcohol.

Thus, in the morphological and functional terms, the study of the dynamics of the development of the spleen and pancreas of rats in postnatal ontogenesis and its change under the influence of ethyl alcohol and methods of alimentary (biological correction) detoxification is of great clinical and morphological importance.

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