

Mario Nosotti

COME SI PRESERVANO E VALUTANO GLI ORGANI?

Il prelievo di organi "full DCD"

STATI GENERALI



RETE NAZIONALE
TRAPIANTI

6.7.8 NOVEMBRE

ROMA

DCD: Maastricht classification

- *Category I= uncontrolled, found dead, out-of-/in-hospital*
- *Category II= uncontrolled, witnessed CA, out-of-/in-hospital*
- *Category III= controlled, withdrawal of life sustaining therapy*
- *Category IV= uncontrolled/controlled, cardiac arrest while life-brain dead*



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6th International Conference on Organ Donation after Circulatory Death, Paris 2013

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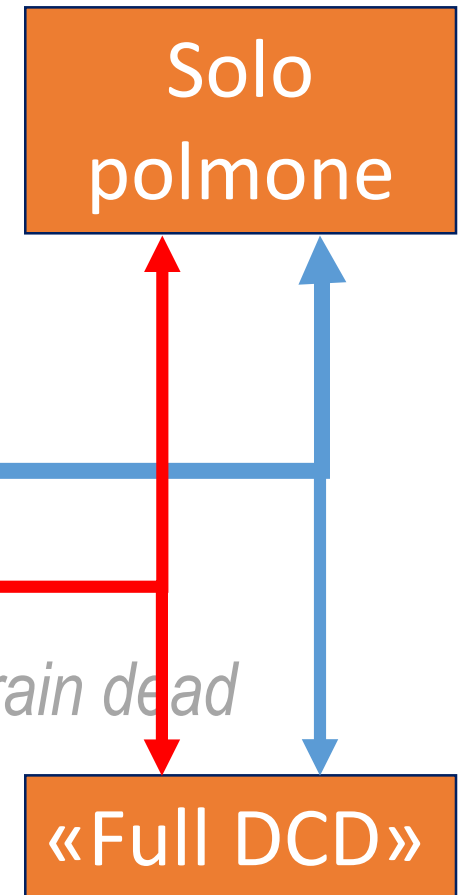
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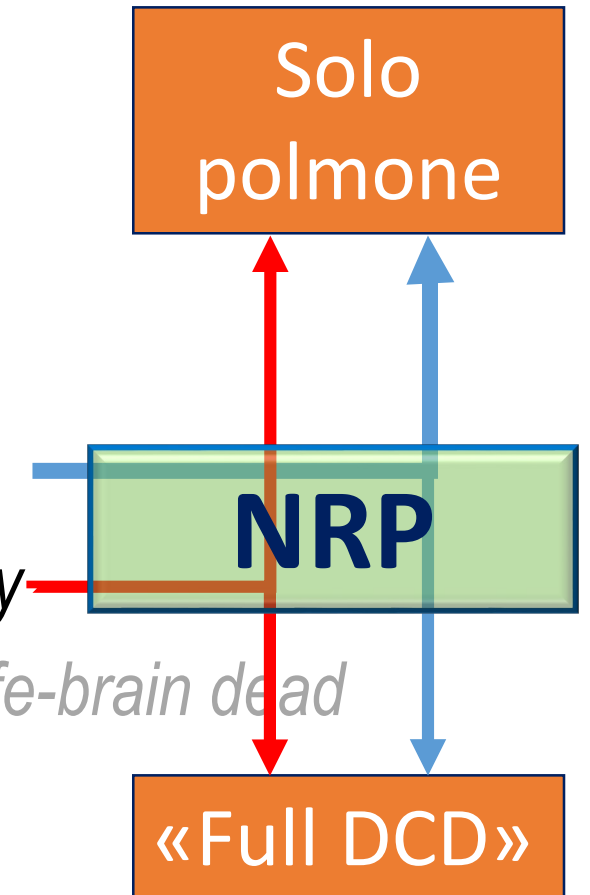
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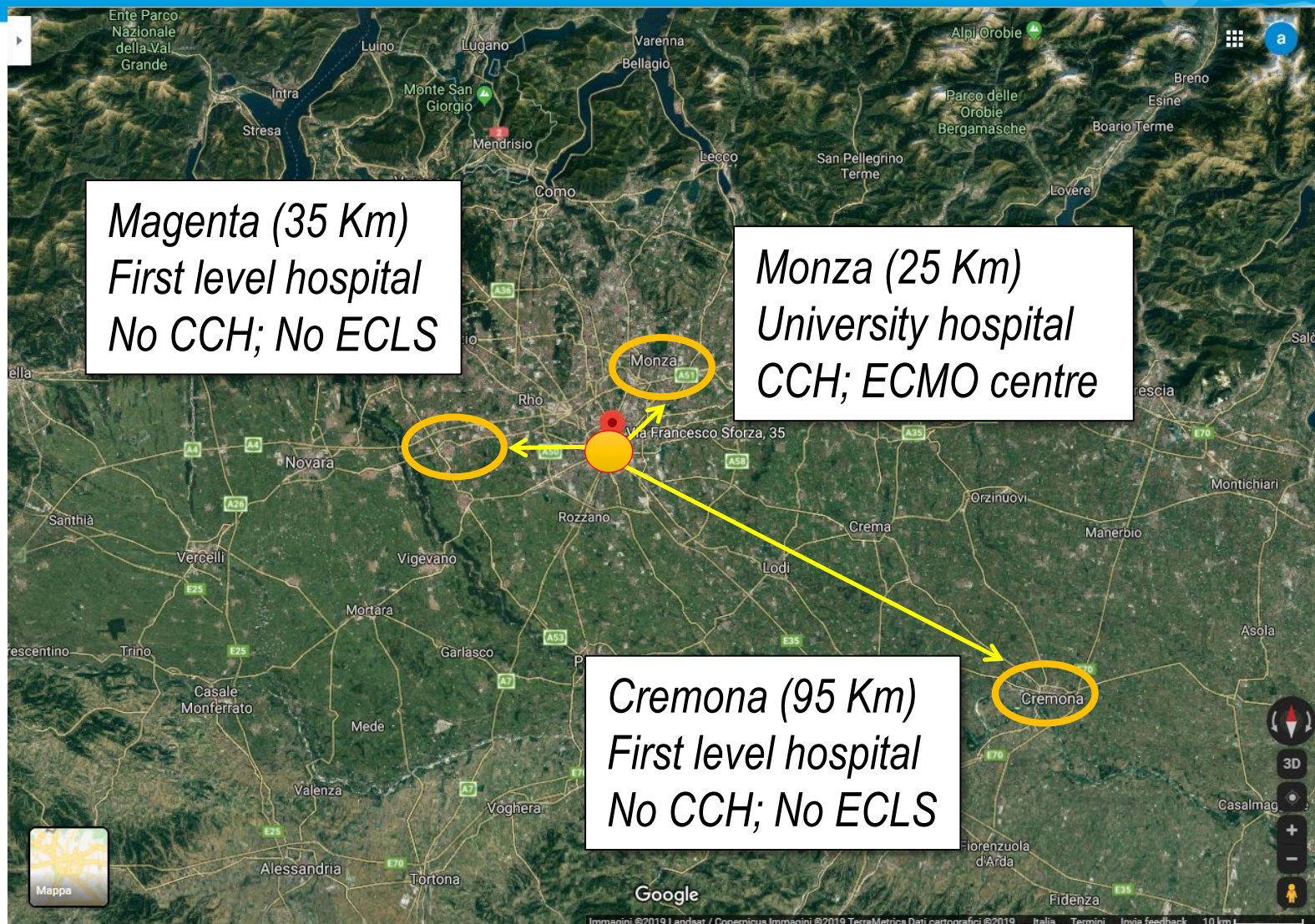
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American Journal of Transplantation 2016; 16: 1312–1318
Wiley Periodicals, Inc.

