Coronary sinus reducer in refractory angina pectoris: first experience from a Croatian tertiary centre

Luka Perčin[1]*, Hrvoje Jurin[1], Zvonimir Ostojić[1,2], Tomislav Krčmar[1,2], Kristina Marić[1,2], Mirna Momčilović[1], Joško Bulum[1,2]

[1]University Hospital Centre Zagreb, Zagreb, Croatia
[2]University of Zagreb, School of Medicine, Zagreb, Croatia

KEYWORDS: coronary sinus reducer, refractory angina pectoris, coronary artery disease.

CITATION: Cardiol Croat. 2025;20(9-10):223. | https://doi.org/10.15836/ccar2025.223

***ADDRESS FOR CORRESPONDENCE:** Luka Perčin, Klinički bolnički centar Zagreb, Kišpatićeva 12, HR-10000 Zagreb, Croatia. / Phone: +385-91-791-7252 / E-mail: luka.percin555@gmail.com

ORCID: Luka Perčin, https://orcid.org/0000-0003-0497-6871 • Hrvoje Jurin, https://orcid.org/0000-0002-2599-553X Zvonimir Ostojić, https://orcid.org/0000-0003-1762-9270 • Tomislav Krčmar, https://orcid.org/0000-0003-4689-1673 Kristina Marić, https://orcid.org/0000-0002-4004-7271 • Mirna Momčilović, https://orcid.org/0009-0009-1871-2827 Joško Bulum, https://orcid.org/0000-0002-1482-6503

Introduction: The coronary sinus reducer (CSR) is a novel percutaneous device developed for patients with refractory angina pectoris (RAP) who are not candidates for surgical or percutaneous revascularization. By creating a controlled narrowing in the coronary sinus, the CSR aims to improve myocardial perfusion and reduce angina symptoms[1]. We report the first institutional experience with CSR implantation at the University Hospital Centre (UHC) Zagreb and evaluate its clinical impact.

Patient and Methods: This retrospective study included all patients with RAP who underwent CSR implantation at the UHC Zagreb between October 2022 and November 2025. Demographic and clinical data were collected, including sex, age, and Canadian Cardiovascular Society (CCS) angina class. CCS class was assessed at baseline and during follow-up visits. Continuous variables are presented as mean ± standard deviation (SD). The primary endpoint was improvement by at least one CCS class. Statistical significance was defined as $p < 0.05$.

Results: A total of 35 patients underwent CSR implantation (23 males [65.7%], mean age 69 ± 7.6 years, range 51–83). Procedural success was achieved in all patients. One major peri-procedural complication, a coronary sinus perforation, was successfully managed with stent-graft implantation. Follow-up CCS data were available for 25 patients; 10 were excluded due to loss to follow-up (n=3), insufficient follow-up duration (n=3), death from sepsis (n=1), acute coronary syndrome (n=1), and percutaneous coronary intervention for disease progression (n=2). At baseline, the mean CCS class was 2.44 ± 0.51 (56% class II, 44% class III). At a mean follow-up of 15.8 ± 8.7 months, the mean CCS class significantly improved to 1.36 ± 0.57 ($p < 0.001$). Overall, 21 patients (84%) improved by at least one CCS class, including 6 patients (24%) with a reduction of ≥2 classes; 4 patients (16%) remained unchanged, and none worsened (**Figure 1**).

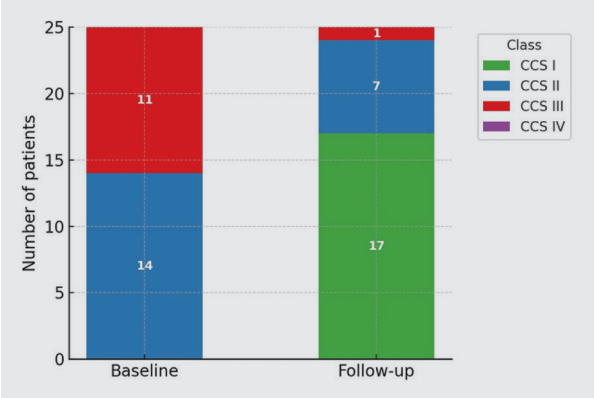

FIGURE 1. Distribution of Canadian Cardiovascular Society (CCS) angina class at baseline and follow-up.

Conclusion: Our initial single-centre experience suggests that CSR implantation is a feasible and safe procedure in patients with refractory angina. The intervention was associated with significant symptomatic improvement, consistent with previously published studies, and supports CSR as an effective therapeutic option in the management of refractory angina.

RECEIVED:
September 28, 2025

ACCEPTED:
October 6, 2025

LITERATURE

1. Vrints C, Andreotti F, Koskinas KC, Rossello X, Adamo M, Ainslie J, et al; ESC Scientific Document Group. 2024 ESC Guidelines for the management of chronic coronary syndromes. Eur Heart J. 2024 Sep 29;45(36):3415-3537. https://doi.org/10.1093/eurheartj/ehae177