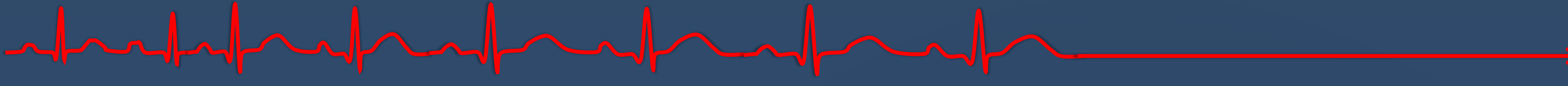


Controlled Cardiac Death Donor (cDCD) Strategy for Kidney Transplantation. Spanish Multicenter Experience after Two Years of Followup. SENTRA-GEODAS Group

Portolés J, Pérez-Sáez MJ, Lafuente O, Hernández-Marrero D, Diekmann F, Sánchez-Sobrino B, Maruri N, Llamas F, Mazuecos MA, Juega J, Manonelles A, Rodríguez-Benot A, Alonso A, Pascual J Spanish Transplant Study Group SENTRA. REDInREN16/009/009 RETYC ISCIII

H. Universitario Puerta de Hierro (Majadahonda). H. Universitario del Mar (Barcelona). H. Carlos Haya (Malaga) H Clinic de Barcelona. H. Universitario Cruces (Bilbao). Complejo H. Universitario de Albacete. H. Puerta del Mar (Cadiz). H German Trias y Pujol (Badalona). H Universitario de Bellvitge. H Universitario Reina Sofía de Córdoba Complejo H Universitario A Coruña.



INTRODUCTION

Controlled donation after cardiac death (cDCD) programs are running in several countries for years. National transplant organization (ONT) has developed a nationwide program in Spain from 2012 and 40 Centers had started by Aug 2015 (415 cDCD Kidney transplants-KTx from Jan-2012 to Aug-2015). Fourteen centers have joined this study group. We present our preliminary analysis of clinical outcomes.

METHODS

Design: Prospective observational multicentre study in real setting. Fourteen centers have joined this group.

Inclusion Criteria: Every cDCD Kidney Tx on center.

Intervention: Kidney transplantation (KTx) from cDCD, Immunosuppression: induction 98.8% (Thymoglobulin 67.3%/Basiliximab 31.5%) plus prednisone-MMF-Tacrolimus (83.1%) or mTOR (6.9%).

Antemortem Catheter cannulation vs superrapid laparotomy

Preliminary analysis 246 pat; mean follow-up 14m[3-48].

Figure 1. In situ preservation technique. After introduction of the double-balloon triple-lumen catheter via the femoral artery, the abdominal aorta including the renal arteries can be selectively perfused, flushing and cooling the kidneys.

