



31 GIORNATE CARDIOLOGICHE TORINESI

TURIN
October
24th-26th
2019

MANAGEMENT FOR CARDIOGENIC SHOCK: CLINICAL SESSION

Management of cardiogenic shock:
watchful escalating approach
or early support?

The solution (of the clinical case)

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trattamento: the hemodynamic support equation

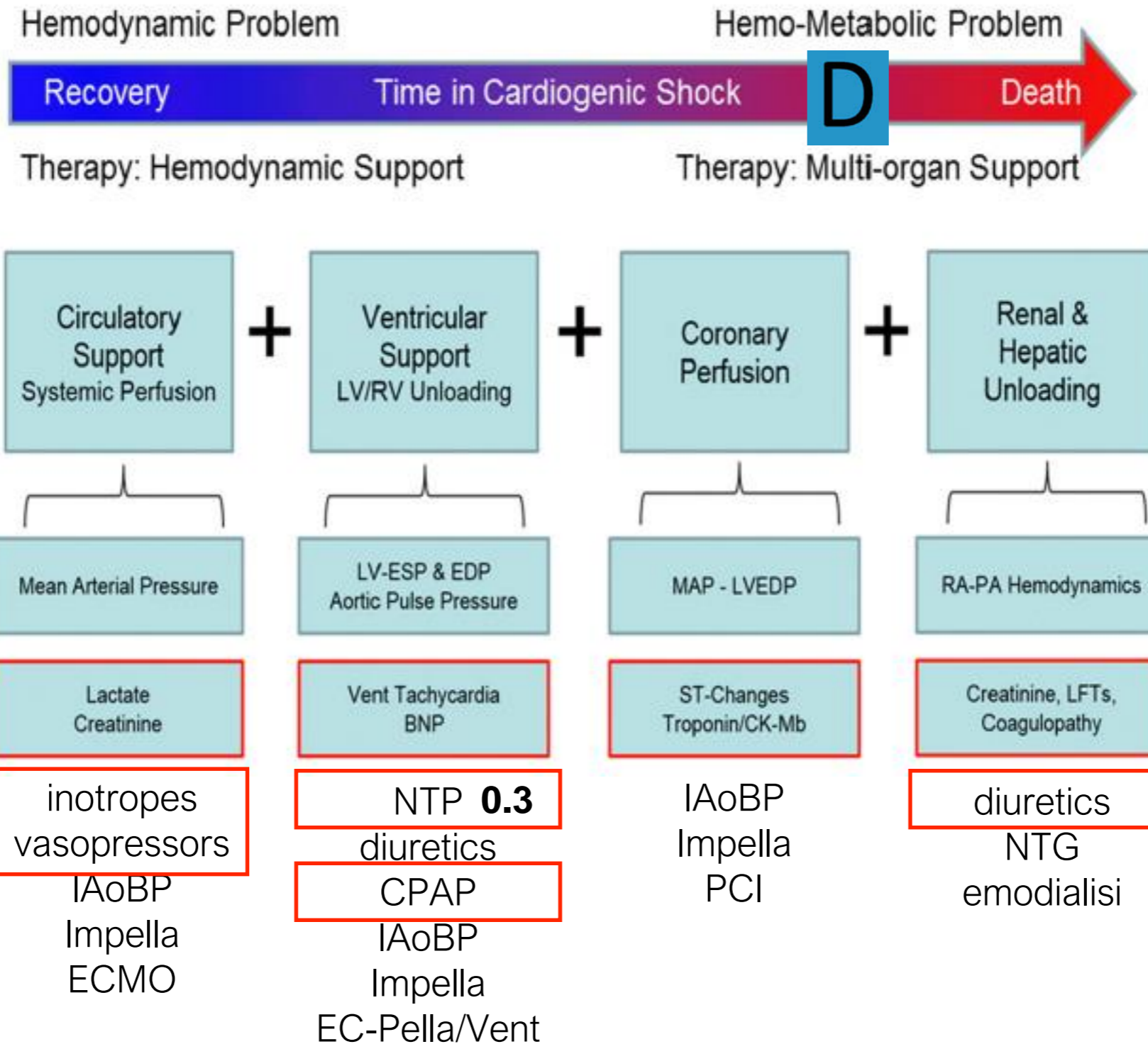
REVIEW

Acute mechanical circulatory support for cardiogenic shock: the “door to support” time

Michele L Esposito ^{id}, Navin K Kapur ^{id}

The Cardiovascular Center, Tufts Medical Center, 800 Washington Street, Boston, Massachusetts, 02339, USA

