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## **Histological severity of non-alcoholic fatty liver disease is an early predictor for progressive renal dysfunction**

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**Objectives:** We explored whether the histological severity of non-alcoholic fatty liver disease (NAFLD), especially non-alcoholic steatohepatitis (NASH) and significant fibrosis, is associated with renal function deterioration.

**Methods:** This study cohort was derived from the ongoing Seoul National University Boramae Medical Center biopsy-proven NAFLD registry from 2009, and the prevalence and duration of diabetes, drug history, and kidney function at the time of liver biopsy and at the last follow-up were collected.

**Results:** Of the entire set, a total of 629 patients were enrolled (119 normal control, 268 NAFL, and 242 NASH). In the NASH group, the patients had more diabetes and hypertension, higher value of body mass index, and much more metabolic syndrome compared with the other groups. However, baseline renal function was not different with normal control or NAFL group. During a median follow-up of 17.1 months, early renal function changes (defined as a composite of serum creatinine  $\geq$  50% or estimated glomerular filtration rate  $\leq$  35%) were more occurred in the NASH group. However, this association was not statistically significant. On the other hand, severe fibrosis (fibrosis grade 3-4) increased the risk of renal outcome by 5.11-fold (95% confidence interval [95% CI] 1.70-15.39; P = 0.004). Moderate to severe portal inflammation was also significantly associated with renal outcome (Hazard ratio 4.88; 95% CI 1.56-15.27; P = 0.006).

**Conclusions:** The severity of fibrosis and portal inflammation proven by liver biopsy was a significant risk factor for early renal dysfunction in NAFLD patients. Close monitoring of renal function according to histologic severity is crucial in clinical practice.