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Wiley Periodicals, Inc. on behalf of American Society of Transplant Surgeons

doi: 10.1111/ajt.13612

Case Report

Successful Transplantation of Lungs From an Uncontrolled Donor After Circulatory Death Preserved *In Situ* by Alveolar Recruitment Maneuvers and Assessed by *Ex Vivo* Lung Perfusion

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M. Nosotti^{2,5}, S. Gatti⁶, S. Ravasi⁷, S. Vesconi⁸,
A. Pesenti^{3,4}, F. Blasi^{2,9}, L. Santambrogio^{2,5} and
L. Gattinoni^{1,2}

and protective mechanical ventilation is applied to the donor. After procurement, *ex vivo* lung perfusion (EVLP) is performed. From November 2014, 10 subjects were considered potential donors; one of these underwent the full process of procurement, EVLP, and transplantation. The donor was a 46-year-old male who died because of thoracic aortic

Interactive Cardiovascular and Thoracic Surgery (2019) 1–7
doi:10.1093/icvts/ivz160

ORIGINAL ARTICLE

Cite this article as: Paleschi A, Tosi D, Rosso L, Zanella A, De Carlis R, Zanierato M *et al.* Successful preservation and transplant of warm ischaemic lungs from controlled donors after circulatory death by prolonged *in situ* ventilation during normothermic regional perfusion of abdominal organs. *Interact CardioVasc Thorac Surg* 2019; doi:10.1093/icvts/ivz160.

Successful preservation and transplant of warm ischaemic lungs from controlled donors after circulatory death by prolonged *in situ* ventilation during normothermic regional perfusion of abdominal organs

Alessandro Paleschi^a, Davide Tosi^{a,*}, Lorenzo Rosso^a, Alberto Zanella^b, Riccardo De Carlis^c,
Marinella Zanierato^d, Elena Benazzi^e, Paolo Tarsia^f, Michele Colledan^g and Mario Nosotti^a



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Controlled “Full DCD” background

- The concept of WLST begins to be accepted in Italy.
- 9/2015: first Italian program of DCD liver transplant using NRP
- Need to combined procurement lungs and abdominal organs, paying attention to adequate NRP (4h, at least)
- Lung ischemia resistance