giorno 0



trattamento: the hemodynamic support equation

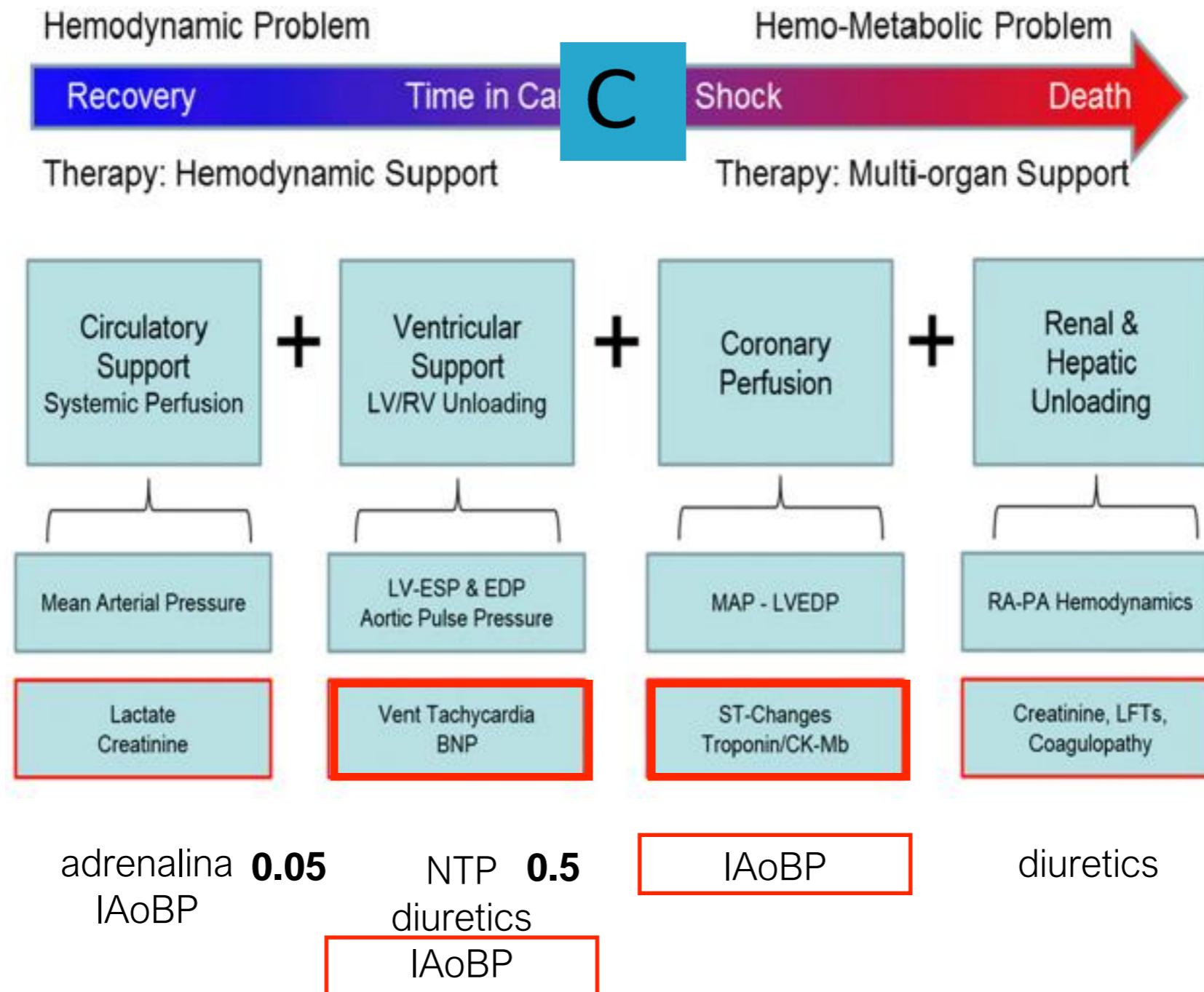
REVIEW

Acute mechanical circulatory support for cardiogenic shock: the “door to support” time

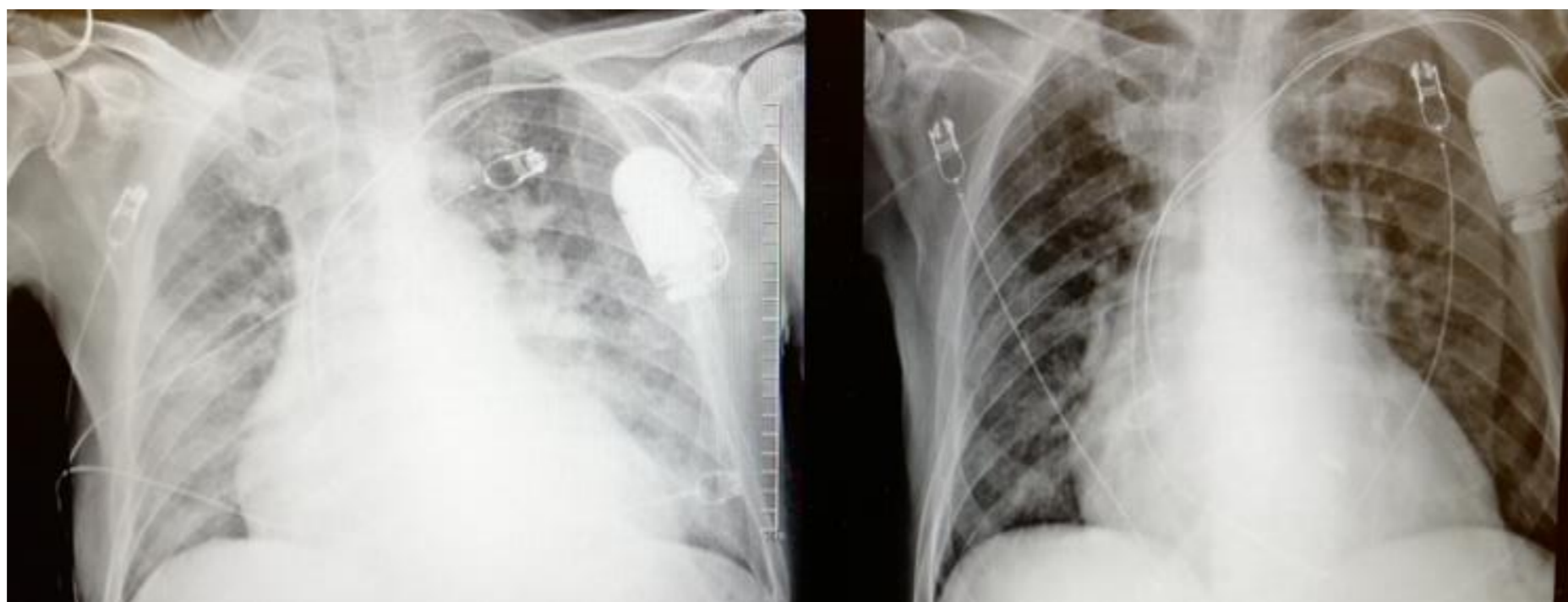
Michele L Esposito ^{id}, Navin K Kapur ^{id}

