

ALCOHOLISM PHONIDA GIGAR AGREES MORPHOMETRIC PARAMETERS

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Abstract

In recent decades, scientists have devoted more time to the study of the mechanisms of action of extreme influences, such as alcohol poisoning, on the internal organs. Some diseases, based on quantitatively assessed morphological changes in internal organs, have eliminated the methods of differential diagnosis of the cause of death under the influence of a combination of substances on the body, each of which can lead to death. It is emphasized that often extremely strong loads can begin their potential dynamogenic effect not in one data, but in a certain time interval, unknown in advance, during each stress injury.

A review of the literature shows that the available data on the structural and functional state of the liver in laboratory rats is sparse. Based on the above, we set out to study the age-related medical care of the liver in laboratory rats.

Keywords: Liver, alcohol, morphological changes.

Introduction

Based on morphological changes in some diseases, internal organs, differential treatment methods for the direct cause of the disease have been developed. [2,7]. At the same time, the initial stage of the disease is not taken into account. [1,5]. In the current development of medical production, biological modeling has become the most important method of scientific knowledge, which creates a demand for such experimental models that most adequately reflect the occurrence and mechanisms of human diseases in laboratory animals. In recent decades, scientists have devoted more time to studying the mechanisms of action of the organization of extreme effects, such as alcohol poisoning. Based on quantitatively assessed morphological changes in some diseases, internal organs, differential diagnosis methods for the cause of death under the influence of a combination of substances on the body, each of which can lead to death, have been eliminated. It is emphasized that often extremely strong forces can begin their potential genesis not in one data, but in a certain time interval during each stress injury, which is unknown in advance.

A review of the literature shows that the available data on the structural and functional state of the liver in laboratory rats is sparse [5, 6, 7]. Based on the above, we set out to study the age-related medical care of the liver in laboratory rats.

Materials and Methods

200 white adult rats of both sexes, weighing 180-280 g, who have passed a 14-day quarantine in the experimental vivarium, are taken. Animals are kept in standard conditions. The animals are fed a standard diet. All animals are divided into 3 groups. All experimental studies are reviewed, consulted and approved by the Bioethics Committee of the Ministry of Health of the Republic of



Uzbekistan. corresponding. Morphological classification, log in journals, statistical processing and description of their reports.

Safety was carried out in 2 stages at the experimental level: the first stage - study of morphological and morphometric parameters of the liver of newborns at 3, 6 and 9 months of age. The second stage - morphological and toxicological studies of the liver of 3, 6, 9-month-old rats, humane slaughter of animals (under ether anesthesia) and histological studies, recording of studies in journals, statistical presentation. report and report research report.

- 1) study of anatomical parameters (capsule load, cortical layer), parts of hepatocyte (vessel diameter, liver triad) in early late postnatal ontogeny.
- 2) Age-related differences in the dynamics of changes in anatomical parameters of the liver of rats with mild alcohol poisoning.
- 3) Study of morphometric indicators of liver microvessels under normal conditions and in mild alcohol poisoning.

Animal care and handling will be in accordance with international standards and regulations for the care of vertebrate laboratory animals.

Laboratory animals fit in special cages on shelves. In the cage of the experimental animals, the total number of pedigree rats, the date of the experiment and the name of the researcher responsible for its installation are marked in the cage.

Test Results:

Morphological and morphometric parameters of the liver in chronic alcohol intoxication were studied. The livers of the control group, 3-month-old, 6-month-old, and 9-month-old white rats, and 3-month-old, 6-month-old, and 9-month-old white rats that received chronic alcohol intoxication were studied.

When studying the livers of the white-bred rats presented in the following groups, we used the hemotoxylin-eosin method and the Van Gieson method for staining, and micropreparations were prepared.

