PLACE 2026
PLATFORM OF LABORATORIES FOR ADVANCES IN CARDIAC EXPERIENCE

CONGRESSO
ROMA, 25 - 27 Giugno 2026

Insufficienza Cardiaca Acuta e Avanzata

Supporti Meccanici: Facciamo Ordine su Indicazioni e Scelta di quello Giusto

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San Camillo Forlanini Hospital, Roma

SISTEMA SANITARIO REGIONALE
AZIENDA OSPEDALIERA SAN CAMILLO FORLANINI

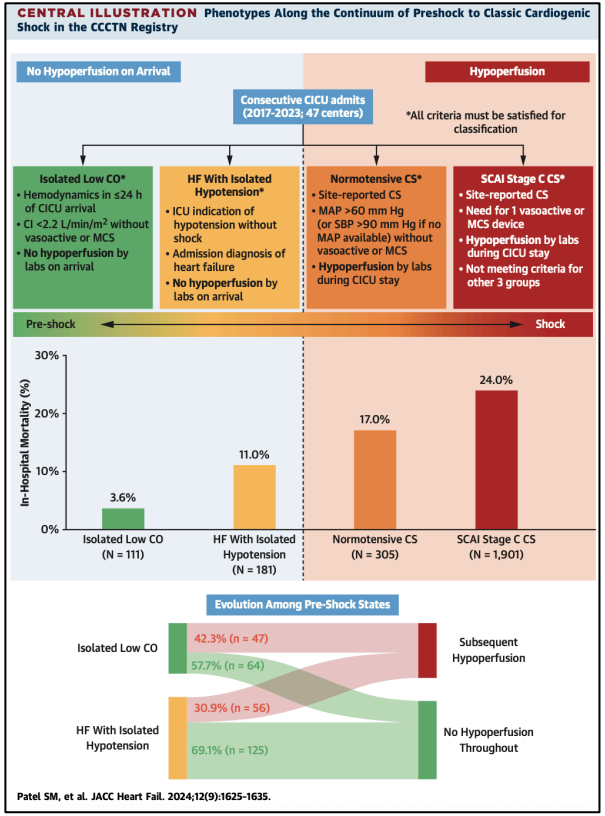
tMCS in Cardiogenic Shock

Cardiogenic Shock is a leading cause of mortality in advanced heart failure and acute myocardial infarction

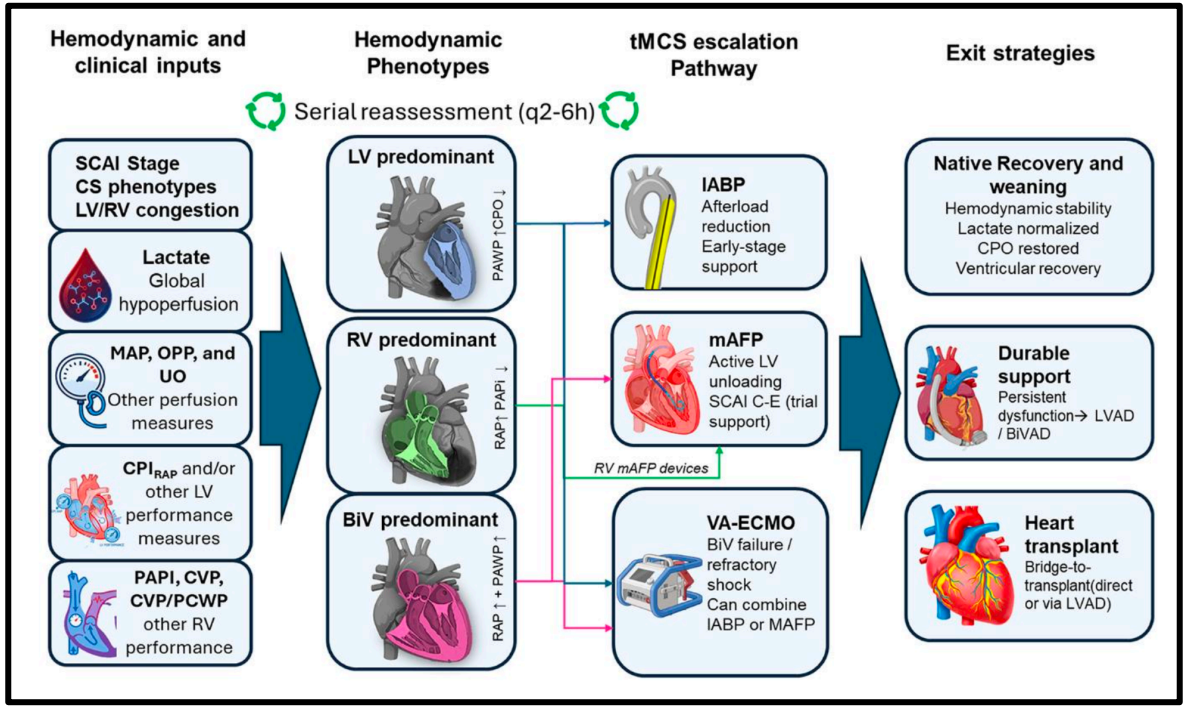
Highly variable and dynamic condition: despite initial stabilization frequent need for intensification of support