The Cardiovascular Center, Tufts Medical Center, 800 Washington Street, Boston, Massachusetts, 02339, USA

giorno 1



giorno 5



DATI E CALCOLI EMODINAMICI

CONDIZIONE DI STUDIO: BASALE

FC: 80 b/min Ritmo: ARITMIA ATRIALE

	P.sist.	P.dias.	PTD	P.media	A	V	Satur.(%)
Ao	114	77		91			98
Cap-palm				15		17	
A-palm	39	29		32			68
Vdx	39	1	9				
Adx M				11		12	

Portata

Fick: 4,25 l/min TermD: 2,76 l/min FC: 80 b/min

Indice cardiaco: 1,46 (l/min)m²

Resistenze (UW)

polmonari arteriolari: 6,16 u polmonari totali: 11,59 u sistemiche: 28,99 u

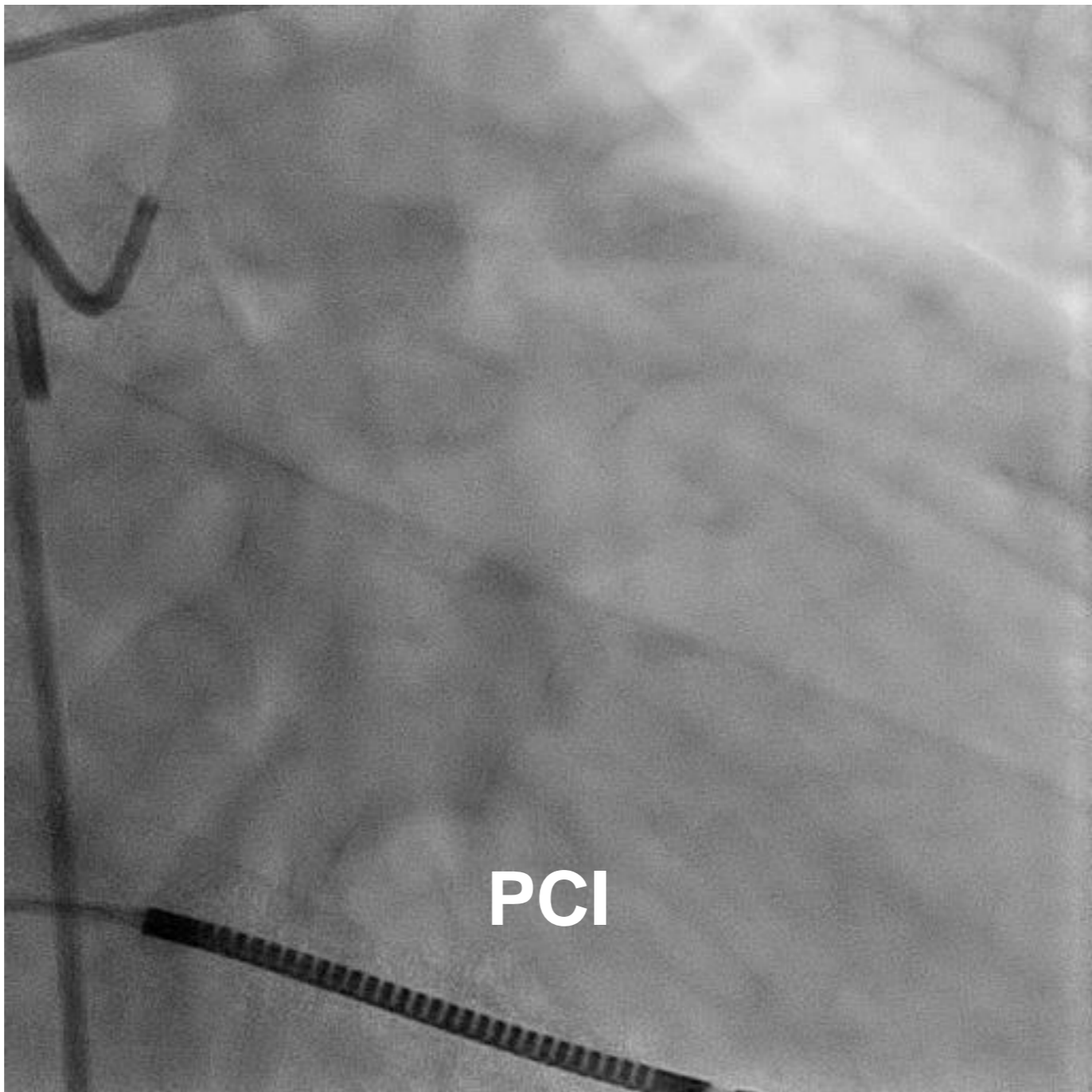
Note: Lieve ipertensione polmonare post-capillare. Resistenze polmonari arteriolari aumentate. Indice cardiaco ridotto.