Microscopy was performed at microscope magnifications of $x=4\times 10$, 10×10 , 40×10 , and 100×10 . The classic structure of the liver of 3-month-old white control rats is the hepatic lobe, which is in the form of a hexagonal prism. On the periphery of the lobe are the vessels that bring the hepatic blood vessels to the hepatic lobe, in which the interlobular vein (type VII), the interlobular artery (type VII) and the interlobular bile duct are located. The interlobular vein and the interlobular artery drain blood into the sinusoidal capillaries. In the inner part of the lobe, hepatocytes form two rows of liver lobes, the hepatocytes are arranged radially towards the central vein. Hepatocytes have one surface facing the sinusoidal space and the other facing each other, forming a bile duct, and sinusoidal capillaries are formed by a single layer of endothelial cells, the difference being that the endothelial cells are fused with each other but do not have a basal layer. The space of Disse is visible between the endotheliocytes and hepatocytes. Star-shaped Kupffer cells and Ito cells are located in the sinusoidal space, and a central vein is visible in the center of the segment. Blood from the segments located on the periphery of the liver segment flows from the interstitial artery and vein into the sinusoidal space or sinusoidal capillary, and then flows into the central venous vessels and is collected.

When examining liver slices in the 3-month control group, the slices were located at a diameter of $36.6\pm 1.8\ \mu\text{m}$ between the intervening veins, $40.1\pm 2.3\ \mu\text{m}$ between the interarteries, 15.1 ± 1.2



μm between the interhepatic ducts, and formed an interhepatic triad. The sinusoidal capillary gap was $11 \pm 1.7 \mu\text{m}$. Hepatocytes were large, with round basophilic nuclei, and the majority of the nuclei were hyperchromic, with mononuclear and a small number of binucleated and multinucleated hepatocytes. The hepatocyte surface area was 487.2 ± 11.6 , of which the nuclear surface was 58.91 ± 1.88 , the cytoplasm surface was 428.29 ± 1.6 , the nuclear cytoplasm ratio was $13.8\% \pm 0.07$, and the stroma to parenchyma ratio was It made up 18%.

When examining liver slices in the 6-month control group, the slices were located in the intervenous vein diameter of $37.2 \pm 1.9 \mu\text{m}$, the interarterial segments were $43.3 \pm 2.6 \mu\text{m}$, the interductal bile ducts were $17.1 \pm 2.3 \mu\text{m}$, and the interlobular triad was formed, the sinusoidal capillary gap was $12.6 \pm 2.3 \mu\text{m}$, the hepatocytes were large, with round basophilic nuclei, the majority of the nuclei were hyperchromic, and the hepatocytes were mononuclear and in small numbers binuclear and multinucleated, the hepatocyte surface area was 495.9 ± 9.7 , of which the nuclear surface was 59.7 ± 2.1 , the cytoplasm surface was 436.2 ± 1.6 , the nuclear cytoplasm ratio was $13.7 \pm 1.1\%$, and the stroma to parenchyma ratio was It accounts for 19%.

When examining liver slices in the 9-month control group, the diameter of the intervenous veins

No.		3 thoughts	6 Thoughts	9 Thoughts
1	Buds arovena diameter μm	36.3 ± 1.8	37.2 ± 1.9	$38.21 \pm$
2	Branch artery diameter in μm	40.1 ± 2.3	43.3 ± 2.6	43.7 ± 1.9
3	The diameter of the fibers is μm	15.1 ± 1.2	17.1 ± 2.3	17.9 ± 1.7
4	Sinusoidal capillary bulk density μm	11 ± 1.7	12.6 ± 2.3	12.9 ± 1.3
5	Surface of hepatocytes	487.2 ± 11.6	495.9 ± 9.7	496.3 ± 10.5
	Nuclear surface	58.91 ± 1.88	59.7 ± 2.1	59.9 ± 3.4
7	Cytoplasm surface	428.29 ± 1.6	436.2 ± 1.3	436.4 ± 1.5
8	Nucleus/cytoplasm ratio %	13.8 ± 0.07	13.7 ± 1.1	13.7 ± 0.08
9	Stroma/parenchyma in %	18	19	19.5