Different etiologies with different physiology and prognosis

Differences at patient and center levels, leading to uneven care pathways

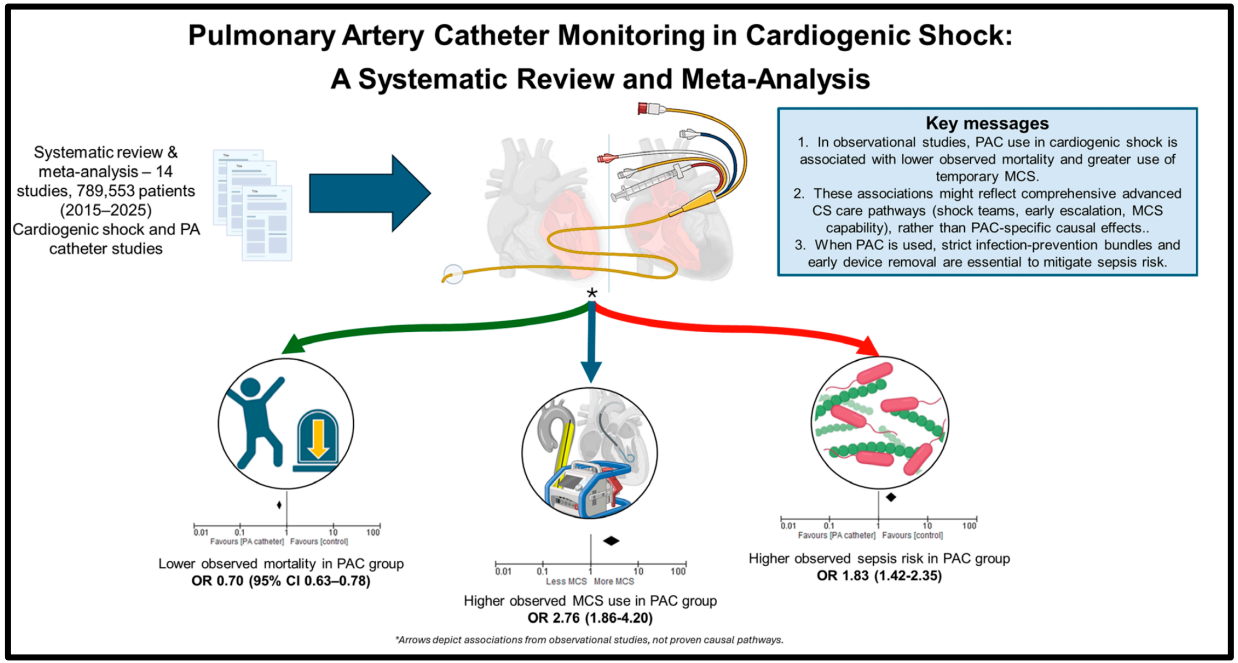


The Right Support for the Right Physiology



Ortega Hernandez JA, Baldetti L, Gallone G, Cacioli G, 2026 (under review)

Pulmonary Artery Catheter - *Patient Phenotyping*

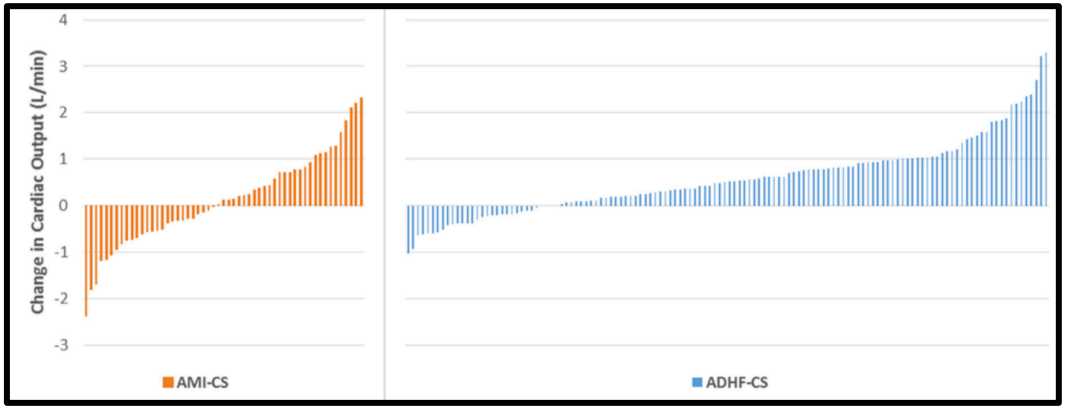


Ortega-Hernández JA, Baldetti L, Gallone G, Cacioli G, Shock. 2026 Apr 1;65(4):648-659.

Intra-Aortic Balloon Pump (IABP) - *tMCS in CS*

IABP may be considered in patients with cardiogenic shock as a BTR, BTD, BTB, including treatment of the cause of cardiogenic shock (i.e. mechanical complication of acute MI) or long-term MCS or transplantation.[450]	IIb	C
IABP is not routinely recommended in post-MI cardiogenic shock.[500–502]	III	B

