

(549)

Fulminant Myocarditis Supported with Extracorporeal Membrane Oxygenation: An Individual Patient Data Meta-Analysis on 30-day Mortality and Impact of Prognostic Factors

J.K. Vishram-Nielsen,¹ F. Foroutan,² T. Okumura,³ Y. Chen,⁴ A. Cheng,⁴ A. Loforte,⁵ Y. Asaumi,⁶ K. Sawada,⁶ M. Huang,⁷ W.C. Lee,⁸ T. Fux,⁹ M. Pozzi,¹⁰ H. Ross,¹¹ F. Gustafsson,¹² H. Møller-Sørensen,¹³ A. Ariza-Solé,¹⁴ M. Senechal,¹⁵ P. Turgeon,¹⁶ M. Martinez-Selles,¹⁷ F.J. Hernández-Pérez,¹⁸ R. Lorusso,¹⁹ F. Billia,²⁰ and A. Alba.¹¹ ¹Department of Cardiology, Zealand University Hospital, Roskilde, Denmark; ²Ted Rogers Centre for Heart Research, Toronto, ON, Canada; ³Department of Cardiology, Nagoya University Graduate School of Medicine, Nagoya, Japan; ⁴Division of Infectious Diseases, Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan; ⁵University of Turin, Turin, Italy; ⁶Department of Cardiovascular Medicine, National Cerebral and Cardiovascular Center, Osaka, Japan; ⁷Department of Cardiothoracic Surgery, National Heart Centre Singapore, Singapore; ⁸Division of Cardiology, Department of Internal Medicine, Kaohsiung Chang Gung Memorial Hospital, Chang Gung University College of Medicine, Kaohsiung, Taiwan; ⁹Department of Perioperative Medicine and Intensive Care, Department of Physiology and Pharmacology, Karolinska Institute, Karolinska University Hospital, Stockholm, Sweden; ¹⁰Department of Cardiac Surgery, "Louis Pradel" Cardiologic Hospital, Lyon, France; ¹¹Toronto General Hospital, Toronto, ON, Canada; ¹²Rigshospitalet, Copenhagen, Denmark; ¹³Department of Cardiothoracic Anaesthesiology, Rigshospitalet, University Hospital of Copenhagen, Copenhagen, Denmark; ¹⁴Cardiology Department, Hospital Universitari de Bellvitge, L'Hospitalet de Llobregat, Barcelona, Spain; ¹⁵Laval University, Quebec, QC, Canada; ¹⁶Institut Universitaire de Cardiologie et Pneumologie de Québec, Québec, QC, Canada; ¹⁷Cardiology Department, Hospital General Universitario Gregorio Marañón, Madrid, Spain; ¹⁸Servicio de Cardiología, Sección de Insuficiencia Cardíaca y Trasplante, Hospital Universitario Puerta de Hierro Majadahonda, Madrid, Spain; ¹⁹Maastricht University Medical Center, Maastricht, Netherlands; ²⁰University Health Network, Toronto, ON, Canada

Purpose: Fulminant myocarditis (FM) is a rare disease that may progress rapidly to refractory cardiogenic shock requiring temporary mechanical circulatory support. Venous arterial extracorporeal membrane oxygenation (V-A ECMO) has been used to provide biventricular support in these patients, however, studies assessing its benefit have demonstrated conflicting results, likely due to small sample size. We conducted an individual patient data (IPD) meta-analysis to evaluate 30-day mortality and associated prognostic factors after V-A ECMO in patients with FM.

Methods: A systematic search of 7 relevant databases was performed for studies including adult (≥ 18 years old) FM patients who required V-A ECMO and reported on mortality after the initiation of V-A ECMO. Authors of each identified study were invited to participate in the IPD meta-analysis. The primary outcome was 30-day mortality after V-A ECMO initiation in patients with FM supported with V-A ECMO. A mixed effect multivariable model with a random intercept to account for clustering of patients was used to examine independent prognostic factors associated with 30-day mortality.