was $38.21 \pm 1.1 \mu\text{m}$, the intervenous arteries were $43.7 \pm 1.9 \mu\text{m}$, the intervenous ducts were $17.9 \pm 1.7 \mu\text{m}$, and the intervenous triads were formed, the sinusoidal capillary gap was $12.9 \pm 1.3 \mu\text{m}$, the hepatocytes were large, with round basophilic nuclei, the number of hyperchromic stained nuclei was mostly mononuclear and a small number of binucleated and multinucleated hepatocytes, the surface area of the hepatocytes was 496.3 ± 10.3 , of which the nuclear surface was 59.9 ± 3.4 , the cytoplasm volume was 436.4 ± 1.5 , the nuclear cytoplasm ratio was $13.7 \pm 0.08\%$. The ratio of stroma to parenchyma It is 19.5%.

Liver morphometric parameters experimental in chronic alcohol intoxication changes and indicators

Changes in the liver tissue under the influence of alcohol in the liver tissue of 3-month-old inbred rats.

When examining micropreparations prepared from 118 sections of liver tissue from 3-, 6-, and 9-month-old rats exposed to chronic alcohol intoxication, several types of changes were detected in the hepatic vasculature and hepatocytes.

The changes were mainly in the area of the portal tract of the liver and in the sinusoids located near the portal area. In the peripartum area, hepatocytes were enlarged in size, eosinophil staining



in the cytoplasm was hypochromic, when stained with hematoxylin-eosin, there were cells (vacuoles) in the cytoplasm that resembled empty cells of various sizes, and the nuclei were round. base file stained and moved to the periphery of the cell, the size of the inclusions within the hepatocyte decreases toward the central vein.

Abdominal morphometrics of control group rats

In some parts of the hepatocytes, the vacuoles completely cover the cell, their nuclei are not nucleated, and the sinusoidal space is irregular due to the increase in hepatocyte size. In some preparations, hydropic vacuoles are aniculated in hepatocytes in the peripartum area, homogeneous eosinophilic hyaline is aniculated in the cytoplasm of hepatocytes in the peripartum area, and necrosis is detected in some hepatocytes. Macrophage infiltration occurs in necrotic hepatocellular atrophy and in the portal tract, and this infiltrate decreases toward the central vein. When staining micropreparations with Van Gison, septa of different sizes entering the sinusoidal capillary gap from the portal tract are annihilated, and capillaryization of endothelial cells similar to the basement membrane is observed in the sinusoidal endothelial cells. It was found that the walls of the small veins are thickened and their diameters are slightly increased, and we can see that the walls of the central vein are thickened.

Surunkali alcohol intoxicasia ogan ok zoetic puns zhigarining morphometric indicators.

No.		3 thoughts	6 Thoughts	9 Thoughts
1	Buds arovena diameter μm	36.6 + -1.2	37.7+-1.3	38.3+-1.4
2	Branch artery diameter in μm	40.4+-2.6	42.3+-2.2	43.8+-1.6
3	The diameter of the fibers is μm	14.1+-1.9	15.1+-2.4	15.9+-1.6
4	Sinusoidal capillary bushel μm	9.1+-1.2	9.6+-2.1	10.9+-1.3
5	Hepatocytlar usasi	499.2+-13.6	500.9+-10.7	506.3+-12.5
6	Yuzashi core	42.91+-1.88	41.7+-2.1	39.9+-3.4
7	Yuzashi cytoplasm	456.29+-1.3	459.2,2+-1,2	466.4+-1.4
8	Nucleus/cytoplasm nisbati %	8.58+-0.07	8.32+-1.2	7.87+-0.08
9	% of parenchyma/stroma	35	37	41

Changes and indicators of liver morphometric parameters in biocorrection after experimental chronic alcohol intoxication.