RAP/WP 0.73

PAPi 0.9

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Table 2		INTERMACS Patient Profiles (20)	
Level	Definition	Description	
3	Stable but inotrope dependent	Stable but dependent	

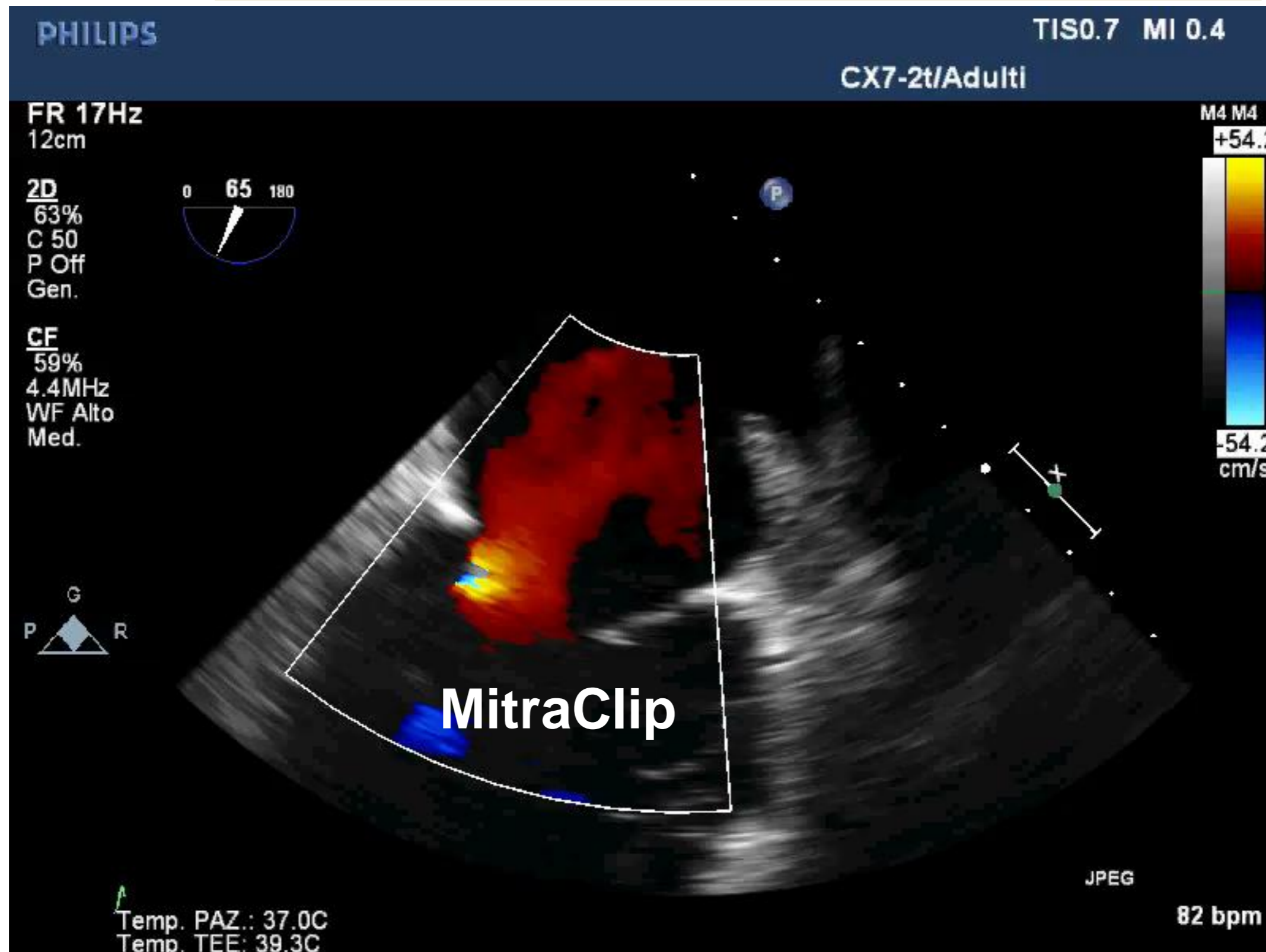


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Table 2

INTERMACS Patient Profiles (20)