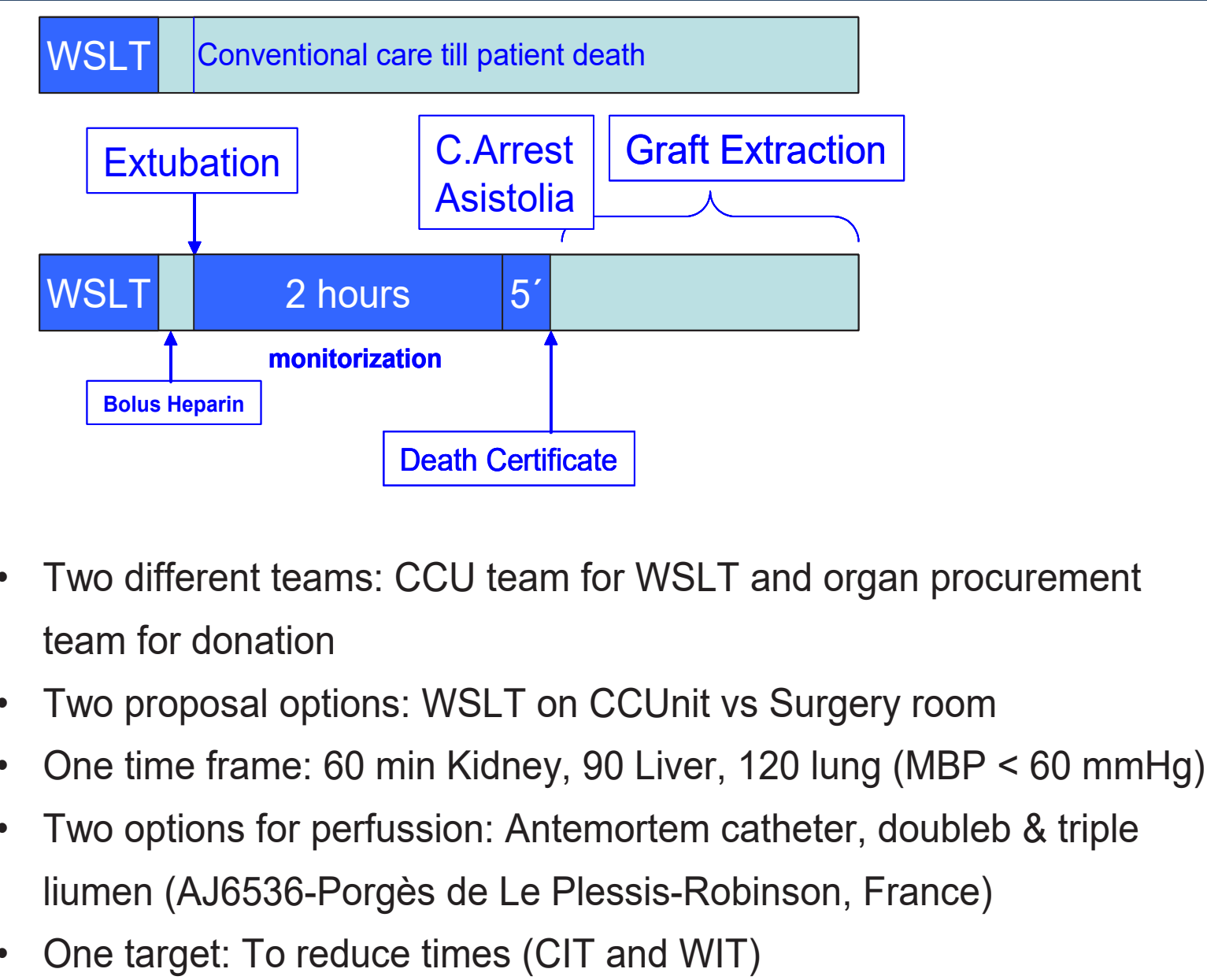
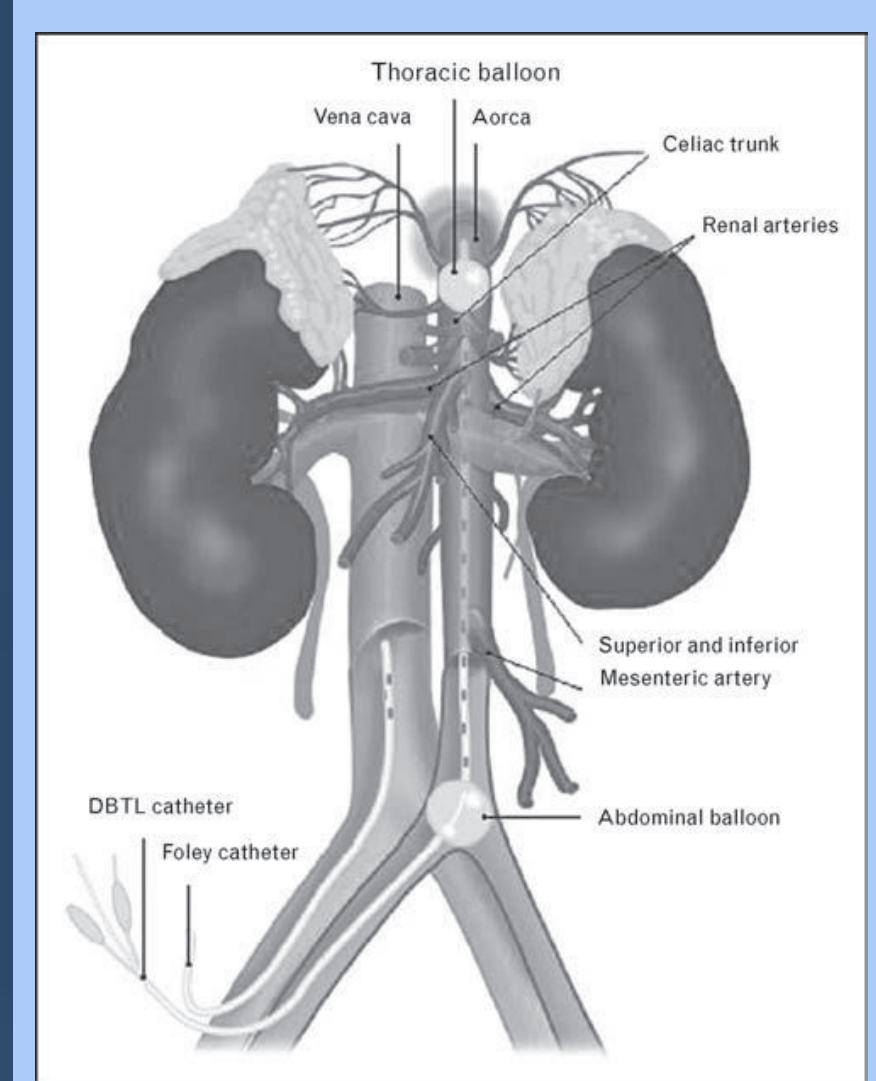


