Medicinal herbs of milk thistle, celandine and their effect on liver function

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ABSTRACT

Since ancient times, people have called the liver the "source of life" and knew that it is the most important organ in the human body. Now scientists and doctors have a complete picture of how this gland works, what it secretes and why it can suffer. Thanks to this, we have the opportunity to maintain the liver in good condition for many decades. The liver is considered the largest gland in the human body. The main functions of the liver are metabolism, neutralization of toxins, and maintenance of metabolism. Liver cells are responsible for neutralizing toxic substances and producing bile. The liver is not called the "fat depot" for nothing - it is responsible for fat metabolism [1,2]. In addition, vitamins and hormones are metabolized in the liver. The liver breaks down poisons, toxins and substances that can cause allergies to more harmless substances. Excess vitamins in the body also pass through the liver and are broken down there. On average, in one hour this organ is able to pass through about 90 liters of blood. In economically developed countries, chronic liver diseases are among the six main causes of death in patients aged 35 to 60 years, accounting for 14-30 cases per 100,000 population. The use of medicines also negatively affects the liver, it absorbs all harmful elements like a sponge, preventing them from entering other organs with blood [3,4].

Keywords: Milk thistle, hepatitis, liver, celandine.

The aim of the study was to correct impaired liver function against the background of a reproduced model of hepatitis with the medicinal plant milk thistle and celandine. Materials and methods Experiments were carried out on 80 white mongrel male rats weighing 200-220 g. 1 group of 40 rats were injected with carbon tetrachloride (CC14) into the esophagus in a 1:1 ratio (dose – 0.064 ml per 100 g of animal weight) using a special probe into the esophagus. Group 2 of 40 rats in a place with carbon tetrachloride (CC14) were also given medicinal plants milk thistle in the form of powder diluted with water and an infusion of celandine grass was administered to rats (10 g) orally through a probe of 3 ml 2 times a day [5,6]. The following biochemical parameters of blood were studied: the first and second groups, respectively: the amount of total bilirubin, alanine aminotransaminase (ALT), aspartate aminotransaminase (AST), activity of alkaline phosphatase (alkaline phosphatase), γ-glutamintransferase. To confirm the model of liver pathology, the organ biopsy was subjected to histomorphological analysis. The methodology is as follows. Sections of rat liver tissue measuring 5 cm were fixed in a 10% formalin solution for at least 3 days. Then the starting material was placed in a 20% formalin solution for 1 day, washed with running water for another 1 day [7,8].

After the fixation of the materials on the microtome, sections of liver preparations were made, which were studied under a microscope. The fixed material for dehydration and preparation for pouring with pure paraffin was placed in an alcohol solution with increasing strength: 70% – 86% – 96% – 100% 7 hours in

each concentration. Then the material was transferred to a mixture of chloroform and 100% alcohol solution for 9 hours, separately in chloroform it was kept for another 10 hours [9.10]. A mixture of chloroform and paraffin at +37 ° C was placed in a thermostat for 12 hours. For the manufacture of blocks, the filling with pure paraffin was made into paper boxes, from which paraffin blocks were subsequently made. The cutting was performed on a microtome MS-2. Hemotoxylin was used to color the sections, the preparations were kept in the dye for 5 minutes, then washed with distilled water. The resulting preparations were photographed. The analysis of the obtained results was evaluated by microscopy of the material [11]. All studies were conducted in accordance with the ethical requirements for working with experimental animals.