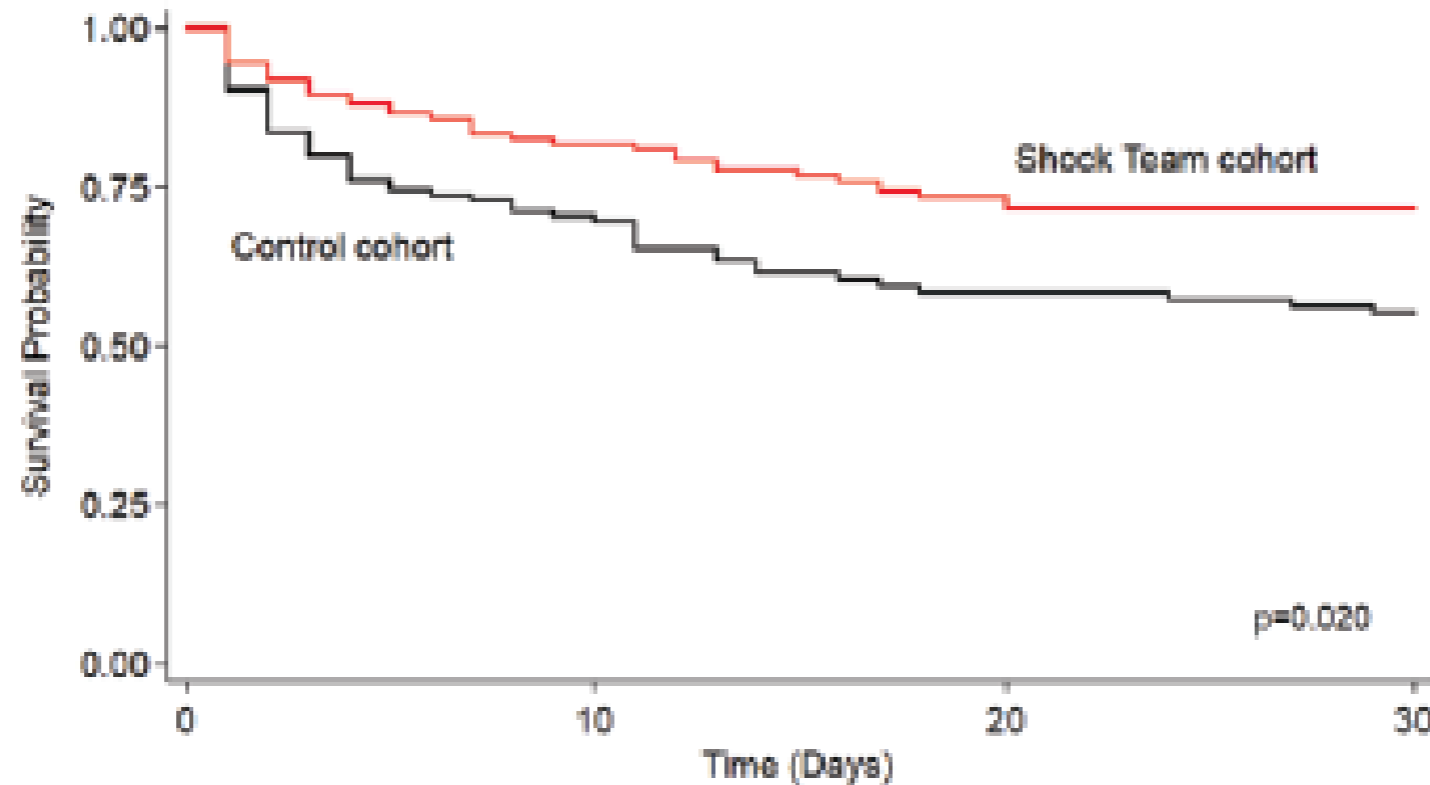
Level	Definition	Description
6	Exertion limited	“Walking wounded”



Shock Team Approach in Refractory Cardiogenic Shock Requiring Short-Term Mechanical Circulatory Support

A Proof of Concept

Iosif Taleb, MD
Antigone G. Koliopoulou, MD
Anwar Tandar, MD
Stephen H. McKellar, MD, MSc
Joseph E. Tonna, MD
Jose Nativi-Nicolau, MD
Miguel Alvarez Villela, MD
Frederick Welt, MD
Josef Stehlik, MD, MPH
Edward M. Gilbert, MD
Omar Wever-Pinzon, MD
Jack H. Morshedzadeh, MD
Elizabeth Dranow, PhD
Craig H. Selzman, MD
James C. Fang, MD
Stavros G. Drakos, MD, PhD



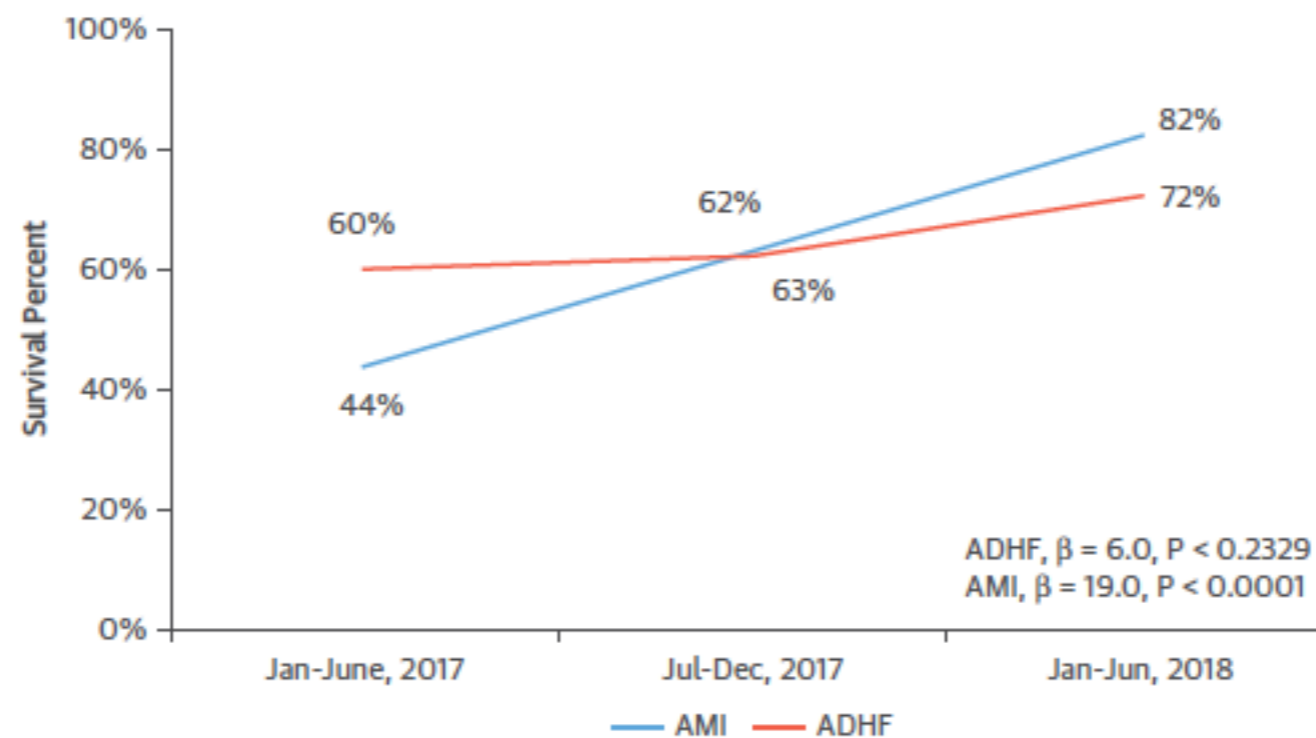
Standardized Team-Based Care for Cardiogenic Shock