Results: We combined IPD from 14 centers including 307 patients, mean age was 45 ± 17 years, and 54% were females. FM was verified by biopsy in 52%, most commonly being lymphocytic (65%). The most common cannulation site for V-A ECMO was peripheral (76%), 32% had a cardiac arrest prior to V-A ECMO. The proportion of patients on mechanical ventilation was 87%, and left ventricular (LV) venting was used in 50%, most commonly intra-aortic balloon pump (56%). Thirty-day mortality

was 37% (95%CI 32-43). Patients who died were significantly older, had higher levels of cardiac enzymes, a higher frequency of cardiac arrest prior to V-A ECMO and were treated with central V-A ECMO. By multivariable analysis, independent factors associated with 30-day mortality after V-A ECMO were older age (OR 1.03, 1.01-1.04), cardiac arrest (OR 2.80, 1.63-4.90), and central V-A ECMO cannulation (OR 2.06, 1.06-4.01), whereas mechanical ventilation and LV-venting were not.

Conclusion: In patients with FM requiring V-A ECMO, age, cardiac arrest prior to V-A ECMO, and central cannulation were identified as independent risk factors of 30-day mortality.

(550)

Temporary Mechanical Circulatory Support Related Complications in Patients Waiting for Heart Transplant

A. Rahman,¹ S. Rahman,² M. Abrams,³ L. Stanton,³ B. LaBarre,⁴ A. Chui,² M. Regan,⁵ A. Fernandez Valledor,⁶ B. Elad,³ J. Baranowska,³ A. Yunis,⁷ J. Raikhelkar,⁸ D. Lotan,³ E. DeFilippis,³ J. Fried,² K. Clerkin,³ K. Oh,³ D. Bae,² K. Wats,³ K. Takeda,⁸ G. Sayer,³ and N. Uriel.⁹ ¹Columbia University Irving Medical Center, New York, NY; ²Columbia University Medical Center, NY, NY; ³Columbia University Irving Medical Center, NY, NY; ⁴Division of Cardiology, Columbia University Irving Medical Center, NY, NY; ⁵New York Presbyterian Hospital- Columbia University and Weill Cornell, NY, NY; ⁶New York Presbyterian, NY, NY; ⁷Columbia University Medical Center, New York, NY; ⁸Columbia University, NY, NY; ⁹New York Presbyterian, Ny, NY

Purpose: Temporary mechanical circulatory support (tMCS) devices stabilize cardiogenic shock in heart transplant candidates but are associated with high complications rate. This study evaluates pre-transplant complications on tMCS in the current allocation system.

Methods: We retrospectively reviewed patients bridged to transplant with tMCS from 10/2018 to 5/2024 at our center. Final device categories: IABP, Impella, ECMO and Central support. Complications categories: Hematologic (bleeding, transfusions, thrombocytopenia, hemolysis), Infectious (fever, blood stream, pneumonia, any other infection), Systemic (renal failure, intubation, pressure wounds), Neurologic (stroke, TIA, neuropathy, seizure), Vascular (limb ischemia, compartment syndrome, amputation, pseudoaneurysm, dissection) and Device related (Access site bleed/infection/hematoma, device failure and migration).

Results: 187 patients were included. Age, race, BMI, DM and HTN were similar along all devices. Majority were male in each device group. (Table) Median days on support was 11.5 central vs 10 ECMO vs 38 IABP vs 26 Impella, $p < 0.001$. Hematologic complications were most common in central support and least in IABP (77.8% vs 12.8%, $p < 0.001$). Impella had the highest rates of systemic complications and central support had the least (43.3% vs 14.8%, overall $p = 0.041$). Device related complications was lowest in the IABP group with $p < 0.001$. Majority had any complication on all devices with central support being the highest (96.3%) and IABP the lowest (65.8%), $p = 0.001$. All other complications categories were not significantly different between the groups. 14 patients didn't received transplant due to the complication, most were on ECMO/Central support.

Conclusion: Majority of patients being bridged to heart transplant with tMCS experienced a complication on the waitlist, IABP having the lowest rate and central support having the most. Further studies are needed to clarify the impact of the complications on outcomes.