Donazione d'organo a cuore fermo: l'esperienza toscana

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AOUC

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Documento del Centro Nazionale Trapianti (CNT)

Donazione di Organi a Cuore fermo (DCD) in Italia

Raccomandazioni Operative

Riferimenti operativi Italiani

- Protocollo Alba 2.0 - 2015
- Prelievo polmoni da donatore a cuore fermo e successivo ricondizionamento Monza-Milano 2014
- Implementazione della donazione a cuore fermo nell'AOU di Careggi 2014-15

REGIONE TOSCANA
UFFICI REGIONALI GIUNTA REGIONALE

ESTRATTO DAL VERBALE DELLA SEDUTA DEL 29-07-2019 *(punto N 45)*

Delibera *N 1003* *del 29-07-2019*

OTT Organizzazione Toscana Trapianti

Allegato 1

PROGRAMMA DI PROCUREMENT DA DCD
NELLA REGIONE TOSCANA

Applicazione del programma di procurement da donatore a cuore fermo (DCD) presso gli stabilimenti ospedalieri della Regione Toscana

Implementing a donation after circulatory death program in a setting of donation after brain death activity

Adriano PERIS [1, 2] *, Chiara LAZZERI [1], Giovanni CIANCHI [1], Manuela BONIZZOLI [1], Stefano BATACCHI [1], Andrea FRANCI [1], Mario RUGNA [3], Lucia DE VITO [3], Pier F. TICALI [4], Vincenzo LI MARZI [5], Maria L. MIGLIACCIO [1]

Minerva Anestesiologica 2018

AIM

We describe our *one-year experience* of the DCD program implemented at the Careggi teaching Hospital (Florence, Italy) *since June 2016*.

We specifically describe **organizational changes** induced by the DCD program on our pre-existing Donation after Brain Death (DBD) program and DcD activity.

Peris et al Minerva Anestesiologica 2018

Key elements for the DCD program implementation

a)Training program

b) Preexistence of a multidisciplinary ECMO team

c) Role of the transplantation coordinator and the existence of a consolidated DBD program

Peris et al Minerva Anestesiologica 2018

TRAINING PROGRAM

The DcD *program was preceded* by training courses for all the professionals (physicians, nurses, perfusionists) involved in the program and by alignment of organizational and techno-logical standards derived from health systems that had already started a similar program

Peris et al Minerva Anestesiologica 2018

TRAINING PROGRAM

It consisted in courses (endorsed by the National transplantation authority CNT) on the organizational process and the technical aspects and in simulation sessions

Peris et al Minerva Anestesiologica 2018

Multidisciplinary ECMO team

- The pre existence of a multidisciplinary ECMO team is an important first step.

- We implemented a network between the emergency medical system (EMS), the ED of our hospital and our ECMO team, with *early alert by the EMS, so the ECMO team is already at the Emergency Department when the patient arrives*

Peris et al Minerva Anestesiologica 2018

The **transplantation coordinator** holds a key role since he/she (together with the physician in charge) communicates with the potential donor's family discussing donation . This process is often lengthy and stressful

Peris et al Minerva Anestesiologica 2018

The DCD program implementation may be facilitated where a DBD program is already consolidated *because all professionals are familiar with organ procurement pathways.*