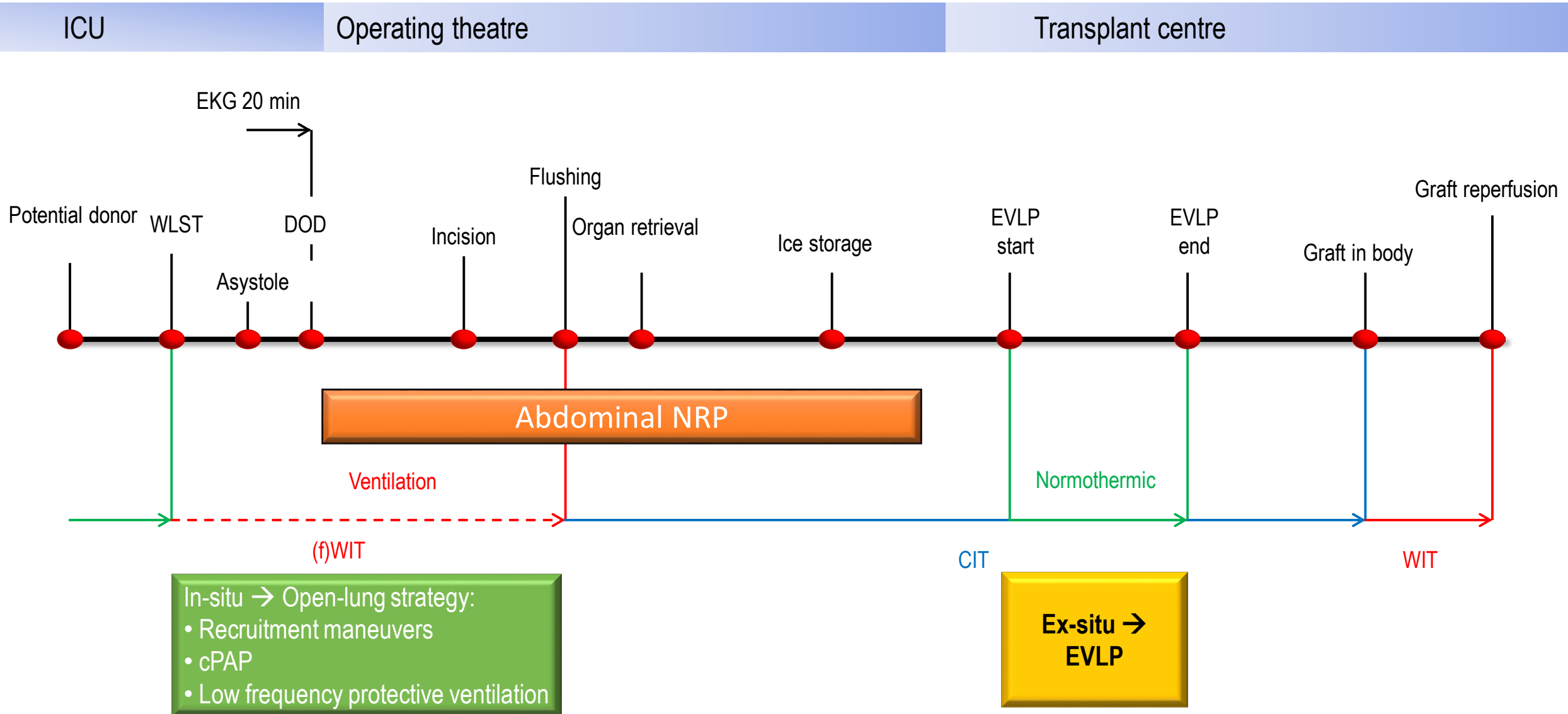


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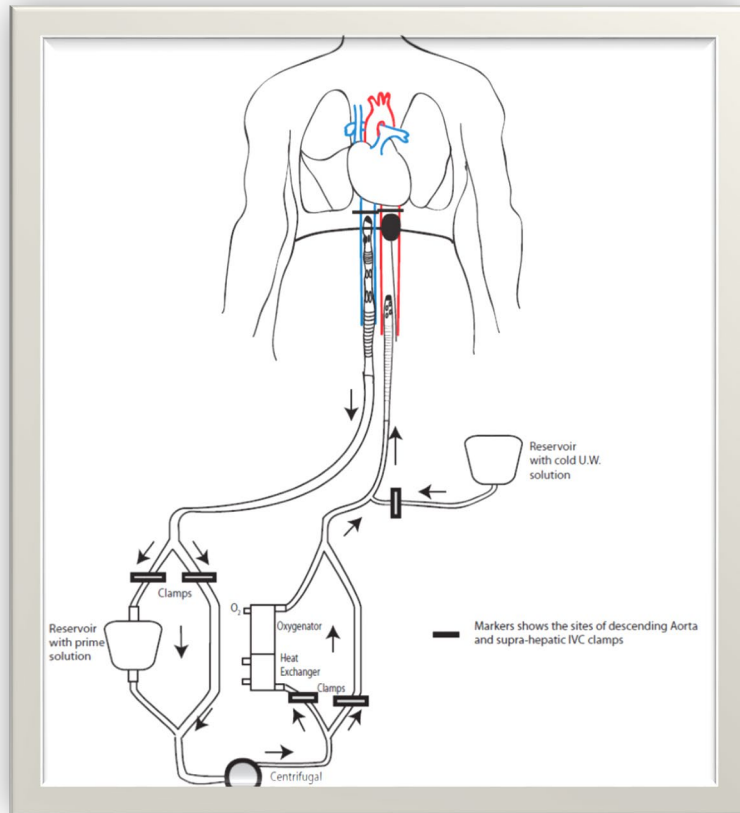
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Controlled "Full DCD" Milan current schedule