Results and discussion. In the first group of laboratory rats, cytolysis of a significant part of hepatocytes was observed after 7 days under the action of carbon tetrachloride, Kupfer cells were damaged, cell nuclei were compacted, the inflammatory process and liver cell dystrophy began. Biochemical changes under the same conditions were expressed in an increase in ALT and AST activity by 3.2 and 2.8 times, respectively. A 3.2-fold increase in the activity of γ-HT, which is the main marker of hepatitis, and a 6% increase in alkaline phosphatase may indicate massive necrosis of hepatocytes arising under the action of carbon tetrachloride. On the 30th day of the experiment, the activity of the enzymes ALT, AST, alkaline phosphatase and γ-GT continued to increase and amounted to ALT-385 iu/l, AST-274 iu/L, γ-GT -188 iu/L, alkaline phosphatase-667 iu/l, total bilirubin -86 mmol/L. Under the conditions of experimental modeling of toxic hepatitis with carbon tetrachloride, a stable form of damage to the rat hepatobiliary system was obtained, which was characterized by the death of part of the hepatocytes. The lesion pattern was expressed by the destruction of the outer membrane of hepatocytes, as a result of which the cell nucleus thickened, the inflammatory process and liver cell dystrophy began. Necrosis and cell death mainly occurred in the central zone of the hepatic lobe [12,13]. As a result of the destruction of the walls of blood vessels, blood mixed with bile, and acute toxic hepatitis occurred in experimental animals. This provision indicates damage to the membranes of hepatocytes, an increase in their permeability, as well as the death of liver cells caused by the introduction of carbon tetrachloride, which is accompanied by the release of intracellular substances into the blood and lymph [14]. An increase in the activity of γ-HT and alkaline phosphatase may also indicate massive necrosis of hepatocytes that occur under the influence of carbon tetrachloride. Against the background of high activity of γ-HT, the concentration of total bilirubin increases, which gives reason to assert that not only the formation of cytolysis takes place in experimental rats, but also the development of intracellular cholestasis syndrome [15]. In the second group, under conditions of reproduced hepatitis with the use of milk thistle and celandine medicines for 30 days, significant protection of the hepatobiliary system was revealed, which was expressed by a significant improvement in biochemical parameters: the amount of ALT, AST and alkaline phosphatase increased with less aggressive indicators and amounted, respectively, ALT-215 iu/l, AST-145 iu/l, γ-GT -167 iu/l, alkaline phosphatase-255 iu/L, total bilirubin -78 mmol/l. When comparing the results of groups 1 and 2, it was revealed that the medicinal plants milk thistle and celandine have significant hepatoprotective properties, contributing to a decrease in the manifestations of toxic, cytolytic and cholestatic effects of carbon tetrachloride in experimental rats. Based on the results obtained on the use of milk thistle and celandine in place, their action is aimed at maintaining homeostasis in the liver damaged by carbon tetrachloride, increasing its resistance to the action of a toxic factor, normalizing functional activity and stimulating regeneration processes in the liver. The listed effects under the influence of herbal plants indicate significant protection of the rat hepatobiliary system against the background of toxic hepatitis caused by tetrachloromethane [16,17]. The medicinal plant milk thistle and

celandine, containing a large amount of flavonoids, have significant hepatotropic and detoxifying effects. Given the significant damage to the liver tissue by carbon tetrachloride, even minor protection of hepatocytes by medicinal plants can be considered pathogenetically acceptable due to the partial restoration of the number and function of hepatocytes. This is confirmed by the fact that herbal preparations with a membrane-stabilizing effect protect cells from the penetration of toxins into them [18,19]. The products of this group also stimulate the antioxidant defense system, contributing to an increase in the content of reduced glutathione in the liver, as well as protein synthesis, which accelerates the regeneration of damaged hepatocytes [17]. Summing up, according to the study, medicinal plants milk thistle and celandine have unique phytopharmacological properties aimed at protecting liver functions, since they contain the largest amount of useful substances, in particular flavonoids [20].

Conclusion. Under conditions of recreated toxic hepatitis, carbon tetrachloride obtained a stable form of damage to the rat hepatobiliary system, which was characterized by the death of part of hepatocytes and necrosis. The use of medicinal plants of milk thistle and celandine in combination during the recreated toxic hepatitis contributed to a less pronounced toxic effect, a decrease in the severity of manifestations of cytolytic and cholestatic effects of carbon tetrachloride. Given the significant damage to the liver tissue by carbon tetrachloride, even minor protection of hepatocytes by medicinal plants is considered pathogenetically effective for protecting the liver not only from toxic substances but also from drugs with hepatotoxic effects.