Intra-Aortic Balloon Pump (IABP) – *tMCS in CS*



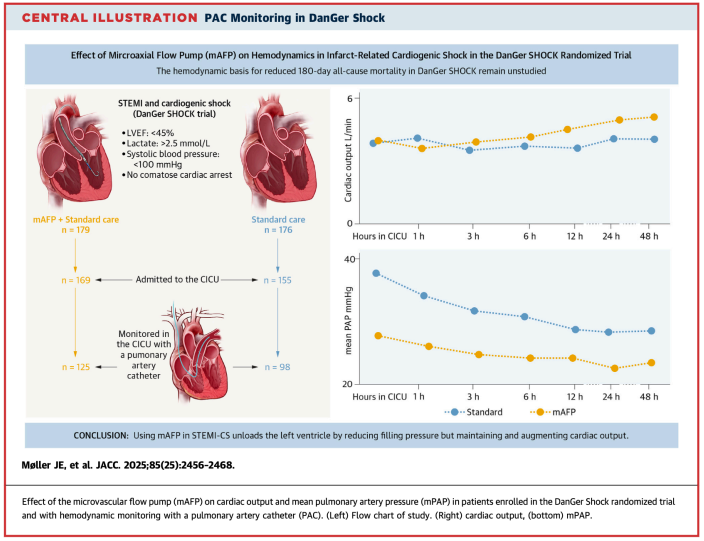
Acute Cardiac Injury
No Reserve

Hypervolemia
Dilated LV
Afterload-mismatch

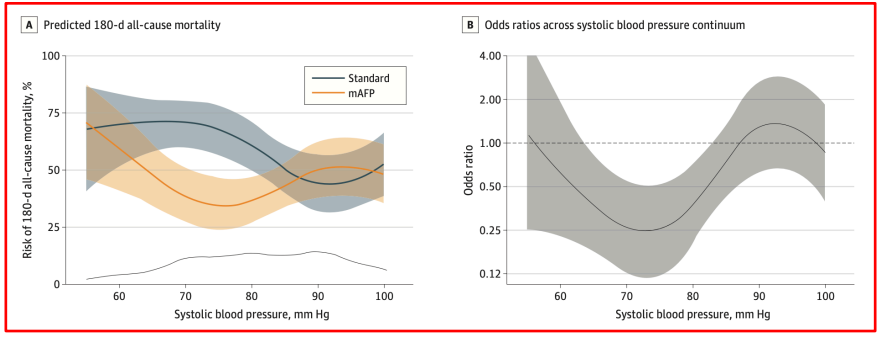
IABP is a volume-displacement pump and requires contractile reserve!

Malick W et al. Am J Cardiol (2019);00:1–7

Impella CP - *tMCS in CS*



Effect of the microvascular flow pump (mAFP) on cardiac output and mean pulmonary artery pressure (mPAP) in patients enrolled in the DanGer Shock randomized trial and with hemodynamic monitoring with a pulmonary artery catheter (PAC). (Left) Flow chart of study. (Right) cardiac output, (bottom) mPAP.



DIRECT LV UNLOADING
Not dependent upon contractile reserve

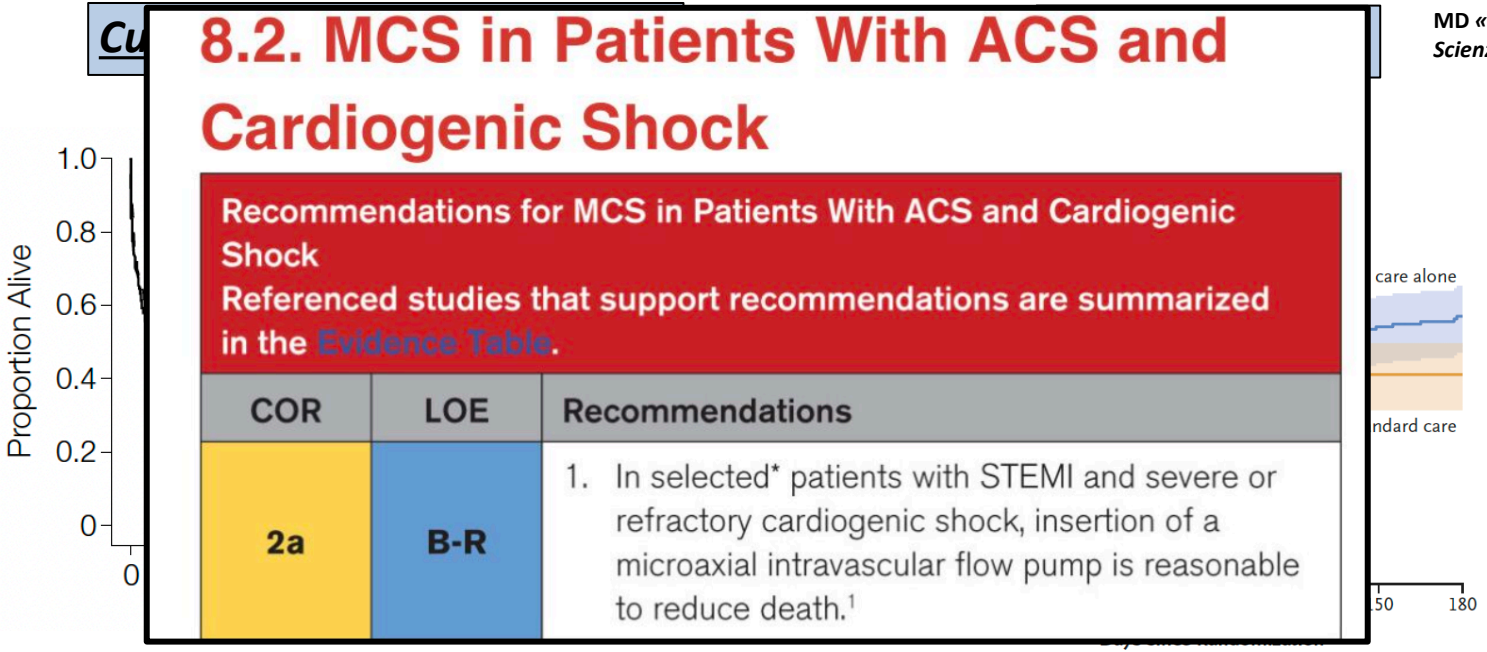
The lower the SBP at randomization
The higher the survival benefit at 180 days

Moeller et al. N Engl J Med . 2024 Apr 18;390(15):1382-1393.

Hochman et al. JAMA. 2001;285: 190-192.