Table 1. Modified European Maastricht categories of donation after circulatory death (DCD)-Paris 2013 classification: same skeleton as classification published in 1995 by Kostra et al.

Category	Classification	Notes
Category I	Unwitnessed circulatory arrest	Sudden-unexpected CA, no attempt of resuscitation by a medical team
Uncontrolled	IA-In-hospital	WIT to be considered according national recommendations in place
	IB-Out-of-hospital	In-or-out-of-hospital setting
Category II	Witnessed circulatory arrest	Sudden-unexpected-irreversible CA, unsuccessful resuscitation by a medical team
Uncontrolled	IIA-In-hospital	In-or-out-of-hospital setting
	IIB-Out-of-hospital	
Category III	Awaiting circulatory death	Planned, expected CA, withdrawal of life-sustaining treatment
Controlled		Eutanasia excluded
Category IV	Circulatory arrest while brain dead	Sudden or planned CA during or after brain death diagnosis process but before retrieval
Uncontrolled and controlled		
Category V	Cardiac arrest in a hospitalized patient	Warm ischemic time between cardiac arrest and organ perfusion is likely to be longer than category 1 or 2.
Uncontrolled		

RESULTS

DONORS

138: 57.1 years, 64.8% male who had died from: anoxic encephalopathy (Stroke or C Arrest) 74.4% pulmonary disease 15.2% Serum Cr: 0.7mg/dl [0.3-2.1]. IqR [0.5-0.9]

Comorbid conditions: 36.7% Hypertension; 7.2% Diabetes Mellitus; 59.7% CMV+; 36.7% with pre-Tx biopsy

Antemortem cannulation 35.3% Multiorgan DCD: 12.2%

Seven kidneys were discharged and 19 transferred and implanted in other centers. 64.8% males aged 57 range [21-81]