Behnam N. Tehrani, MD,^a Alexander G. Truesdell, MD,^{a,b} Matthew W. Sherwood, MD,^a Shashank Desai, MD,^a Henry A. Tran, MD,^a Kelly C. Epps, MD,^a Ramesh Singh, MD,^a Mitchell Psofka, MD, PhD,^a Palak Shah, MD,^a Lauren B. Cooper, MD,^a Carolyn Rosner, NP,^a Anika Raja, BS,^a Scott D. Barnett, PhD,^a Patricia Saulino, RN, MPA,^a Christopher R. deFilippi, MD,^a Paul A. Gurbel, MD,^a Charles E. Murphy, MD,^a Christopher M. O'Connor, MD^a

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FIGURE 1 30-Day Survival According to Group and Time Period



ADHF = acute decompensated heart failure; AMI = acute myocardial infarction.

1. diagnosi precoce
2. emodinamica invasiva
3. stabilire e raggiungere gli obiettivi terapeutici
4. vasopressori e inotropi alle minori dosi possibili
5. supporto meccanico precoce
6. *recupero della funzione cardiaca (cardioprotezione)*

1. diagnosi precoce



2. emodinamica invasiva

Trends in Utilization and Outcomes of Pulmonary Artery Catheterization in Heart Failure With and Without Cardiogenic Shock

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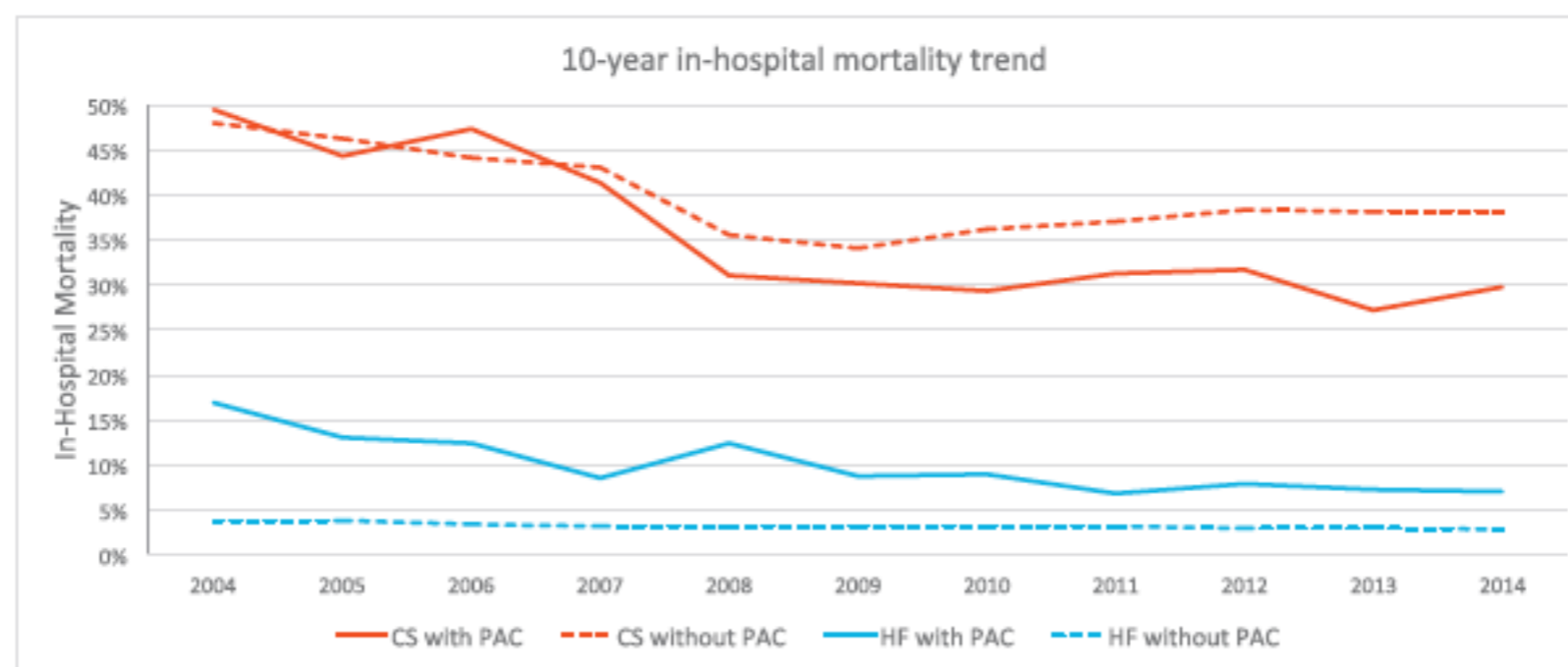


Fig. 2. Mortality in heart failure (HF) and cardiogenic shock (CS) with and without pulmonary artery catheterization (PAC) use.

