# Heart failure with preserved ejection fraction - novelties in diagnosis and treatment

**Kristina Gašparović***

University of Zagreb School of Medicine, University Hospital Centre Zagreb, Zagreb, Croatia

**KEYWORDS:** heart failure with preserved ejection fraction, diagnostic evaluation, sodium-glucose cotransporter-2 inhibitors.

**CITATION:** Cardiol Croat. 2022;17(9-10):189. | https://doi.org/10.15836/ccar2022.189

***ADDRESS FOR CORRESPONDENCE**: Kristina Gašparović, Klinički bolnički centar Zagreb, Kišpatićeva 12, HR-10000 Zagreb, Croatia. / Phone: 385-99-3361-898 / E-mail: tinagasparovic@yahoo.com

**ORCID:** Kristina Gašparović, https://orcid.org/0000-0002-1191-4831

The prevalence of heart failure (HF) is constantly increasing due to the aging population and progress in treatment of cardiovascular disorders (arterial hypertension, valvular heart disease, ischemic heart disease, congenital heart disease). At the same time, there is a rise in prevalence of risk factors including obesity, type 2 diabetes, smoking, physical inactivity. It is estimated that there are currently 64.000.000 people worldwide affected by heart failure, 2.400.000 new cases of HF per year in the European Society of Cardiology (ESC) member countries and over 2.000.000 hospital admissions in Europe every year. The prevalence of heart failure with preserved ejection fraction (HFpEF) in patients with HF is around 40 % or even more. Risk factors and clinical characteristics of HFpEF include advanced age, female sex, arterial hypertension, obesity, prediabetes and diabetes. The most prevalent phenotype of patient with HFpEF is old, female patient with longstanding hypertension, left ventricular hypertrophy and left atrial dilation. Patient with HFpEF are burdened with comorbidities (hyperlipidemia, type 2 diabetes, chronic lung disease, chronic kidney disease). Aging, comorbidities and proinflammatory state lead to increased left ventricular stiffness and limited functional capacity. Diagnosis of HFpEF is made based on the presence of symptoms and signs of heart failure, echocardiographic evaluation (EF ≥ 50 %, diastolic dysfunction confirmed with E/A ratio, e' velocity, left atrial volume index) and laboratory assessment of increased natriuretic peptides. Heart Failure Association (HFA) provided an algorithm for the diagnosis of HFpEF[1]. Treatment of HFpEF has been challenging because there was no specific treatment for the patients with HFpEF. Sodium-glucose Cotransporter-2 (SGLT2) inhibitors has been proven beneficial for cardiovascular outcomes in patients with HFpEF. The EMPEROR Preserved trial (Empagliflozin outcome trial in patients with chronic heart failure with preserved ejection fraction) confirmed that empagliflozin treatment resulted in a statistically significant 21 % relative risk reduction for HF hospitalization and cardiovascular mortality compared with placebo in patients with HFpEF[2]. The DELIVER trial (Dapagliflozin in heart failure with mildly reduced or preserved ejection fraction) showed significant 18 % reduction in the primary composite endpoint of cardiovascular death or worsening HF. These trials suggest that treatment with SGLT2 inhibitors in patients with HFpEF can be safe and effective in reducing the risk of future cardiovascular events[3].

**RECEIVED:**
**November 3, 2022**

**ACCEPTED:**
**November 10, 2022**

## LITERATURE

1. McDonagh TA, Metra M, Adamo M, Gardner RS, Baumbach A, Böhm M, et al; ESC Scientific Document Group. 2021 ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure. Eur Heart J. 2021 Sep 21;42(36):3599-3 726. https://doi.org/10.1093/eurheartj/ehab368
2. Anker SD, Butler J, Filippatos G, Ferreira JP, Bocchi E, Böhm M, et al; EMPEROR-Preserved Trial Investigators. Empagliflozin in Heart Failure with a Preserved Ejection Fraction. N Engl J Med. 2021 Oct 14;385(16):1451-1461. https://doi.org/10.1056/NEJMoa2107038
3. Solomon SD, McMurray JJV, Claggett B, de Boer RA, DeMets D, Hernandez AF, et al; DELIVER Trial Committees and Investigators. Dapagliflozin in Heart Failure with Mildly Reduced or Preserved Ejection Fraction. N Engl J Med. 2022 Sep 22;387(12):1089-1098. https://doi.org/10.1056/NEJMoa2206286