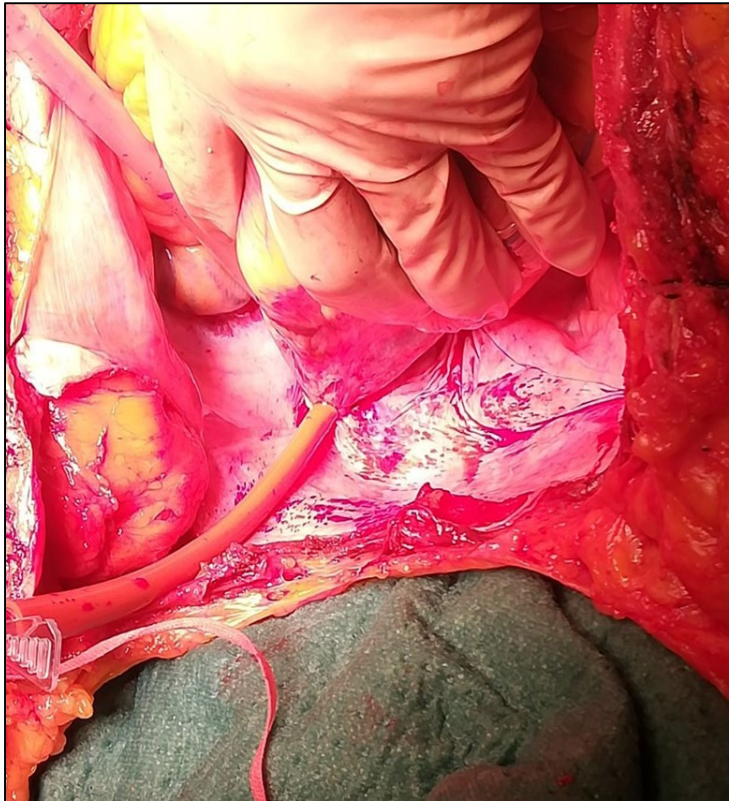


Controlled “Full DCD” Milan current schedule



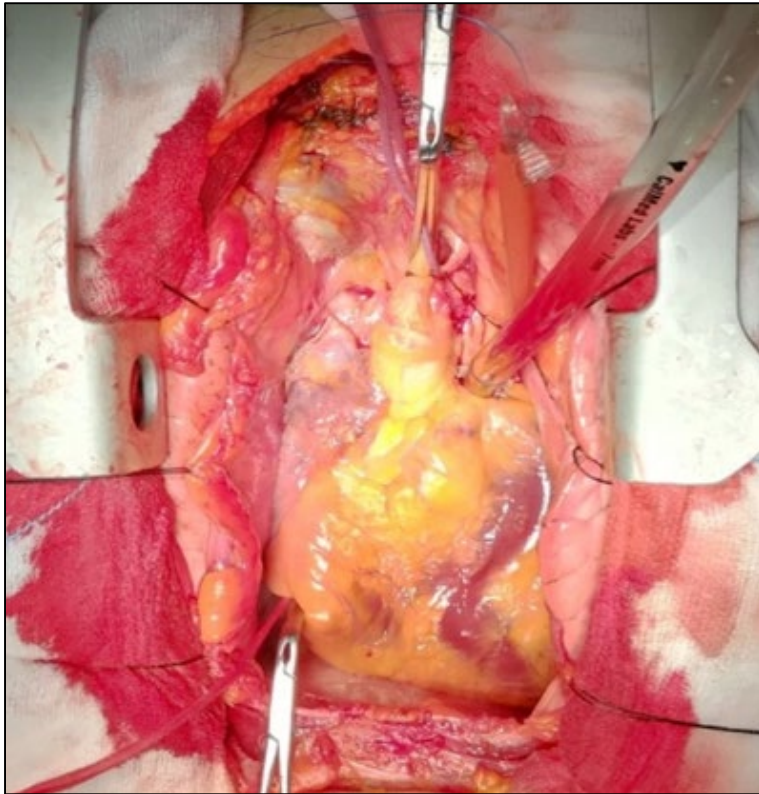
- WLST
- Heparin 300 U/kg (sBP < 50 mm Hg)
- Asystole - DOD
- Abdominal NRP
- 1st Recruitment Maneuver + protective ventilation

