©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.

Transcatheter caval valve implantation for treatment of symptomatic tricuspid regurgitation: single-centre acute and long-term outcomes

Sanda Sokol Tomić*, Dijana Bešić, Tea-Terezija Cvetko, Danijela Grizelj, Ana Jordan, Nikša Bušić, Ante Lisičić, Šime Manola, Nikola Pavlović

Dubrava University Hospital, Zagreb, Croatia

KEYWORDS: tricuspid regurgitation, caval valve implantation, TricValve.

CITATION: Cardiol Croat. 2026;21(11-12):287. | https://doi.org/10.15836/ccar2026.287

***ADDRESS FOR CORRESPONDENCE:** Sanda Sokol Tomić, Klinička bolnica Dubrava, Av. G. Šuška 6, HR-10000 Zagreb, Croatia. / Phone: +385-98-411-731 / E-mail: sandasokoltomic@gmail.com

ORCID: Sanda Sokol Tomić, https://orcid.org/0000-0002-4551-9231 • Dijana Bešić, https://orcid.org/0000-0001-9701-0253
Tea-Terezija Cvetko, https://orcid.org/0000-0003-1845-4871 • Danijela Grizelj, https://orcid.org/0000-0002-8298-7974
Ana Jordan, https://orcid.org/0000-0001-5610-6259 • Nikša Bušić, https://orcid.org/0000-0002-7082-4932
Ante Lisičić, https://orcid.org/0000-0002-4365-9652 • Šime Manola, https://orcid.org/0000-0001-6444-2674
Nikola Pavlović, https://orcid.org/0000-0001-9187-7681

Introduction: Heterotopic caval valve implantation (CAVI) with the dedicated TricValve system is a transcatheter option for patients with severe symptomatic tricuspid regurgitation (TR) unsuitable for surgery or orthotopic transcatheter therapies. Real-world data beyond selected trial cohorts remain limited.[1-4]

Patients and Methods: Observational single-centre study of all consecutive patients treated with TricValve between September 2023 and October 2026. Clinical, echocardiographic and laboratory data and heart failure (HF) hospitalizations were collected at baseline, discharge and follow-up.

Results: Thirteen patients were treated (median age 82 [IQR 74–85] years, 62% men, 85% NYHA class III–IV). Median TRI-SCORE was 7 [IQR 6–7] (≥6 in 11/13); 12/13 had eGFR <60 mL/min/1.73 m², 77% a prior mitral intervention and 54% a cardiac implantable electronic device. TR was severe in 10 and torrential in 3 patients; median TAPSE was 19 [IQR 18–19.5] mm, sPAP 48 [IQR 45–54] mmHg and LVEF 50% [IQR 48–52]. Hepatic vein systolic flow reversal was present in all patients. All procedures were performed under conscious sedation, with 100% implantation success and a median hospital stay of 6 [IQR 5–8] days. There were no in-hospital deaths, valve migrations or major bleeding events; one patient had a TIA. Minimal paravalvular leak was observed in three patients. Transient right shoulder pain occurred in 10 patients (77%), more frequently than previously reported. During a median follow-up of 13 [IQR 1–23] months (maximum 36 months; 14.3 patient-years), TR severity was unchanged in all but one patient, whereas hepatic flow reversal was abolished at last imaging in 8/9 patients. NYHA class improved in 8/9 patients with paired data (five by two classes; p=0.02) and 9/11 reported symptomatic improvement. The HF hospitalization rate decreased from 1.08 to 0.28 events per patient-year. All patients implanted ≥12 months earlier were alive at one year; two late non-procedural deaths occurred at 13 months (concomitant metastatic head and neck cancer) and 17 months (non-cardiac, aged 94). One late thrombus attached to the IVC prosthesis was detected at 23 months despite NOAC therapy. TAPSE tended to decrease (19 to 16 mm, p=0.09), without significant change in RV dimensions, NT-proBNP, GGT or renal function.

Conclusion: In elderly, highly symptomatic, high-risk real-world population, CAVI with TricValve under conscious sedation was feasible, safe and abolished caval backflow. Despite persistent TR, it was associated with functional improvement and fewer HF hospitalizations. The trend towards lower TAPSE warrants close RV surveillance.

RECEIVED:
October 20, 2026
UPDATED:
November 4, 2026

LITERATURE

1. Estévez-Loureiro R, Sánchez-Recalde A, Amat-Santos IJ, Cruz-González I, Baz JA, Pascual I, et al. 6-Month Outcomes of the TricValve System in Patients With Tricuspid Regurgitation: The TRICUS EURO Study. JACC Cardiovasc Interv. 2022 Jul 11;15(13):1366-1377. https://doi.org/10.1016/j.jcin.2022.05.022
2. Blasco-Turrión S, Briedis K, Estévez-Loureiro R, Sánchez-Recalde A, Cruz-González I, Pascual I, et al. Bicaval TricValve Implantation in Patients With Severe Symptomatic Tricuspid Regurgitation: 1-Year Follow-Up Outcomes. JACC Cardiovasc Interv. 2024 Jan 8;17(1):60-72. https://doi.org/10.1016/j.jcin.2023.10.043
3. Sánchez-Recalde A, Domínguez-Rodríguez LM, Rosseel L, Nombela-Franco L, Pfister R, Amat-Santos I, et al. Bicaval TricValve Implantation in Patients With Severe Tricuspid Regurgitation: 1-Year Outcomes From the TricBicaval Registry. JACC Cardiovasc Interv. 2025 Aug 11;18(15):1913-1924. https://doi.org/10.1016/j.jcin.2025.06.023
4. Praz F, Borger MA, Lanz J, Marin-Cuartas M, Abreu A, Adamo M, et al; ESC/EACTS Scientific Document Group. 2025 ESC/EACTS Guidelines for the management of valvular heart disease. Eur Heart J. 2025 Nov 21;46(44):4635-4736. https://doi.org/10.1093/eurheartj/ehaf194