©Copyright by Croatian Cardiac Society. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (https://creativecommons.org/licenses/by/4.0/) which permits users to read, download, copy, distribute, print, search, or link to the full texts of these articles in any medium or format and to remix, transform and build upon the material, provided the original work is properly cited and any changes properly indicated.

High prevalence of iron deficiency in hospitalized patients with heart failure with reduced ejection fraction: how does our cohort compare with European registries?

Lana Maričić[1,2]*, Ivana Arambašić[1], Mirna Đukić[3]

[1]University Hospital Centre Osijek, Osijek, Croatia
[2]J. J. Strossmayer University of Osijek, Faculty of Medicine Osijek, Osijek, Croatia
[3]General County Hospital Vinkovci, Vinkovci, Croatia

KEYWORDS: heart failure, iron deficiency, prevalence, iron profile.

CITATION: Cardiol Croat. 2026;21(11-12):329. | https://doi.org/10.15836/ccar2026.329

***ADDRESS FOR CORRESPONDENCE:** Lana Maričić, Klinički bolnički centar Osijek, Ul. Josipa Huttlera 4, HR-31000, Osijek, Croatia. / Phone: +385-98-9359-695 / E-mail: dr.lmaricic@gmail.com

ORCID: Lana Maričić, https://orcid.org/0000-0001-6035-6760 • Ivana Arambašić, https://orcid.org/0009-0006-3191-2282 Mirna Đukić, https://orcid.org/0000-0002-2915-7533

Introduction: Iron deficiency affects up to three quarters of patients with heart failure and is an independent predictor of poorer functional capacity, quality of life and outcomes; nevertheless, systematic screening of iron status in clinical practice remains inconsistent.[1-4] The aim of this study was to determine the prevalence of iron deficiency according to European Society of Cardiology (ESC) criteria in patients with heart failure with reduced ejection fraction (HFrEF), to describe its distribution by subtype, age and sex, and to directly compare the local cohort with large European registries.

Patients and Methods: A cross-sectional analysis included 142 patients with HFrEF treated at the University Hospital Centre Osijek. Iron deficiency was defined as ferritin < 100 µg/L (absolute deficiency) or ferritin 100–299 µg/L with transferrin saturation (TSAT) < 20% (functional deficiency). Prevalence was analyzed by sex and age group (x^2 test). The effect of sex was assessed by logistic regression adjusted for age, eGFR and EF.

Results: Iron deficiency was identified in 73.9% patients: absolute in 51.4% and functional in 22.5%. Deficiency was also present in 69.4% of patients without anemia. Prevalence was higher in women (82.8%) than in men (66.2%; p=0.043); however, women were older and had poorer renal function, and after adjustment for age, eGFR and EF the difference was not significant (OR 1.96; 95% CI 0.78–4.96). The difference was limited to absolute deficiency (women 60.9% vs. men 43.2%). A trend towards increasing prevalence with age was observed. Iron deficiency was not significantly associated with rehospitalization within 3 months of discharge (OR 0.89; 95% CI 0.34–2.34; p=0.81).

Conclusion: Nearly three quarters of patients with HFrEF in this cohort had iron deficiency, which is more than in large European registries of mixed populations and consistent with hospitalized cohorts, irrespective of anemia. The absolute form predominated over the functional form. No association with short-term rehospitalization was found, with limited statistical power. These findings underscore the need for systematic, routine screening of iron status in all patients with HFrEF.

RECEIVED:
October 6, 2026
UPDATED:
November 4, 2026

LITERATURE

1. van der Wal HH, Grote Beverborg N, Dickstein K, Anker SD, Lang CC, Ng LL, et al. Iron deficiency in worsening heart failure is associated with reduced estimated protein intake, fluid retention, inflammation, and antiplatelet use. Eur Heart J. 2019 Nov 21;40(44):3616-3625. https://doi.org/10.1093/eurheartj/ehz680
2. Lindberg F, Lund LH, Benson L, Linde C, Orsini N, Carrero JJ, et al. Iron deficiency in heart failure: screening, prevalence, incidence and outcome data from the Swedish Heart Failure Registry and the Stockholm CREAtinine Measurements collaborative project. Eur J Heart Fail. 2023 Aug;25(8):1270-1280. https://doi.org/10.1002/ejhf.2879
3. Cohen-Solal A, Philip JL, Picard F, Delarche N, Taldir G, Gzara H, et al; CARENFER Study Group. Iron deficiency in heart failure patients: the French CARENFER prospective study. ESC Heart Fail. 2022 Apr;9(2):874-884. https://doi.org/10.1002/ehf2.13850
4. Cohen-Solal A, Damy T, Terbah M, Kerebel S, Baguet JP, Hanon O, et al. High prevalence of iron deficiency in patients with acute decompensated heart failure. Eur J Heart Fail. 2014 Sep;16(9):984-91. https://doi.org/10.1002/ejhf.139