Peris et al Minerva Anestesiologica 2018

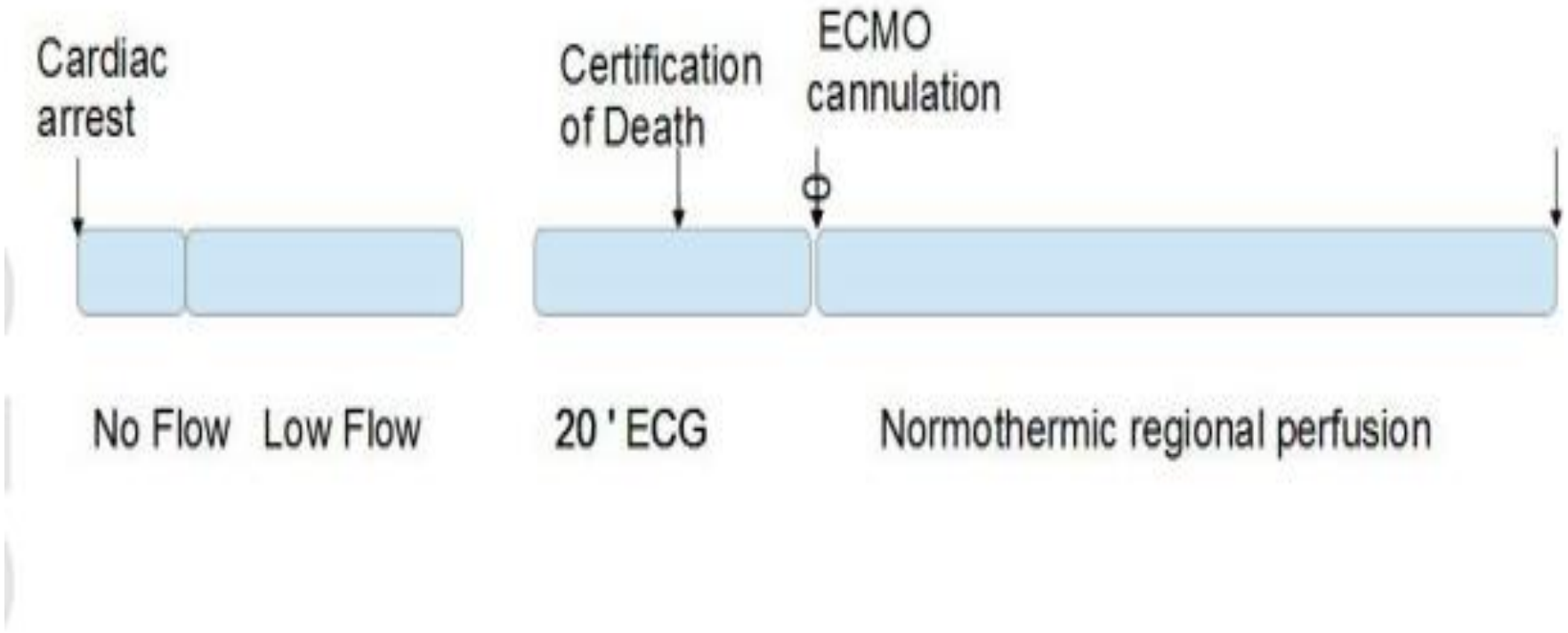
INCLUSION CRITERIA

Inclusion criteria are:

- age 15-65 years;
- witnessed cardiac arrest;
- the patient identification is clear;
- his/her relatives are present;
- no flow time <20 minutes cardiac arrest-hospital time <90 minutes;
- cardiac arrest-the 20-minute no touch time <150 minutes.

Peris et al Minerva Anestesiologica 2018

TIME LINE FRAMES



Lazzeri et al Clin transpl 2018

ISCHEMIA-REPERFUSION INJURY

The Italian scenario is characterized by two main peculiarities/obstacles.