Controlled “Full DCD” Milan current schedule



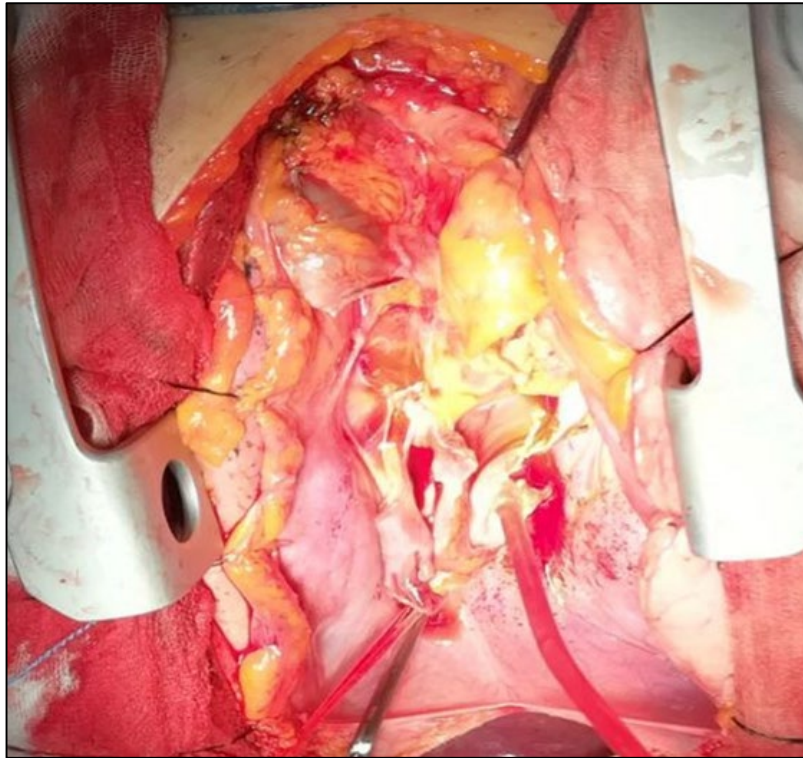
- Median sternotomy and laparotomy (!)
- Tourniquet at IVC
- Lungs evaluation and assessment
- 2nd Recruitment Maneuver - protective ventilation
- Ligature SVC
- Clamp abdominal aorta

