

**Nonalcoholic fatty liver disease and liver fibrosis in a bariatric cohort: Tehran  
Obesity Treatment Study (TOTS)**

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## **Abstract**

**Background:** Non-alcoholic fatty liver disease (NAFLD) has become a leading cause of chronic liver disease worldwide. We aimed to evaluate this condition, liver fibrosis, and their associated risk factors in our prospective bariatric cohort.

**Methods:** Patients with morbid obesity aging 18-65 years with a body mass index (BMI) of  $\geq 40$  kg/m<sup>2</sup> or between 35 and 40 kg/m<sup>2</sup> plus a medical comorbidity were included for analysis. Ultrasound was used to assess fatty liver, NAFLD Fibrosis Score (NFS) was calculated, and liver biopsy was performed preoperatively in a subset of patients.

**Results:** 1944 patients with mean age of 38.3±10.8 years and BMI of 44.6±6.4 kg/m<sup>2</sup> comprised the study population. Fatty liver was detected in 76.8% of the patients: 24.8% showed grade-I, 34.2% grade-II, and 17.8% grade-III fatty liver. Diabetes mellitus, metabolic syndrome, and hypertension were the strongest risk factors for the presence of NAFLD. NFS results identified 41.3%, 48.3%, and 10.4% of patients as having low, moderate, and high risk of advanced fibrosis, respectively. Biopsy (n=73) showed features of NAFLD in 70%: 60.3% had mild/moderate steatosis and 9.6% steatohepatitis. Older age and higher transaminase levels were associated with higher NAS scores in biopsy patients. Fibrosis was present in 23.3%, with the majority having stage-I fibrosis.

**Conclusions:** Ultrasound, in accordance with biopsy, confirmed a high prevalence of NAFLD in patients with morbid obesity. With the majority showing moderate/high risk of advanced fibrosis, timely prevention and treatment of morbid obesity and its associated comorbidities are essential to prevent disease progression into more advanced stages.

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