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THE ASSOCIATION OF INSULIN RESISTANCE INDICATORS WITH METABOLIC DYSFUNCTION-ASSOCIATED STEATOTIC LIVER DISEASE AND ARTERIAL HYPERTENSION

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Introduction. Metabolic dysfunction–associated steatotic liver disease (MASLD) is the most common metabolic liver disease in the world, affecting approximately a quarter of the adult population of the world (Eslam M., 2020). Considerable attention is paid to the study of MASLD, taking into account the comorbidity with arterial hypertension (AH), which affects 30-35% of the adult population of the world (Duell P.B., 2022). Currently, numerous studies are being conducted to determine the pathophysiological mechanisms of the cardiovascular pathology development in patients with a comorbid course of MASLD and AH (Del Villar-Carrero R.S., 2024). It is known that one of the links in the pathogenesis of MASLD includes impaired regulation of glucose levels in the liver, carbohydrate metabolism and insulin resistance (IR) (Loomba R., 2021). Thus, the analysis of IR indicators is an important component of the MASLD and AH diagnosis.

Objective: to explore the relationship between MASLD on the background of AH and IR indicators including the levels of fasting glucose, insulin and insulin resistance index (HOMA-IR).

Materials and methods. 102 patients were studied, who were divided into the following groups: the main group – 40 patients with comorbid course of MASLD and AH; the comparison group – 42 patients with isolated course of MASLD; the control group – 20 relatively healthy individuals. The average age of patients in the main group was (49.36±8.5) years. The average age of patients in the comparison group was (43.56±6.3) years. Age differences between the groups of examined patients were insignificant ($p>0.5$).

Results. Comparative analysis of IR indicators revealed significantly higher insulin levels in patients with comorbid course of MASLD and AH than in the group with isolated MASLD and the control group. Thus, the insulin levels in patients with



comorbid pathology was (25.7 ± 4.5) mIU/ml, in the group of patients with isolated MASLD – (22.4 ± 3.8) mIU/ml, and in the control group – (15.4 ± 4.1) mIU/ml ($p_1 < 0.01$, $p_2 < 0.05$). The average values of the HOMA-IR were: (7.9 ± 0.6) in the group with comorbid pathology, (5.1 ± 0.5) in the group with isolated course of MASLD and (2.3 ± 0.05) in the control group ($p_1 < 0.05$, $p_2 = 0.05$). The average values of fasting glucose levels among the examined patients were as follows: (6.2 ± 1.3) mmol/l in the group with comorbid pathology, (5.6 ± 1.1) mmol/l in the group with isolated course of MASLD and (4.1 ± 0.8) mmol/l in the control group. It should be noted that the average fasting glucose levels when comparing the groups of patients with comorbid and isolated course of MASLD had only a tendency to increase ($p > 0.05$). A significant difference in fasting glucose levels was registered when comparing the groups of patients with combined and isolated course of MASLD with the control group ($p_1 < 0.05$, $p_2 < 0.05$). The analysis the IR indicators in the examined patients showed a relationship between the presence of concomitant AH in patients with MASLD and the general deterioration of carbohydrate status.

Conclusion. A significant increase of insulin levels and HOMA-IR in patients with comorbid course of MASLD and AH compared to the group of patients with isolated MASLD and the control group confirms the independent role of AH in the IR development in patients with MASLD.

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**РІВЕНЬ ПЕЧІНКОВИХ ТРАНСАМІНАЗ В ЗАЛЕЖНОСТІ ВІД СТАДІЇ
ПРОГРЕСУВАННЯ МЕТАБОЛІЧНО-АСОЦІЙОВАНОЇ СТЕАТОТИЧНОЇ
ХВОРОБИ ПЕЧІНКИ**

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Актуальність: Метаболічно-асоційована стеатотична хвороба печінки (МАСХП) наразі є найпоширенішим хронічним захворюванням печінки в усьому світі та основною причиною підвищення рівня печінкових трансаміназ у сироватці крові (Хуан У., 2024). Безсимптомне підвищення рівня печінкових ферментів є