

## THE DYNAMICS OF HEPATOFIBROSIS AND ANGIOGENESIS IN PATIENTS WITH CHRONIC HEPATITIS C ON THE BACKGROUND OF ANTIVIRAL THERAPY

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Aim of the study was to investigate the dynamics of cytolysis, the process of angiogenesis, regeneration of hepatocytes, the dynamics of hepatofibrosis and virologic response on the background of antiviral therapy (AVT) in patients with chronic hepatitis C (CHC). Material and methods. 50 patients with CHC were examined. Serum levels of transaminases, the concentration of vascular endothelial growth factor (VEGF) and alpha-fetoprotein (AFP), the viral load was investigated, the severity of fibrosis was detected by fibroelastography. Results. Before the employment of AVT the increased serum level of transaminases and the increased concentration of VEGF ( $p=0,001$ ) and AFP ( $p=0,001$ ) in comparison with the following group were detected. The density of the liver in patients with CHC before AVT was at the average 9,5 kPa (from 3,5 to 63,9 kPa). After the employment of AVT in 74 % cases the level of transaminases decreased as well as the concentration of VEGF ( $p<0,001$ ), redistribution of patients with CHC with different degree of hepatofibrosis and the reduction of the density of the liver at the average to 6,17 kPa (3,3 – 13,6 kPa) ( $p<0,05$ ) took place. No significant changes of the level of AFP in patients with CHC on the background of AVT were observed ( $p=0,5$ ). The immediate virologic response came to 90 %. Conclusion. At the reactivation phase of CHC we observe endothelial damage, growing process of angiogenesis and regeneration of hepatocytes. Combined AVT leads to decrease in cytolysis of hepatocytes, reduction of neoangiogenesis activity and to an improvement in liver's elastographic rates.

## ОСОБЕННОСТИ ОКИСЛИТЕЛЬНОГО СТРЕССА ПРИ МЕТАБОЛИЧЕСКОМ СИНДРОМЕ С ЖИРОВЫМ ПОРАЖЕНИЕМ ПЕЧЕНИ

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Цель исследования: изучить концентрацию малонового диальдегида (МДА) и активность ферментативных антиоксидантов – супероксиддисмутазы (СОД), каталазы (КАТ), глутатионпероксидазы (ГПО) и глутатионредуктазы (ГЛР) в сыворотке крови больных метаболическим синдромом (МС) с жировой болезнью печени и оценить взаимосвязь этих параметров с функциональными печеночными пробами и уровнем лептина. Материал и методы. Обследовано 30 больных МС с жировой болезнью печени, группа контроля – 15 практически здоровых лиц. В сыворотке крови оценивали концентрацию лептина методом иммуноферментного анализа, уровень МДА и активность антиоксидантов фотометрическим методом. Результаты. У больных МС выявлено увеличение концентрации лептина ( $p<0,001$ ), повышение уровня МДА в 3,6 раз ( $p<0,001$ ) и снижение активности антиоксидантов: СОД – на 56 %, КАТ на 33 %, ГПО в 4 раза, ГЛР в 2,2 раза. Обнаружены прямые взаимосвязи уровня МДА и обратные корреляции СОД и ГПО с маркерами цитолиза. Концентрация лептина демонстрировала прямую корреляцию с МДА и обратную связь с активностью ГПО. Снижение показателей КАТ и ГПО было взаимосвязано с усугублением атерогенных дислипидемий. Выявлена связь уменьшения активности СОД и нарастания гликемии у больных с МС ( $p=0,046$ ). Заключение. Окислительный стресс у больных МС с жировым поражением печени проявляется повышением содержания МДА и снижением активности ферментов антиоксидантной системы. Эти изменения тесно связаны с тяжестью поражения печени и нарастанием изменений лабораторных маркеров МС.

## FEATURES OF OXIDATIVE STRESS IN METABOLIC SYNDROME WITH FATTY LIVER DISEASE

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Aim of the study was to investigate the concentration of malondialdehyde (MDA) and the activity of enzyme antioxidants – superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GPO) and glutathione reductase (GLR) in the serum of patients with metabolic syndrome (MS) and fatty liver disease and to assess the relationship of these parameters with functional liver tests and level of leptin. Material and methods. 30 patients with MS and fatty liver disease were examined, the control group consisted of 15 healthy subjects. The concentration of leptin means of ELISA method, level of MDA and activity of antioxidants via photometric method were evaluated in serum. Results. Patients with MS showed of leptin concentration ( $p<0,001$ ), an increase of MDA level was 3.6-fold ( $p<0,001$ ) and decrease in the activity antioxidants in comparison with the control group: SOD on 56 %, CAT on 33%, GPO in 4 times, GLR in 2.2 times. A direct association of the level of MDA and inverse correlations SOD and GPO with markers of cytolysis are detected. The concentration of leptin showed a direct correlation with MDA and inverse relationship with GPO activity. Decrease of CAT and GPO activity was correlated with worsening of atherogenic dyslipidemia. The relationship of depression in SOD activity and the rise of blood glucose in patients with MS were determined ( $p=0,046$ ). Conclusion. Oxidative stress in patients with MS and fatty liver disease is manifested by increased MDA content and by a decrease in the activity of antioxidant enzyme system. These changes are closely associated with the severity of liver damage and the growth of changes in laboratory markers of MS.