



LIPID METABOLISM DISORDERS IN PATIENTS WITH CHRONIC KIDNEY DISEASE INFECTED WITH COVID- 19

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To identify changes in lipid metabolism in patients with CKD infected with COVID-19 and to assess the degree and clinical implications of these changes.

ABSTRACT

COVID-19 infection affects the entire body, including metabolic processes. In patients with chronic kidney disease (CKD), lipid metabolism is already impaired, and this condition tends to worsen in the presence of COVID-19. Dyslipidemia is one of the main risk factors for complications in CKD patients and has particular clinical significance during COVID-19 infection.

Introduction: COVID-19 infection affects the entire body, including metabolic processes. In patients with chronic kidney disease (CKD), lipid metabolism is already impaired, and this condition tends to worsen in the presence of COVID-19. Dyslipidemia is one of the main risk factors for complications in CKD patients and has particular clinical significance during COVID-19 infection.

Objective: To identify changes in lipid metabolism in patients with CKD infected with COVID-19 and to assess the degree and clinical implications of these changes.

Materials and methods: Patients were divided into two groups: Group 1: 60 patients with CKD but without COVID-19; Group 2: 60 patients with CKD who had contracted COVID-19. Lipid spectrum parameters were analyzed at 1 month and 3 months after recovery from coronavirus infection. The following parameters were assessed: Total cholesterol (TC), Triglycerides (TG), High-density lipoproteins (HDL), Low-density lipoproteins (LDL).

Results: In Group 1, the total cholesterol level at 1 month was 6.61 mmol/L, which decreased to 5.98 mmol/L after 3 months — a 9.53% reduction. Triglyceride levels decreased from 2.54 mmol/L at 1 month to 1.87 mmol/L at 3 months, a 26.4% reduction. LDL levels were 4.42 mmol/L at 1 month and decreased to 3.69 mmol/L at 3 months — a 16.5% reduction. HDL levels changed from 1.28 to 1.53 mmol/L but did not show statistically significant dynamics.

In Group 2, patients with stage III CKD and COVID-19 had a total cholesterol level of 6.94 ± 0.09 mmol/L at 1 month, which decreased to 6.5 ± 0.07 mmol/L at 3 months — a 6.3% reduction. Triglycerides were 3.13 ± 0.12 mmol/L at 1 month and decreased to 2.64 ± 0.1 mmol/L at 3 months, a 15.6% reduction. LDL decreased from 4.8 ± 0.05 mmol/L at 1 month to 4.37 ± 0.07 mmol/L at 3 months — a 8.95% reduction. HDL increased from 1.29 ± 0.01 mmol/L to 2.01 ± 0.03 mmol/L, although this change was not statistically significant. When comparing both groups: Group 1 showed a greater decrease in total cholesterol (by 3.23%); Triglycerides (by 10.8%); LDL (by 7.55%) compared to Group 2. Meanwhile, HDL levels in Group 2 were 23.4% higher than in Group 1.

Conclusion: In CKD patients infected with COVID-19, total cholesterol levels were found to be 1.3 times higher compared to those without infection. Lipid metabolism disorders were directly correlated with the stage of CKD and the degree of inflammation (CRP, IL-6). Dyslipidemia increases the risk of cardiovascular and thromboembolic complications. Regular monitoring of the lipid profile and implementation of metabolic correction strategies can improve treatment outcomes in this group of patients.

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