

Predictors of Heart Failure with Preserved Ejection Fraction in Patients with Nonalcoholic Fatty Liver Disease

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Citation: Stevanovic, A., Smiljic, S., & Putnikovic, B. (2026). Predictors of heart failure with preserved ejection fraction in patients with nonalcoholic fatty liver disease. *International Journal of Health Supplements*, 1(Suppl. 3), 304–305. <https://doi.org/10.82051/ijhs-2026-Suppl.3>

Introduction. Nonalcoholic fatty liver disease (NAFLD) is associated with an increased risk of heart failure (HF), particularly heart failure with preserved ejection fraction (HFpEF). Identifying clinical and metabolic predictors may improve early risk stratification. This study aimed to identify predictors of HFpEF in patients with NAFLD and evaluate their discriminatory performance.

Methods. This study included 94 patients with a Fatty Liver Index ≥ 60 , divided into HFpEF (n=51) and non-HF (n=43) groups according to echocardiographic findings and N-terminal pro-B-type natriuretic peptide levels. Anthropometric measurements, cardiometabolic risk factors, and laboratory parameters were assessed. Insulin resistance was evaluated using the homeostasis model assessment (HOMA2-IR). Multivariable analysis was performed to identify factors associated with HFpEF.

Results. Patients with HFpEF were older (75 ± 6.0 vs 59 ± 7.7 years; $p=0.0001$) and had higher uric acid levels (342.2 ± 91.7 vs 317.3 ± 90.6 ; $p=0.006$) and HOMA2-IR values (2.77 ± 0.88 vs 2.59 ± 0.70 ; $p=0.002$). Estimated glomerular filtration rate was lower in the HFpEF group (58.1 ± 15.9 vs 65.1 ± 11.4 ; $p=0.18$). Anemia was more frequent among patients with HFpEF (28.0% vs 4.7%; $p=0.0003$). Multivariable analysis identified age, female sex, uric acid levels, and anemia as associated factors. Age over 65 years demonstrated good discriminatory performance (AUC=0.841; $p=0.0002$), with 75% sensitivity and specificity.

Discussion. Older age, female sex, elevated uric acid levels, insulin resistance, and anemia may represent relevant clinical markers of HFpEF in patients with NAFLD. Age over 65 years showed promising discriminatory performance, supporting further investigation of age-based risk stratification. Larger studies are required to validate these preliminary findings.

Keywords: Heart Failure with Preserved Ejection Fraction, Nonalcoholic Fatty Liver Disease, Predictors, Insulin Resistance, Anemia

Funding: This research received no external funding. **Conflict of Interest:** The authors declare no conflict of interest.