Conclusions: The use of PAC in CS has decreased from 2004 to 2014, although its use is now associated with improved outcomes, which may reflect better selection of patients or better use of the information to guide therapies. Our data provide reassurance that PAC use in this population is an appropriate strategy.

3. raggiungere gli obiettivi terapeutici

Letter to the Editor

Cardiogenic shock: How to overcome a clinical dilemma. Unmet needs in Emergency medicine



Nuccia Morici ^{a,*}, Alice Sacco ^a, Roberto Paino ^a, Jacopo Andrea Oreglia ^a, Maurizio Bottiroli ^a, Michele Senni ^b, Michele Nichelatti ^c, Paolo Canova ^b, Claudio Russo ^a, Andrea Garascia ^a, Silvio Kulgmann ^a, Maria Frigerio ^a, Fabrizio Oliva ^a

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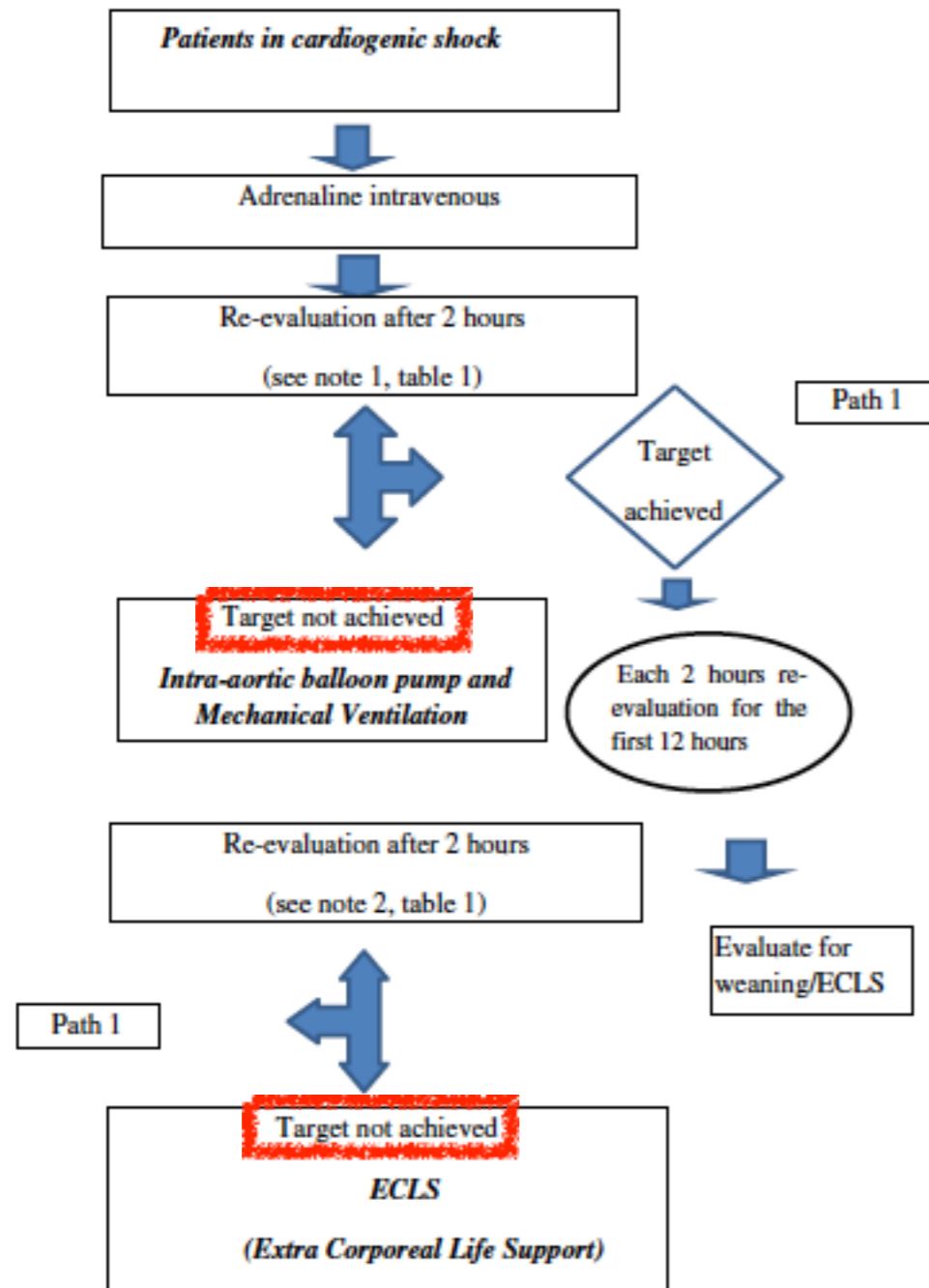


Fig. 1. Flow chart of study design.

sopravvivenza a 60 giorni: 87.5%

4. vasopressori e inotropi alle minori dosi possibili

Epinephrine for acute decompensated heart failure and low output state: Friend or foe?