Literature:

1. Zaurovna N. S., Sharipovich S. B. gepatit c fonida jigarning morfofunktsional xususiyatlari dorivor o'simlik bilan korreksiyalash //so 'ngi ilmiy tadqiqotlar nazariyasi. – 2024. – T. 7. – №. 1. – C. 425-434.
2. Zaurovna N. S., Sharipovich S. B. morphofunctional features of the liver on the background of hepatit c with correction by a medicinal plant //Новости образования: исследование в XXI веке. – 2024. – Т. 2. – №. 17. – С. 560-568.
3. Zaurovna N. S. Effects and actions of silybum marianum phytopreparation //Научный Фокус. – 2023. – Т. 1. – №. 3. – С. 300-308.
4. 4.Zaurovna N. S. Main effects of sílybum mariánum //Asian journal of pharmaceutical and biological research. –2023. –Т. 12. –No. 1
5. Насирова С.З., Кличова Ф.К. Полипрагмазия нестероидными противовоспалительными препаратами как наиболее часто встречаемая проблема // Терапевтический вестник Узбекистана. -Тошкент, 2021. -N1. -С.158-162. (14.00.00; No7)
6. Nasirova S.Z., Norova N.K., Samadov A.T. Change in the morpholological structure of the small intestinal of the polypragmasia // Тиббиётдаянгикун. -Бухоро, 2021. -2(34). -P.49-53. (14.00.00; No22)
7. Насирова С.З., Тешаев Ш.Ж. Иммунная защита тонкой кишки и воздействующие на нее химические факторы // Терапевтический вестник Узбекистана. -Тошкент, 2021. -N1. -С.177-181. (14.00.00; No7)
8. Nasirova S.Z. Polypharmacy as an actual problem of pharmacotherapy // The American Journal of medical sciences and pharmaceutical rearch. – America,2021. -volume 03. -P.1-5. (IF-5.2)
9. НасироваС.З., ТешаевШ.Ж. Иммунная защита тонкой кишки и воздействующие на нее химические факторы// International journal of research in economics and social sciences. -Delhi. India, 2020. -Volume 10. -P. 158-172. (IF-7.07)
10. Nasirova S.Z. Morphometric parameters of the limphoid tissue of the small intestine when using anti-inflammatory

drugs // Asian journal of pharmaceutical and biologicalresearch. -Delhi. India, 2022. -Volume 11. -P.328-332. (IF-7.)
11. Nasirova S.Z. Changes in the structural components of lymphoid tissue in the small intestine with the use of a large number of anti-inflammatory drugs // Asian journal of pharmaceutical and biologicalresearch. -Delhi. India, 2022. -Volume 11. -P.333-340. (IF-7.)
12. Nasirova S.Z., Samadov A.T. Changes in morphometric parameters of the smoll intestine in the conditions of polypragmasy // Тиббиётдаянгикун. -Бухара, 2021. –2(34/1). -P.28-32.
13. 13.Nasirova S.Z. Effect of anti-inflammatory medicines on the morphometric structure of the peyer's patches on the small intestine // Modern views and research. International scientific and practical Conference Egham. -England, 2021. -P.85-86.
14. Nasirova S.Z. Influence of polypharmasy with anti-inflammatory drugs on the morphometric structure of solitary lymphoid nodules in the small intestine // Engineering and technology. -Egypt, 2021. -P.115-116.
15. Nasirova S.Z. The effect of polypharmacy with antiinflammatory drugs on morphometric parameters of lymphoid plaques in the small intestine // Theoretical and empirical scientific research: concept and trends, with proceedings of the III international scientific and practical conference. – Oxford. England, 2021. -December 10. -P.74-75.
16. Nasirova S.Z. Immune protectionof the small intestinal and chemical factors affecting it // The pharmaceutical and chemical journal. –Rajasthan. India, 2021. –8(1). -P.98-101.
17. Nasirova S.Z., Norova N.K., Samadov A.T. Change of morphometric parameters of the lymphoid tissue of the small intestine on polypharmacy with anti-inflammatory agents // Topical issues of new medicines developmen. -Харків, 2021. -18-19 march. -P.309-310.
18. Samadov, B. S., Jalilova, F. S., Ziyaeva, D. A., Sharipova, D. S., Ozodova, N. X., & Norova, H. U. & Kudina, OV (2020). Pharmacological properties and chemical composition “Momordica charantia l
19. 19. Zaurovna N. S. Effects and actions of silybum marianum phytopreparation //Научный Фокус. – 2023. –Т. 1. –No. 3. –С. 300-308.
20. Nasirova S.Z. Changes in morphometric parameters of the lymphoid tissue of the small intestine in the conditions of polypragmasia // American Journal of Medicine and Medical Sciences. -America,2021. -N11(10). -P.673-677. (14.00.00; No2)