Impella CP - *tMCS in CS*

Credits to Guglielmo Gallone, MD *«Città della Salute e della Scienza» Hospital, Turin*

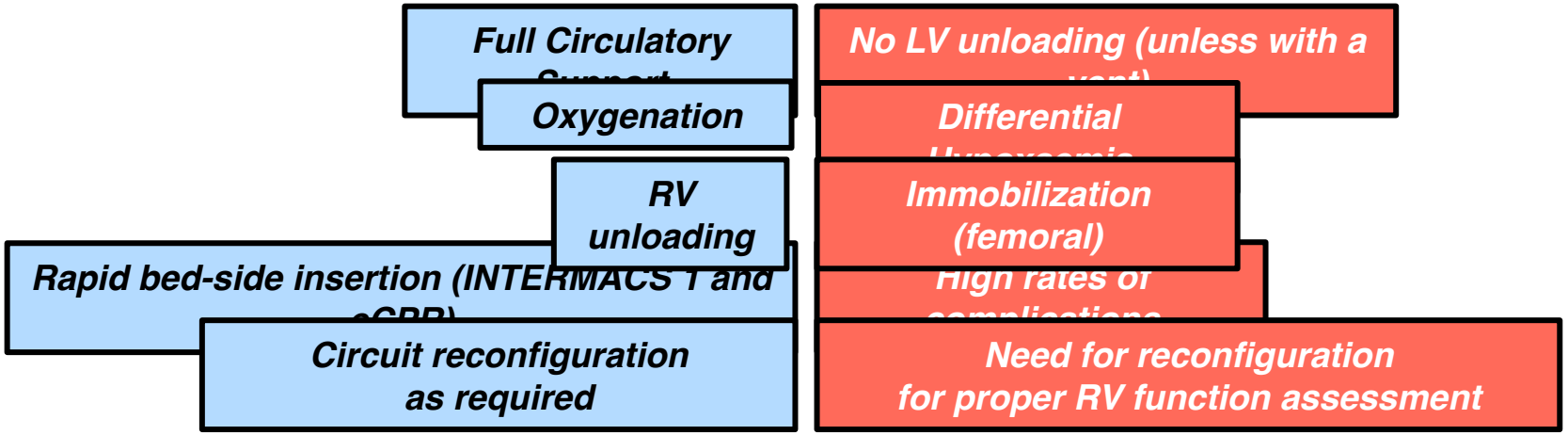


Routine mAFP use in AMI-related CS reduces 180-day mortality

Hochman et al. JAMA. 2001;285: 190-192.

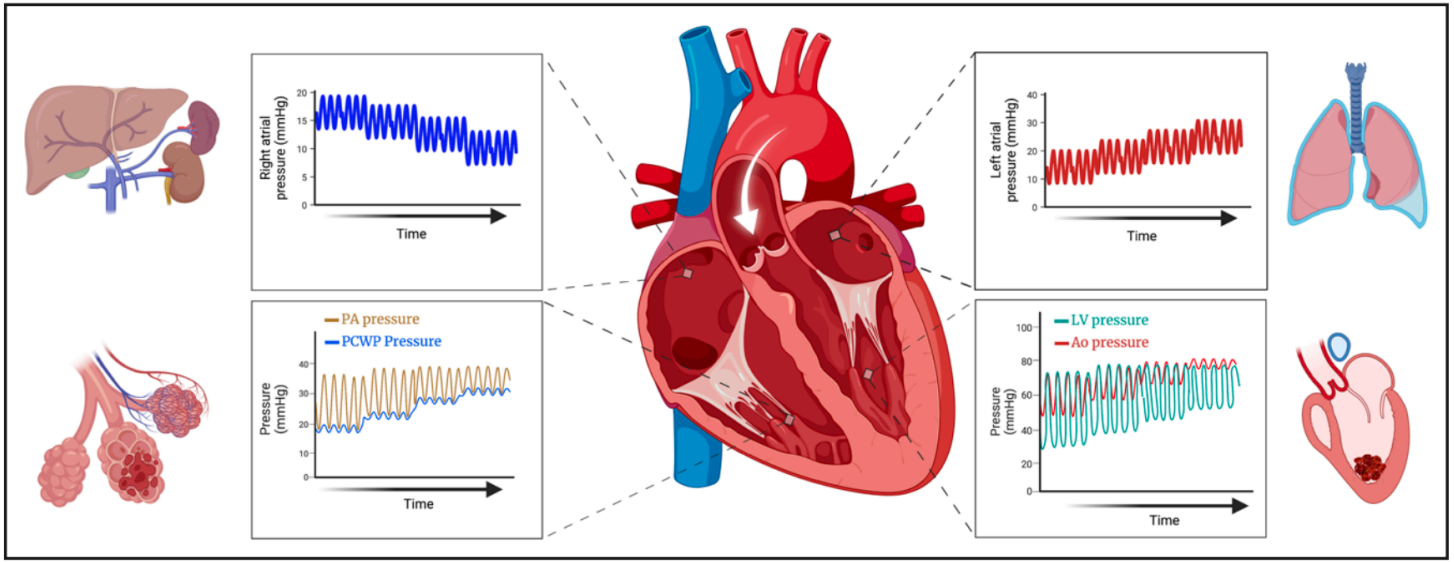
Moeller et al. N Engl J Med . 2024 Apr 18;390(15):1382-1393.