Nuccia Morici ^{a,1}, Alice Sacco ^{a,1}, Fabrizio Oliva ^c, Stefano Ferrari ^a, Roberto Paino ^d, Filippo Milazzo ^d, Maria Frigerio ^c, Roberto Pirola ^b, Silvio Klugmann ^b, Antonio Mafri ^{a,*}

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2. Epinephrine infusion was started at 0.05 mcg/Kg/min with rapid titration till target attainment (mean arterial pressure >65 mm Hg, mixed venous saturation >60%);
3. After achieving a stable blood pressure, a sodium nitroprusside infusion was started and tailored in order to normalize loading conditions, vascular resistance and peripheral perfusion.
4. Continuous infusion of moderate dose of loop diuretics was associated to achieve intensive unloading and to improve symptoms.

adrenalina 0.05 -> 0.12 y/Kg/min

In-hospital death occurred in 17 patients (48.6%). At 1-year follow up, all the patients discharged but one was alive. Nine patients (25.7%) underwent an orthotopic heart transplantation. Re-hospitalization for cardiovascular causes occurred only in 2 patients (5.7%).

Table I. Targets to reach at each step

1st step: goal reached if at least 6/9 of the following

If not: intensification of treatment with IABP and/or MV

- Heart rate <130 and >60
- Mean arterial pressure >65 mm Hg
- SV_{O_2} >60%
- P_{aO_2} >60
- Trend in reduction of serum lactates
- Respiratory rate <30/min
- Diuresis >0.5 mL/kg/h
- Epinephrine dose <0.07 μ g/kg/min
- Reduction of at least 20% compared to admission CVP

2nd step: goal reached if at least 5/8 of the following

If not: intensification of treatment with ECMO

- Heart rate <130 and >60
- Mean arterial pressure >65 mm Hg
 - SV_{O_2} >60%
 - P_{aO_2} >60
- Lactates decrease \geq 25% with respect to V3
- Wedge pressure <18 or E/E' <14
- Diuresis >0.5 mL/kg/h
- Epinephrine dose <0.12 μ g/kg/min without upgrade of other inotropes/vasopressors

MV, mechanical ventilation; ECMO, extracorporeal membrane oxygenation; SV_{O_2} , mixed venous oxygen saturation measurements; P_{aO_2} , oxygen partial pressure; V3, visit 3 (at 4 hours); CVP, central venous pressure.

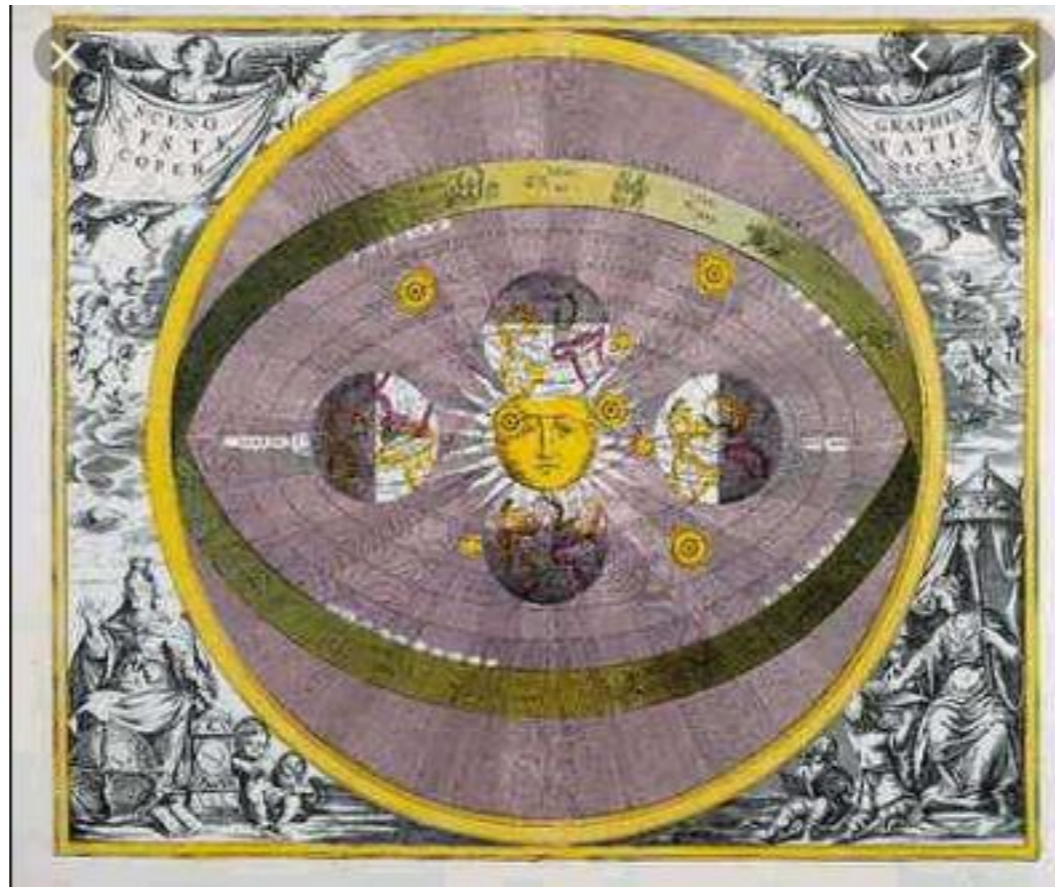
5. supporto meccanico precoce

CARDIOGENIC SHOCK: EARLY SUPPORT IS INDICATED

Nuccia Morici

Unità di Cure Intensive Cardiologiche

ASST Grande Ospedale Metropolitano Niguarda, Milano



da un approccio focalizzato sul farmaco e/o sul device
a un approccio focalizzato sulla sindrome

grazie