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Relationship between Kidney Function and Liver Fibrosis in Subjects with Biopsy-Proven Nonalcoholic Fatty Liver Disease

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Objectives : There are a few epidemiological evidences that nonalcoholic fatty liver disease is associated with an increased incidence of chronic kidney disease. We assessed whether the patients with nonalcoholic fatty liver disease diagnosed by liver biopsy were associated with chronic kidney disease according to the histological findings.

Methods : We enrolled 522 clinically suspected nonalcoholic fatty liver disease patients. All patients were performed liver biopsy. Chronic kidney disease was defined as the decreased kidney function with MDRD glomerular filtration rate below 60 ml/min/1.73m² or albuminuria with urinary albumin excretion rate above 30 mg/g.

Results : Among the 522 patients, nonalcoholic steatosis was detected in 136 (26.1%) patients, and nonalcoholic steatohepatitis was detected in 261 (50.0%) patients. Nonalcoholic steatosis and nonalcoholic steatohepatitis itself were not associated with kidney function measured with estimated glomerular filtration rate at the time of liver biopsy. The severity of liver fibrosis was significantly associated with increased incidence of chronic kidney disease ($P < 0.001$) in univariate analysis. After adjusting age, sex, body mass index, diabetes, and hypertension, the severity of liver fibrosis was also significantly associated with the increased incidence of chronic kidney disease ($P = 0.009$).

Conclusions : Our findings suggest that patients with nonalcoholic fatty liver disease with severe histological grade of liver fibrosis are associated with the increased incidence of chronic kidney disease.

Keywords : chronic kidney disease; liver fibrosis; nonalcoholic fatty liver disease