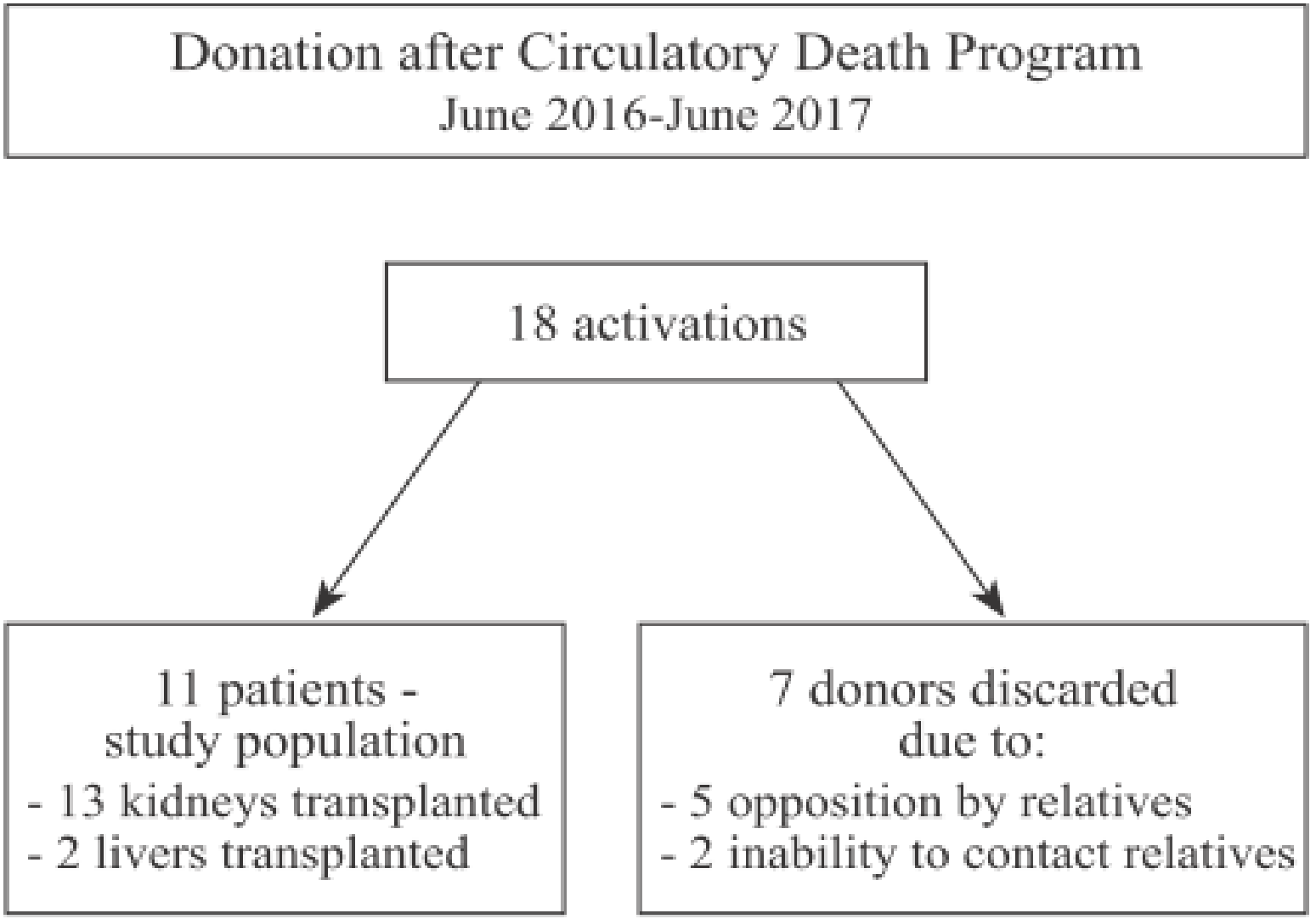
- the declaration of death based on circulatory criteria requires a no-touch period of at least 20 min, much longer compared to the 5 min accepted in other European countries.
- donor hospitals are generally logistically distant to transplant centers.

Lazzeri et al Resuscitation 2019

ISCHEMIA REPERFUSION INJURY

These two “geographic” factors may affect the reperfusion-ischemia injury on splanchnic organs and in Italy, much more than in other countries, **reperfusion strategies (in vivo and ex vivo) are mandatory in uDCDs.**

Lazzeri et al Resuscitation 2019



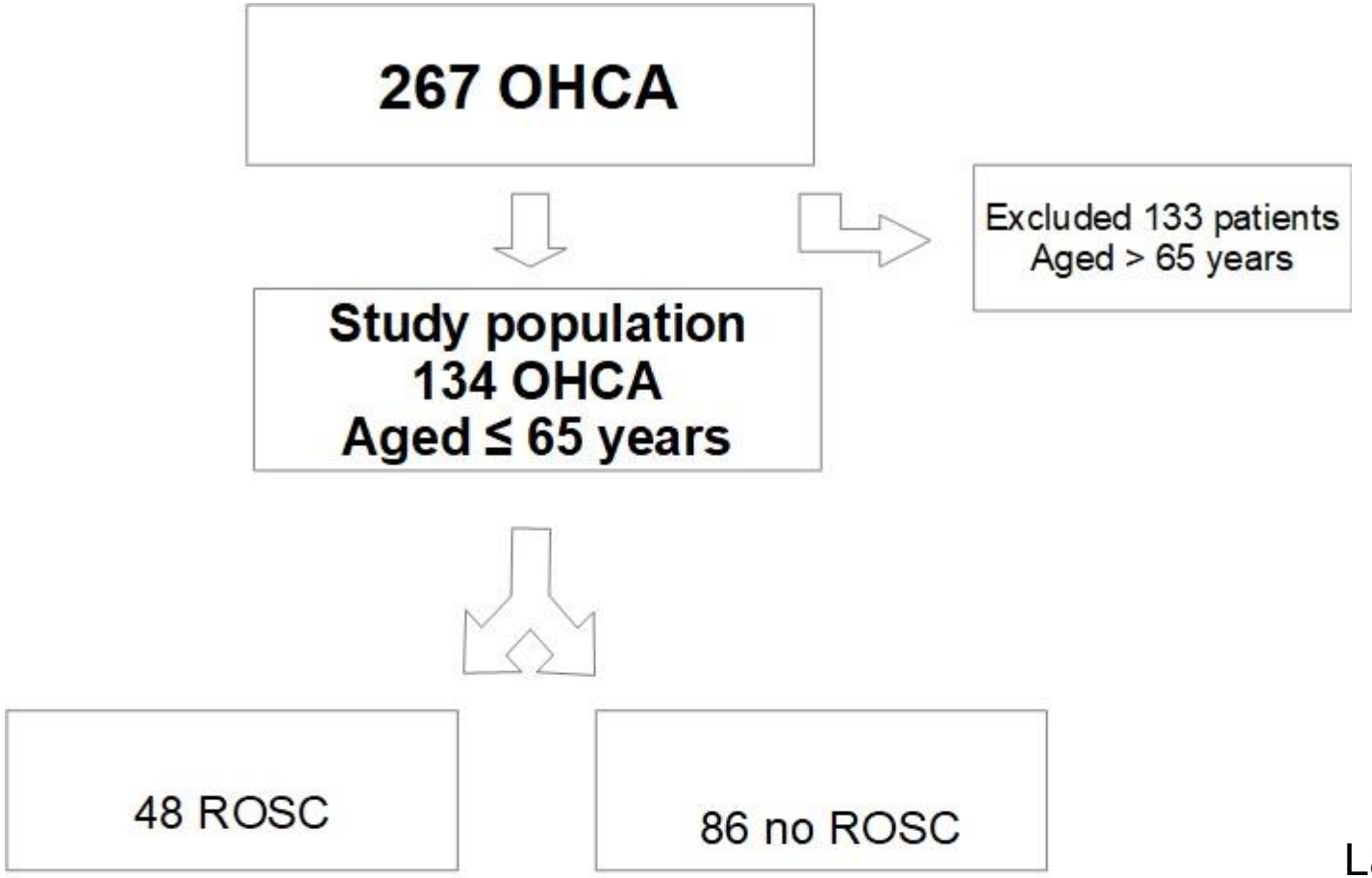
Peris et al Minerva Anestesiologica 2018