Peripheral VA-ECMO - *tMCS in CS*



VA-ECMO = TIME

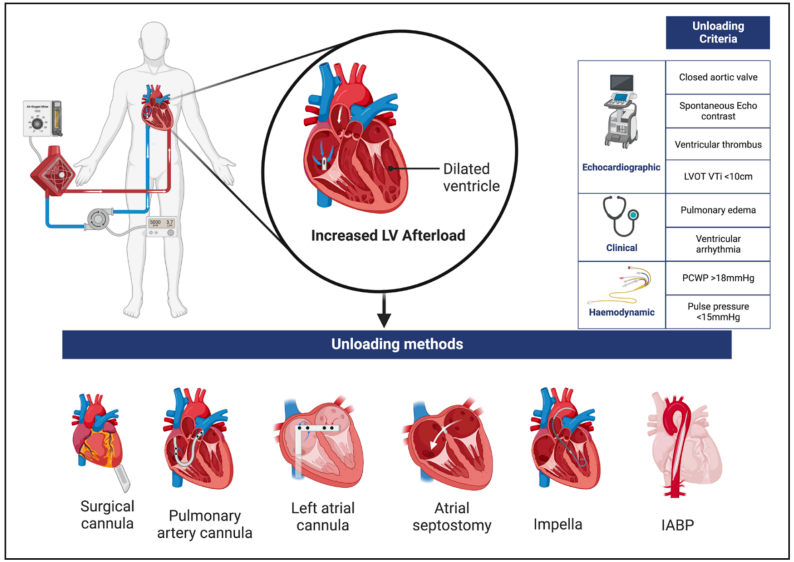
Peripheral VA-ECMO - *tMCS in CS*

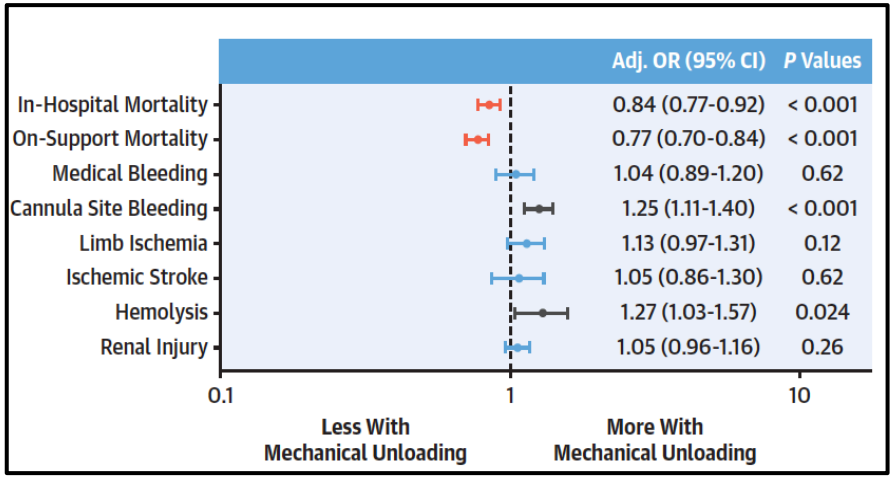


HEMODYNAMIC CHAIN OF VA-ECMO

Saad ME, et al. Circulation. 2023;147:1237–1250.

LV Unloading in VA-ECMO - *tMCS in CS*





HOW TO

WHY

Saad ME, et al. Circulation. 2023;147:1237–1250.

Grandin EW, et al. J Am Coll Cardiol. 2022;79(13):1239–1250.

Impella 5.5 - *tMCS in CS*

IMPELLA 5.5 vs IMPELLA CP

Surgical Insertion (Axillary or Trans-Aortic)

Longer Durability (>30 d vs 14 d)

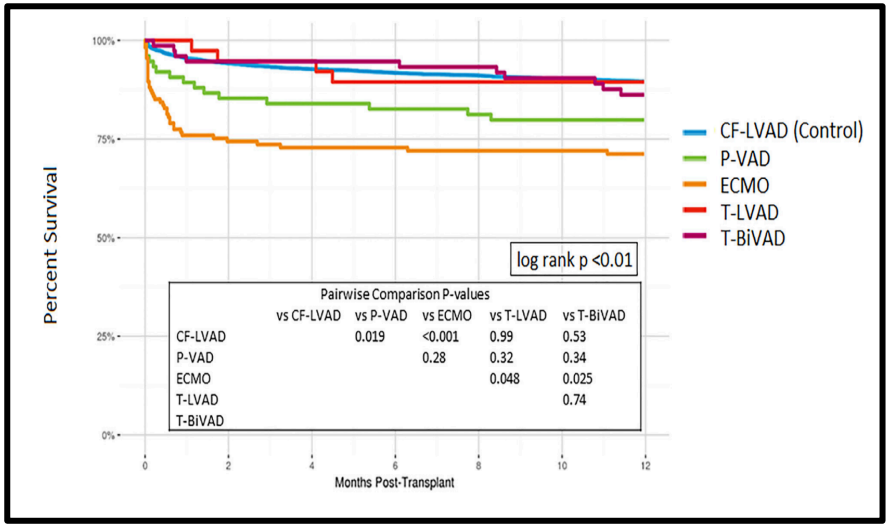
Increased support (>5 lpm vs 4.5 lpm)

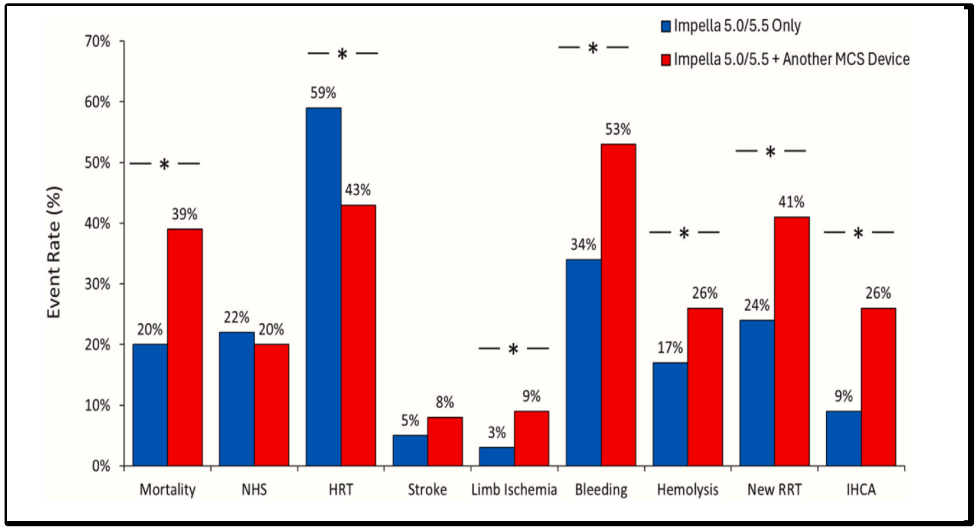
Chance for Movement and Rehabilitation

IMPELLA 5.5 BRIDGE TO:

RECOVERY, CANDIDACY, HT/LVAD

Impella 5.5 - *tMCS in CS*





tMCS BRIDGE TO TRANSPLANT: WORSE PROGNOSIS

IMPELLA 5.5 BRIDGE TO TRANSPLANT: SUPPOSED SURVIVAL BENEFIT

Yin MY, et al. J Heart Lung Transplant. 2019 Aug;38(8):858-869.