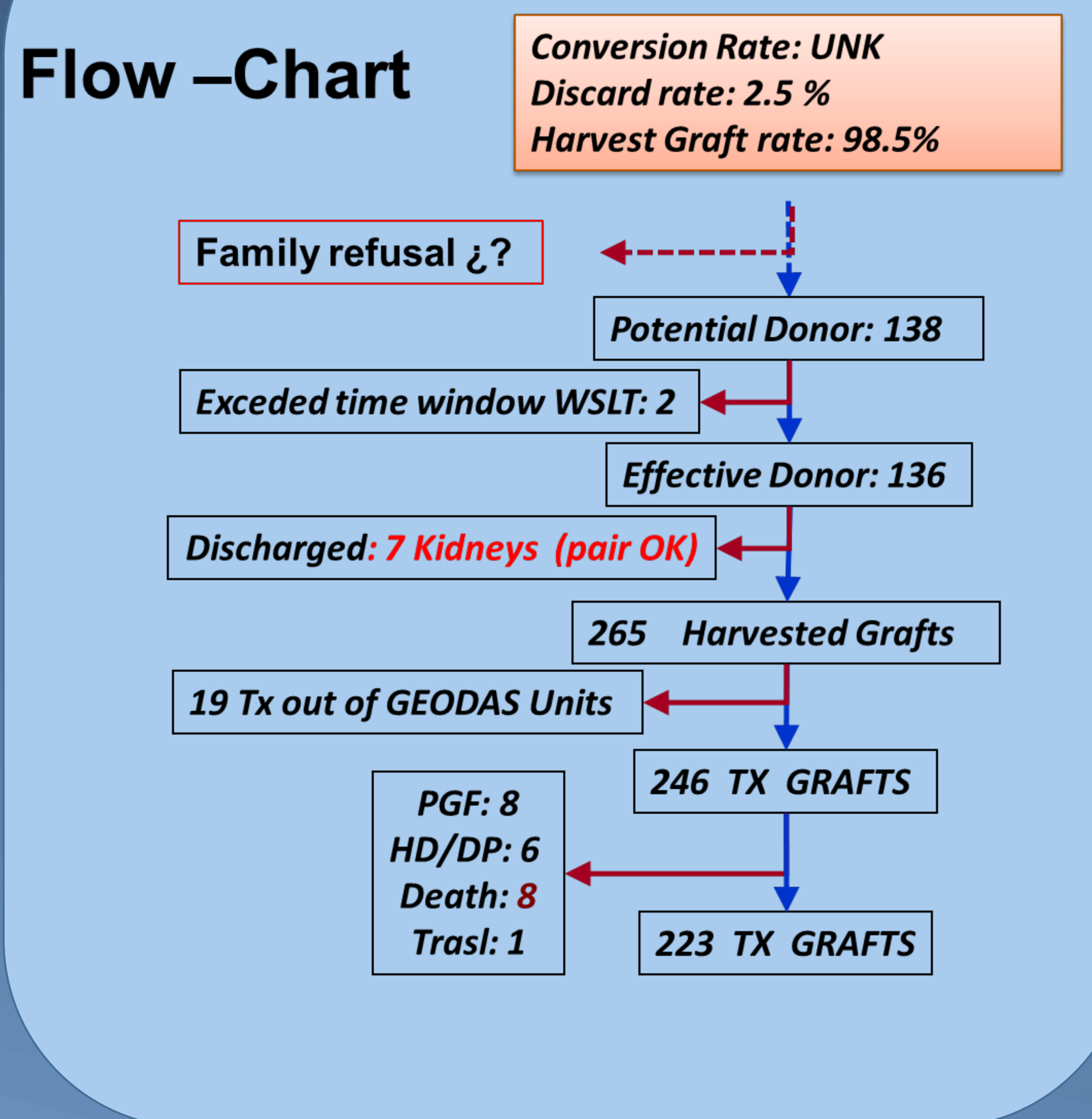
RECIPIENTS

246 recipients: 54.9 years, 69.3% males

- 78.2% from HD, 17.3% PD, 8.8% preemptive
- 89.5% first KTx, 9.7% 2nd, 0.8% 3rd.
- Cold ischemia time (CIT): 11h; median warm IT 24min.
- HLA-mismatch: 4[0-5]. None RCPTR present PRA> 90%.
- Immunosuppression: 98.8% induction therapy (Thymoglobulin 67.3%/Basiliximab 31.5%) plus prednisone-MMF-Tacrolimus (83.1%) or mTOR (6.9%).