The results of the treatment of 3-month-old, 6-month-old, and 9-month-old white rats after chronic alcohol intoxication showed that positive results were observed in the above micropreparations. Compared with rats in which alcohol intoxication continued, when viewed in the portal triad located on the periphery of the hepatic cistern, the diameter of the inter-cistern vein was reduced, the diameter of the inter-cistern artery was reduced, signs of cholestasis in the inter-cistern bile duct were reduced, macrophage infiltration in the periportal area was reduced, the sinusoidal capillary space of the hepatic cistern was relatively expanded, fibrous septa growing from the portal zone to the periportal area were preserved, and in some preparations, fibrous nodules preserved in the sinusoidal capillaries could be seen. In hepatocytes, we can see fatty dystrophies with small droplets in the periportal branch, and we can see a decrease in fat droplets towards the central vein. A slight reduction in the size of hepatocytes can be seen in the nuclei, signs of



proliferation, active mitosis, instead of necrotic hepatocytes, regeneration can be seen as a result of regenerative repair currents, macrophages gathered around hepatocytes with Mallory corpuscles in their cytoplasm can be seen, the sinusoidal capillary space is relatively widened, blood flow is improved, and the diameter of the central veins is compensatory. it seems

Changes and indicators of liver morphometric parameters in biocorrection after experimental chronic alcoholism.

No.		3 months old	6 months old	9 months old
1	The diameter of the springs is μm	37.3 +-1, 9	38.2+-1.9	38.91+-1.6
2	The diameter of the interscapular artery is μm	41.1+-2.6	42.3+-2.4	41.8+-1.5
3	The diameter of the interparticle flame is μm	15.7+-1.7	17.1+-2.3	18.9+-1.2
4	Sinusoidal capillary bush diameter μm	10.1+-1.3	11.6+-1.3	11.9+-1.3
5	Hepatocytlar usasi	490.2+-13.6	495.9+-10.3	501.3+-10.3
6	Yuzashi core	52.91+-1.7	51.7+-2.1	50.9+-3.4
7	Yuzashi cytoplasm	437.29+-1.3	444.2,2+-1,1	450.9+-1.6
8	Nisbati nucleus/cytoplasm	10.8+-0.06	10.42+-1.0	10.15+-0.07
9	Stroma/parenchyma ratio %	30	34	37

Conclusion:

1. When comparing the morphometric parameters of the control group of white-bred rats, we can see a relative increase in their morphometric parameters (interstitial vein, interstitial artery, interstitial duct, sinusoidal capillary and central vein diameter), which can be justified by the fact that the morphometric parameters can be associated with the growth of the organ with age.
2. In chronic alcohol intoxication, it was observed that the change in the liver started from the portal and periportal branches and decreased towards the central vein.
3. If we take the pathologies in microcirculation observed in chronic alcohol intoxication as 100%, then 85-90% of them are formed by small, medium, large droplet parenchymatous fatty dystrophies (alcoholic steatosis), 10-13% are alcoholic hepatitis (this can be confirmed by the appearance of eosinophilic Mallory bodies in the cytoplasm of some hepatocytes, hydropic and balloon-like oxalic dystrophies in hepatocytes, and the accumulation of macrophages in the atrophy of these hepatocytes), 3-5% are alcoholic fibrosis (this is confirmed by the formation of fibrous tissue in the portal and periportal zones on the site of hepatocytes that have died from the toxic effects of alcohol, and the activation of goblet cells under the sinusoidal endothelial cells under the influence of alcohol and their transformation into fibroblast cells, resembling a basement membrane). fibrosis-capillarization of sinusoids)
4. Relatively increased pressure in the portal vein (portal tract) of the fetus (constriction of sinusoidal space, capillarization of sinusoidal vessels and fibrosis in the peripartum area) and relatively cholestasis were observed.
- 5 In chronic alcohol intoxication, an increase in the number and accumulation of macrophages in the portal tract and periportal area was observed. (This occurred as a result of increased dystrophy, necrosis, inflammation, and pathological apoptosis in hepatocytes in this area)



6 Positive results have been noted in the biocorrection of the liver after chronic alcohol intoxication. This can be confirmed by the fact that, as we have already mentioned, 85-90% of chronic alcohol intoxication of the liver occurs with alcoholic steatosis, and this process is reversible, so the sooner alcohol consumption is stopped and properly treated, the more positive results are obtained. The longer chronic alcohol intoxication lasts, the more cirrhosis and liver failure occur.

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