Friedl, et al. J Heart Lung Transplant. 2024 Sep;43(9):1478-1488.

Hess NR, et al. J Heart Lung Transplant. 2023 Jan;42(1):76-86.

Impella 5.5 - *tMCS in CS*

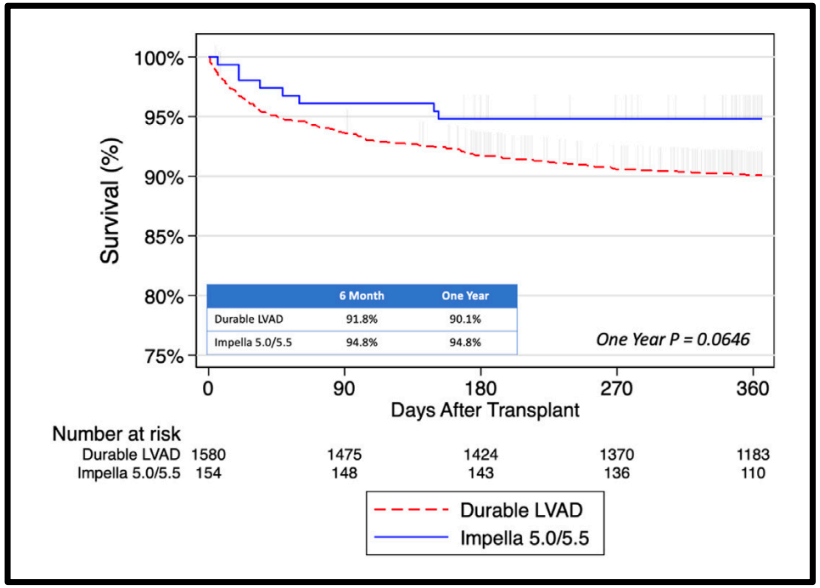
ELSEVIER

The Journal of Heart and Lung Transplantation
http://www.jhltonline.org

ORIGINAL CLINICAL SCIENCE

Left ventricular assist device bridging to heart transplantation: Comparison of temporary versus durable support

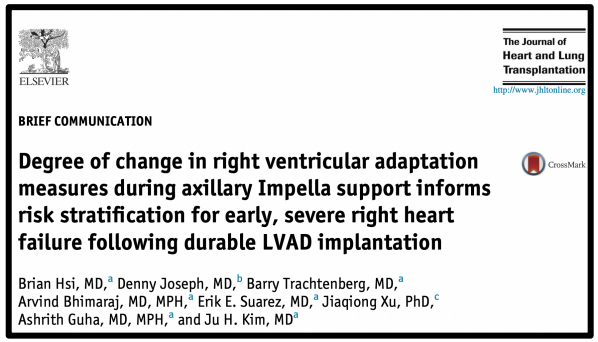
Nicholas R. Hess,[a] Gavin W. Hickey,[b] Mary E. Keebler,[b] Jessica H. Huston,[b] Dennis M. McNamara,[b] Michael A. Mathier,[b] Yisi Wang,[b] and David J. Kaczorowski, MD[a,b]



BRIDGE TO TRANSPLANT:

IMPELLA 5.5 vs dLVAD

Impella 5.5 - *tMCS in CS*



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The Journal of Heart and Lung Transplantation
http://www.jhltonline.org

BRIEF COMMUNICATION

Degree of change in right ventricular adaptation measures during axillary Impella support informs risk stratification for early, severe right heart failure following durable LVAD implantation

CrossMark

Brian Hsi, MD,[a] Denny Joseph, MD,[b] Barry Trachtenberg, MD,[a] Arvind Bhimaraj, MD, MPH,[a] Erik E. Suarez, MD,[a] Jiaqiong Xu, PhD,[c] Ashrith Guha, MD, MPH,[a] and Ju H. Kim, MD[a]

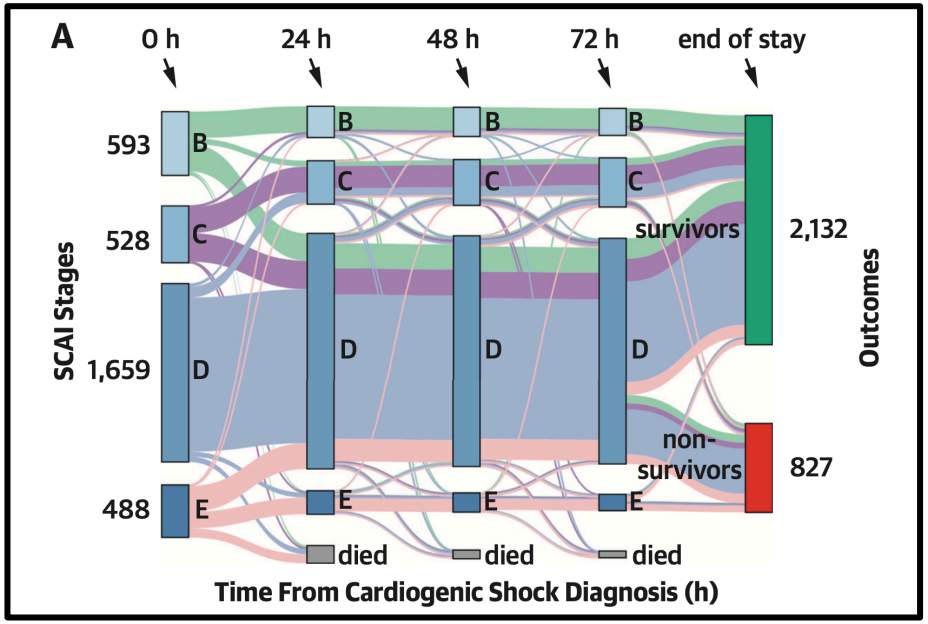
Impella reproduces the RV afterload reduction and increase in preload determined by dLVAD.