Controlled “Full DCD” Milan current schedule



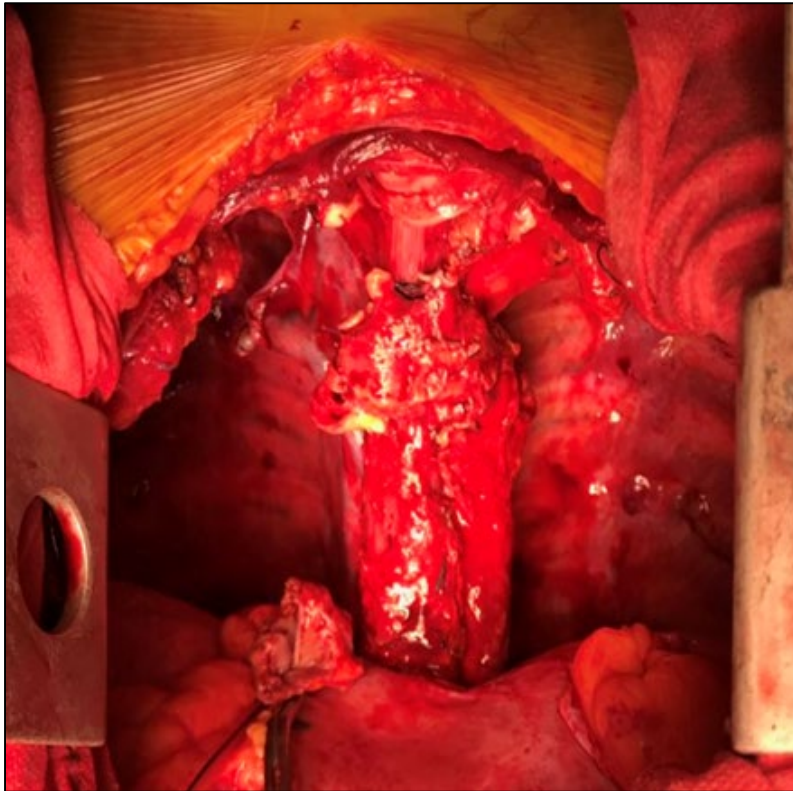
- PA cannulation
- First NRP-test: venous return, pump flow rate, lactate trend
- PGE1-heart massage
- Anterograde cold flush (Perfadex)
- Amputation tips of left and right appendages
- Topical cooling cold saline

Controlled “Full DCD” Milan current schedule



- Flush completion
- **Second NRP-test**
- IVC definitive clamped
- Cardiectomy
- Retrograde flushing (250-500 mL/pulmonary vein).

Controlled “Full DCD” Milan current schedule



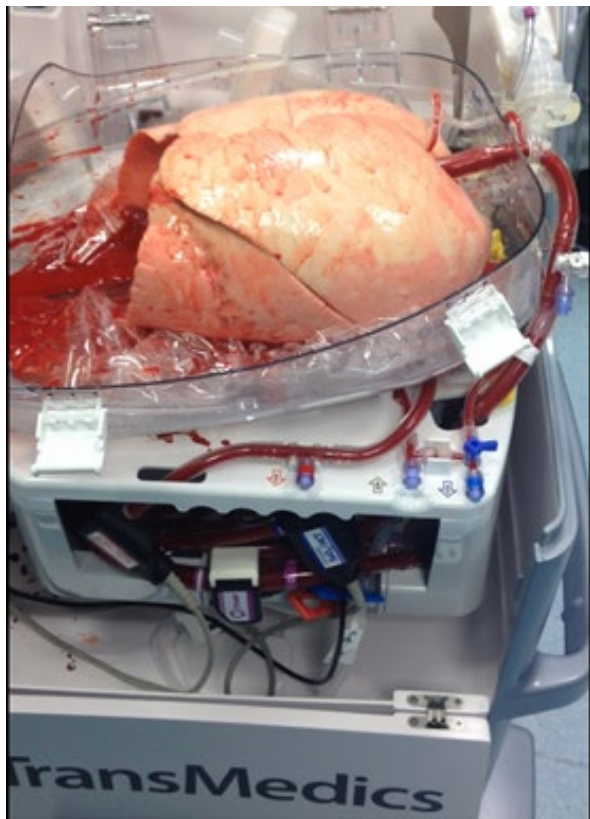
- Lungs procurement
- Meticulous hemostasis
- Abdominal NRP
- Abdominal organs procurement

Controlled “Full DCD” Milan current schedule



- Ex-Vivo Lung Perfusion
 - Target flow total= 40% cardiac output
 - Ventilation = volume control
 - Tidal volume = 7 ml/kg BW; Frequency= 7 bpm
 - PEEP= 5 cm H₂O; FiO₂= 40%
 - Pulmonary artery pressure < 15 mmHg
 - Left atrium = 0 mmHg (open)
 - Target temperature = 37 °C
 - STEEN solution + red cells (Hct 3-5%)
 - Total perfusion time = 4-6 h