OUT OF HOSPITAL CARDIAC ARREST AND UNCONTROLLED DONATION AFTER CIRCULATORY DEATH IN A TERTIARY CARDIAC ARREST CENTER

Lazzeri et al EJEM in press

We aimed at assessing the **number of potential donors after out of hospital cardiac arrest (OHCA) in a tertiary cardiac arrest center with a Extracorporeal Membrane oxygenation (ECPR) and uncontrolled Donation after circulatory death (uDCD) programs.**

In our single center, prospective, observational study (June 2016 to December 2018), we included all OHCA consecutive patients aged ≤65 years .



Lazzeri et al EJEM in press

RESULTS

Among patients with ROSC, 15 patients died (15/48, 31%), among whom 7 became donors after brain death (7/15, 49%),

In the subgroup of the 26 patients treated with ECPR, 24 patients died (24/26, 92%) among whom eight were potential donors (33%, 8/34), and only 2 patients survived (7.7%, 2/26) though with good neurological outcome

Lazzeri et al EJEM in press

Among patients without ROSC, twenty-five patients were eligible for uDCD (25/86, 29%), while 35 patients died at the Emergency Department.

Lazzeri et al EJEM in press

CONCLUSIONS

Overall in our series, the ECPR and uDCD programs turned out in 40 donors (7 donors from those with ROSC, 8 from the eCPR group and 25 uDCDs), that is 16 donors each year.

Lazzeri et al EJEM in press

CONCLUSIONS

the implementation of an ECPR and uDCD programs in a tertiary cardiac center is feasible and substantially increased the number of donors, since despite organizational and technical challenges, the uDCD donor pool was 62.5% of all potential donors (25/40), a percentage which remained unchanged throughout the study period.

Lazzeri et al EJEM in press

DCD - Periodo 1/6/2016-25/9/2019

	FEGATO (N)	POLMONE (N)	RENE (N)
ORGANI PRELEVATI	21	6	98
ORGANI UTILIZZATI	11	0	41
ORGANI PRELEVATI E NON TRAPIANTATI	10	6	57

Allocazione Fegato

PISA	MILANO Niguarda	MODENA
7§	3*	1*

Allocazione Reni

FIRENZE	SIENA	PAVIA	BOLOGNA
32§	7§	1*	1*

§ STANDARD; *Eccedenza

TESSUTI (PRELIEVO E BANCAGGIO)

T. CORNEALE (N)	T. CUTANEO (N)	T. M. SCHELETRICO (N)	VALVOLE (N)
41	43	18	8