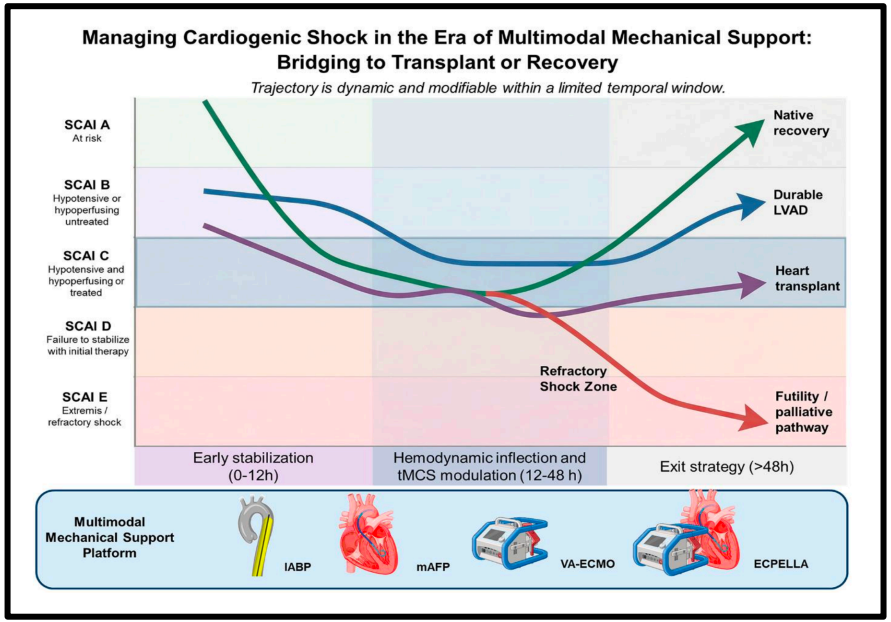
Inability to sustain such load is suggestive of RV dysfunction and predictive of post-LVAD RHF

	Pre-impella insertion			Post-impella insertion		
Hemodynamic variable	No RHF(N = 11)	RHF(N = 7)	*p*-value	No RHF(N = 11)	RHF(N = 7)	*p*-value
	Measures of RV Adaptation					
RAP (mmHg)	17.00 (11.00-20.00)	12.00 (8.00-12.00)	0.02	6.00 (3.00-12.00)	10.00 (4.00-12.00)	0.38
ΔRAP (mmHg)	-	-	-	-12.00 (-14.00—8.00)	-2.00 (-8.00-4.00)	0.008
PCWP (mmHg)	30.00 (24.00-31.00)	23.00 (20.00-26.00)	0.051	17.00 (15.00-19.00)	18.00 (15.00-25.00)	0.40
ΔPCWP (mmHg)	-	-	-	-13.00 (-21.00—8.00)	0.00 (-12.00-5.00)	0.041
RAP:PCWP	0.61 (0.48-0.71)	0.46 (0.36-0.50)	0.03	0.38 (0.17-0.52)	0.40 (0.28-0.64)	0.47
ΔRAP:PCWP	-	-	-	-0.28 (-0.33—0.21)	-0.11 (-0.13-0.19)	0.05
PAPi	1.28 (1.00-1.64)	2.46 (1.67-3.83)	0.006	4.67 (2.29-8.33)	2.67 (1.94-3.50)	0.29
ΔPAPi	-	-	-	4.54 (1.20-8.03)	0.55 (-1.58-1.44)	0.025

Hsi B, et al. J Heart Lung Transplant. 2022 Mar;41(3):279-282.

The Right Support for the Right Physiology…At the Right Time

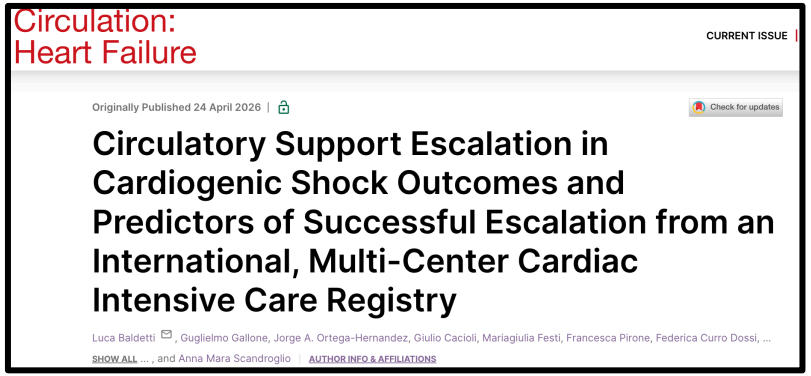




Ton VK, et al. J Am Coll Cardiol. 2024 Aug 1:S0735-1097(24)07740-4.

Ortega Hernandez J, Baldetti L, Gallone G, Cacioli G, 2026 (under review)

Circulatory Support Escalation – tMCS in CS


Circulation: Heart Failure

CURRENT ISSUE

Originally Published 24 April 2026 | Check for updates

Circulatory Support Escalation in Cardiogenic Shock Outcomes and Predictors of Successful Escalation from an International, Multi-Center Cardiac Intensive Care Registry

Luca Baldetti, Guglielmo Gallone, Jorge A. Ortega-Hernandez, Giulio Cacioli, Mariagiulia Festi, Francesca Pirone, Federica Curro Dossi, ...

