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HEALTH-RELATED QUALITY OF LIFE AND NEPHROPROTECTIVE EFFECTS OF STATINS IN CHRONIC GLOMERULONEPHRITIS

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Abstract: Chronic glomerulonephritis with nephrotic syndrome is associated with proteinuria, dyslipidemia, renal dysfunction, and reduced quality of life. This study compared lovastatin and rosuvastatin in 60 patients receiving standard therapy. Patients were divided into two groups and treated for 30 days with lovastatin 20 mg or rosuvastatin 10 mg daily. Lovastatin produced greater improvements in creatinine, urea, urinary abnormalities, glomerular filtration rate, and renal ultrasound findings, whereas rosuvastatin achieved stronger lipid-lowering effects. Both treatments were well tolerated, while lovastatin demonstrated greater overall nephroprotective benefits and favorable clinical outcomes during treatment period.

Keywords: chronic glomerulonephritis; nephrotic syndrome; lovastatin; rosuvastatin; nephroprotection.

КАЧЕСТВО ЖИЗНИ И НЕФРОПРОТЕКТИВНЫЕ ЭФФЕКТЫ СТАТИНОВ ПРИ ХРОНИЧЕСКОМ ГЛОМЕРУЛОНЕФРИТЕ

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Аннотация: Хронический гломерулонефрит с нефротическим синдромом сопровождается протеинурией, дислипидемией, нарушением функции почек и снижением качества жизни пациентов. В исследовании проведено сравнение эффективности ловастатина и розувастатина у 60 пациентов, получавших базисную терапию. Больные были разделены на 2 группы и в течение 30 дней получали ловастатин 20 мг или розувастатин 10 мг 1 раз в сутки. На фоне ловастатина отмечено более выраженное улучшение

показателей креатинина, мочевины, анализа мочи, скорости клубочковой фильтрации и ультразвуковых параметров почек, тогда как розувастатин обеспечивал более выраженный гиполипидемический эффект. Оба препарата характеризовались хорошей переносимостью, однако ловастатин продемонстрировал более выраженное нефропротективное действие.

Ключевые слова: хронический гломерулонефрит; нефротический синдром; ловастатин; розувастатин; нефропротекция.

Introduction: Chronic glomerulonephritis is a renal disorder that may progress with persistent urinary abnormalities, impaired renal function, arterial hypertension, and nephrotic manifestations. The nephrotic form is particularly relevant because proteinuria and dyslipidemia accompany renal injury and may contribute to deterioration of the patient's general condition and quality of life. The source study focused on the comparative clinical effects of lovastatin and rosuvastatin when added to basic treatment in patients with nephrotic chronic glomerulonephritis. Statins are primarily used for lipid lowering, but their effects on renal parameters are also of clinical interest in patients with glomerular disease. Assessment of urinary protein, erythrocytes, leukocytes, biochemical renal markers, glomerular filtration rate, and renal ultrasound findings provides an opportunity to evaluate changes during therapy. The study also considered lipid-spectrum parameters, including cholesterol, triglycerides, low-density lipoproteins, and high-density lipoproteins, as well as body mass index. Comparing these indicators before and after treatment can characterize the lipid-lowering and nephroprotective effects of the two statins. In the cohort, patients received basic treatment and were observed during a 30-day therapeutic period. The investigators aimed to determine whether lovastatin and rosuvastatin produced different laboratory responses in patients with nephrotic chronic glomerulonephritis. Such comparison is relevant for selecting an adjunctive treatment strategy while considering renal status, lipid abnormalities, tolerability, and clinical response.

Aim of the study: To compare the tolerability and hypolipidemic effectiveness of lovastatin and rosuvastatin in patients with the nephrotic form of chronic glomerulonephritis and to evaluate their nephroprotective effects during 30 days of treatment.

Materials and methods. The study included 20 patients with the nephrotic form of chronic glomerulonephritis. The participants were 33 men and 27 women, with ages ranging from 28 to 46 years. Forty-nine patients had concomitant diseases or syndromes, including anemia, arterial hypertension, chronic obstructive pulmonary disease, or combinations of these conditions. Eighteen patients had complications: 7 had chronic renal failure at stages I, II, or III, while 2 experienced nephrotic crises. Patients were selected over a one-year period, and treatment lasted 30 days. All participants received basic therapy for chronic glomerulonephritis according to approved standards. The patients were randomly divided into 2 groups, A and B, comparable by sex, age, body weight, and height. Group A received lovastatin 20 mg once daily for 30 days as part of combined therapy, whereas group B received rosuvastatin 10 mg once daily for the same period. Clinical and laboratory data were recorded on the first, tenth, and thirtieth days of treatment. Assessment included body weight, height, body mass index, blood pressure, and examination for generalized hidden edema. Laboratory investigations comprised complete blood count, serum creatinine, urea, total protein, alanine aminotransferase, aspartate aminotransferase, lipid profile, complete urinalysis, and renal ultrasonography. Lipid analysis included total cholesterol, high-density lipoproteins, low-density lipoproteins, and triglycerides. The mean glomerular filtration rate was calculated to assess renal functional changes during the treatment course.

Results. The clinical and laboratory findings demonstrated improvement in several renal and urinary parameters after 30 days of treatment in both groups, with differences between the statins. Urinary erythrocytes decreased from 9.84 ± 2.36 to 1.04 ± 2.41 in group A and from 9.23 ± 2.52 to 1.22 ± 2.28 in group B. Leukocytes

decreased from 6.13 ± 1.89 to 2.27 ± 1.63 with lovastatin and from 7.05 ± 1.72 to 2.35 ± 1.56 with rosuvastatin. Urinary protein decreased from 5.45 ± 2.73 g/L to 0.83 ± 1.14 g/L in group A and from 5.28 ± 2.84 g/L to 1.03 ± 1.32 g/L in group B. Renal ultrasonography showed recovery of enlarged kidney dimensions after treatment, with the improvement more pronounced in group A according to the authors. The glomerular filtration rate increased from 62.34 ± 1.67 to 78.37 ± 1.29 mL/min/1.73 m² with lovastatin and from 61.83 ± 1.05 to 75.03 ± 1.47 mL/min/1.73 m² with rosuvastatin. Biochemical assessment showed greater reduction of creatinine, urea, and alanine aminotransferase in group A. Lipid analysis demonstrated stronger decreases in cholesterol, triglycerides, and low-density lipoproteins in group B, while high-density lipoproteins increased more prominently with rosuvastatin. The study also reported tolerance of both drugs. According to the authors, lovastatin was associated with better changes in hemoglobin, erythrocytes, leukocytes, erythrocyte sedimentation rate, total protein, alanine aminotransferase, and aspartate aminotransferase. The authors concluded that lovastatin showed greater nephroprotective effects, whereas rosuvastatin demonstrated stronger lipid-lowering effects.

Conclusions: The study demonstrates that both lovastatin and rosuvastatin provide changes when added to basic therapy in patients with nephrotic chronic glomerulonephritis. Lovastatin showed greater nephroprotective effects, reflected by improvement in urinary abnormalities, renal indicators, glomerular filtration rate, and renal ultrasound findings. Rosuvastatin produced a lipid-lowering response, particularly for cholesterol, triglycerides, and low-density lipoproteins, while high-density lipoproteins increased substantially. These findings support the differentiated use of statins according to the therapeutic objective. Both agents were considered tolerable during the 30-day period, although the authors reported better tolerability for lovastatin. These results indicate that statin therapy may contribute to improved clinical status and quality of life in patients with nephrotic chronic glomerulonephritis.

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