Controlled “Full DCD” Milan current schedule



- *Organ Care System*

Controlled “Full DCD” hot points

- Ante-mortem interventions must avoid death acceleration or cause discomfort to the patient.
- Agonic time < 60 min (120)
- Tracheal extubation
- Teams
- Double NRP test
- EVLP

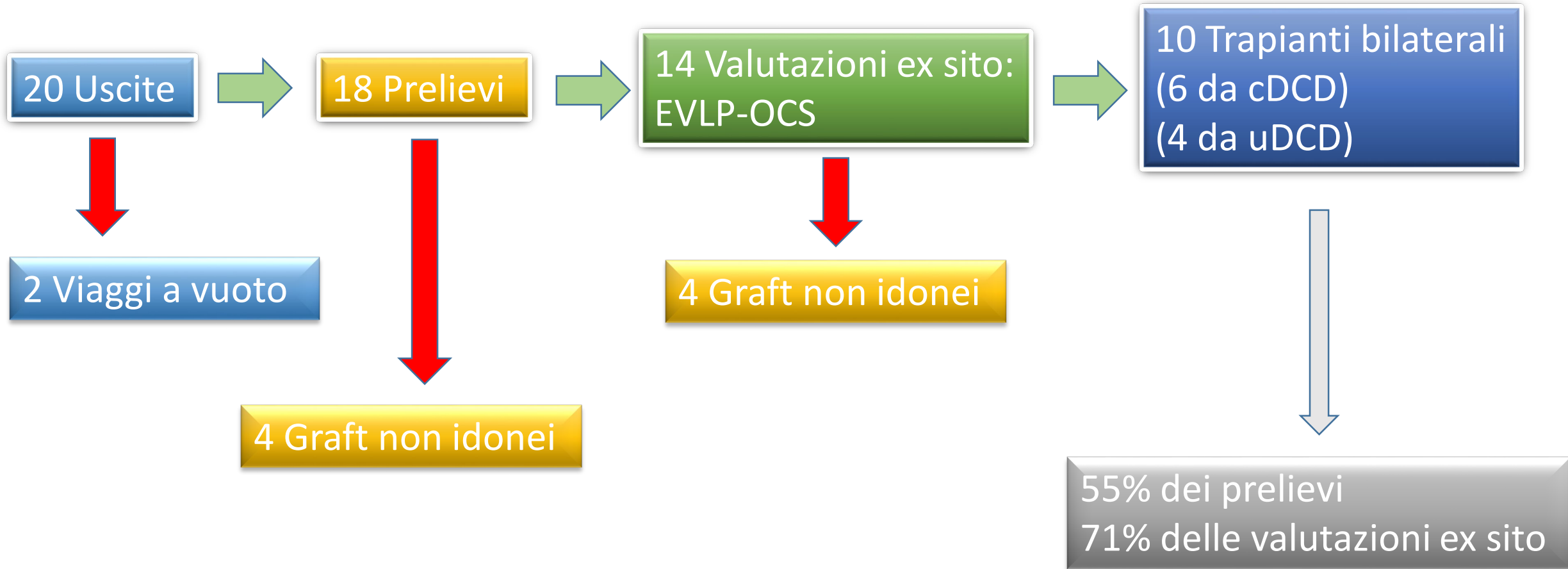


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DCD: Milan experience (2017-2019)



DCD Milan experience

(2017-2019)

		DCD: 10	DBD:41
Donatori	Maschi	90%	68%
	Età (mediana)	54	50
Riceventi	Maschi	50%	56%
	Età (mediana)	42	37
	LAS (mediana)	40	40.5
	Macchine da perfusione	100%	17.6%
	ECMO intraoperatorio	60%	50%
	Ventilazione meccanica gg (mediana)	2	1
	Mortalità 30 giorni	0%	0%
	Mortalità 1 anno	0%	2%
Best FEV1 (media)	82.7%	90.1%	



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Grazie per l'attenzione



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