SHOW ALL ... , and Anna Mara Scandroglio | AUTHOR INFO & AFFILIATIONS

Escalation in 30% of patients with CS after a median of 38 hrs from CICU admission

Independent predictor of:
In-hospital mortality; ICU length of stay; major complications

Predictors of successful escalation:
younger age, SCAI B–C, preserved RV function (higher TAPSE), greater diuresis in the previous 6 hours

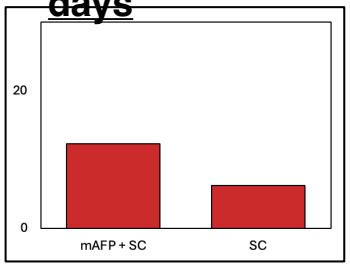
Circulatory Support Escalation

Any incremental change in the support strategy after an initial bundle of care was established for at least 4 hours.

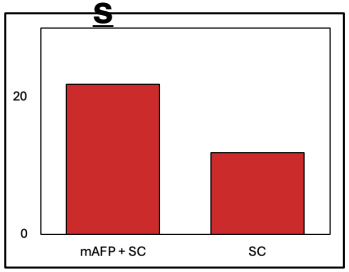
Baldetti L, Gallone G, Ortega-Hernandez JA, Cacioli G, Bocchino P, et al.Circ Heart Fail. 2026 Apr 24.

Complications – tMCS in CS

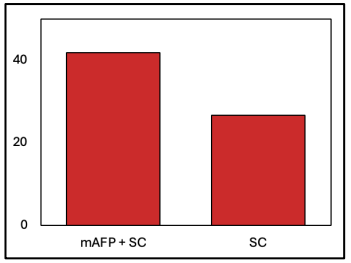
ICU stay ≥30 days



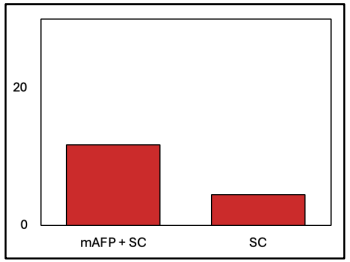
Bleedings



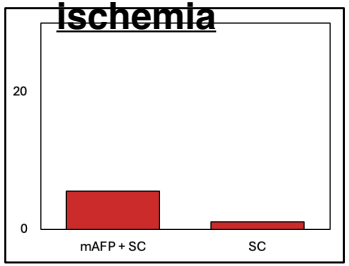
RRT



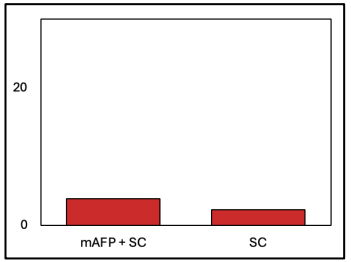
Sepsis



Limb Ischemia



Stroke

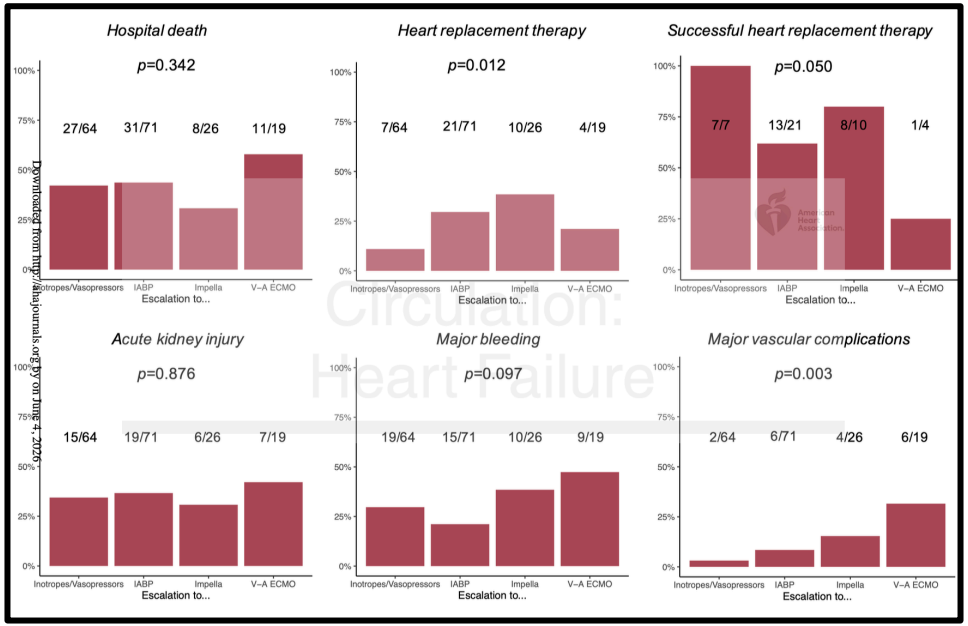


Complication Rate in a Clinical Trial

Adapted from Moeller et al. N Engl J Med . 2024 Apr 18;390(15):1382-1393

Credits to Guglielmo Gallone, MD *«Città della Salute e della Scienza» Hospital, Turin*

Complications – tMCS in CS



In a real world cohort of CS Complications explained 24% (95%CI 9-40%; *p*<0.001) of the association between escalation and hospital death (OR 2.44; 95%CI 1.64-3.63).

Baldetti L, Gallone G, Ortega-Hernandez JA, Cacioli G, et al.Circ Heart Fail. 2026 Apr 24.

Conclusions

In the modern era, cardiogenic shock management is less about device selection and more about trajectory recognition.

Escalation or de-escalation decisions should not be based on isolated hemodynamic thresholds, but on integrated assessments that incorporate clinical evolution, invasive hemodynamics, echocardiographic data, and organ damage

Paradigm shift: from rescue to physiology-driven support, recovery-oriented bridge, which goes beyond short-term survival and looks at optimizing the patient for definitive therapy (LVAD or transplant).

Proactive approach with multidisciplinary teams and serious reassessments to define trajectory and optimize patient outcomes.

Grazie!

Giulio Cacioli, MD
Contact: giulio.cacioli@gmail.com

Thanks to the ITA-MEX Registry Investigators

I.R.C.C.S. Ospedale San Raffaele