Mean follow-up: 14 [3-48] months

Flow -Chart



OUTCOMES

SHORT-TERM

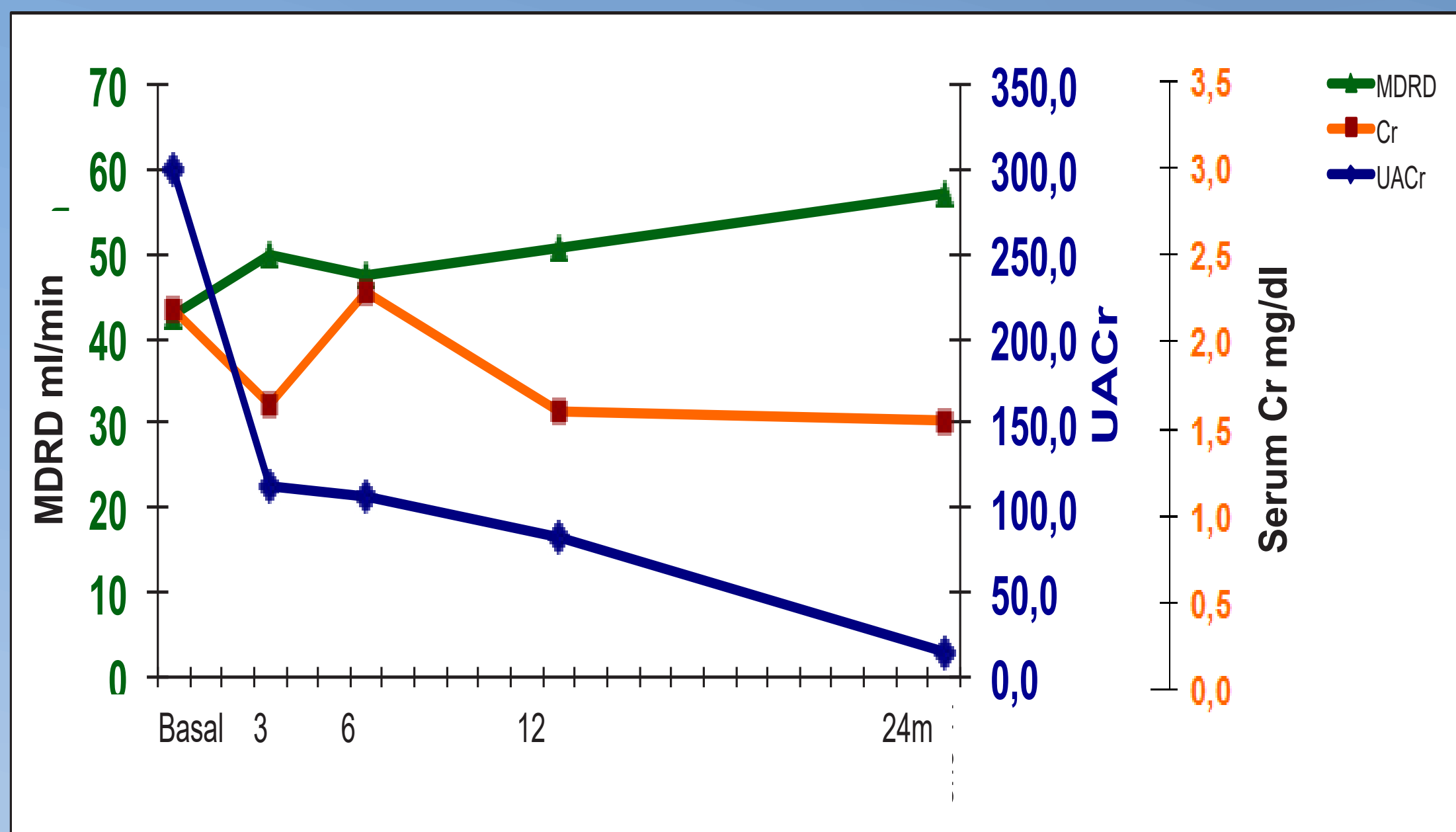
- Graft Function: Primary graft failure (PGF): 3%, delayed graft function (DGF): 47.8%, PGF had longer cold ischemia time (18.8 vs 11.7; p=0.03).

RENAL FUNCTION

- Nadir Cr: 1.3 mg/dl [0.6-3.1]. Best eGFR (MDRD-4) 54.9 (23.4) ml/min. 1st year serum Cr 1.6 [0.9 - 4.8] 2nd year Cr 1.5 mg/dl [0.7-4.9].

GRAFTS AND PATIENTS SURVIVAL

- Final end-points: 8 patients died with functioning graft (6 CV, 2 sepsis). 14 graft failures with return to dialysis
- Patient survival rate at 24 months was 95.8%.



Risk Factors associated to 1st year eGFR >50 ml/min

In the univariate analysis the probability to reach 1st year eGFR >50 ml/min after the first cDCD KTx was associated to:

- a lower donor age (OR 1.1 per year)
- a shorter CIT (1.04 per hour)
- an immediate function (4.2)
- or the type of induction (Thymoglobulin vs Basiliximab OR 2.9)
-but not to HLA mismatches, previous HD/PD or recipient age



CONCLUSIONS

- Controlled Cardiac Death Donor programs are easier to implement and more efficient than uncontrolled DCD programs, with a higher rate of graft viability
- Kidney transplantation with grafts obtained from cDCD programs present higher delayed graft function rate than historic reference for brain death donor but similar primary graft failure rate and patient or graft survival rate.
- With our experience, controlled DCD results are good-enough to promote it all over the country.

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