1073 Hypothermic machine perfusion preservation after controlled donor cardiac death reduce delayed graft function

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Introduction & Objectives: In Spain kidneys after controlled cardiac death (cDCD) has increased over the years. This group present a high incidence of DGF. Graft quality optimization has been the major interest over the last decade. The aim of this study is to evaluate de benefit of hypothermic machine perfusion (HMP) in reducing de delayed graft function (DGF) and primary non-function (PNF) compared to cold storage in cDCD. Other parameters are evaluated: ^{99m}Tc-MAG-3 scintigraphy TFS (tubular function slope) and ultrasound (US) resistive index (RI) 24-48 hours after surgery, rejection rate, duration of DGF.

Materials & Methods: We are conducting a randomized prospective study since April 2017. We select all cDCD from one single institution, Hospital Universitari de Bellvitge, and we randomize 1:1 to cold storage and HMP. Data from donors, surgery, HMP, and post-operatory are collected; and analysed.

Results: Since April 2017 until September 2019, there were 22 valid donors enter in the study, 44 kidneys transplants had been made from those donors. Donors mean age was 60 (CI 95% 57-64), mean functional warm ischemia time was 20 min (CI 95% 16-23). Two kidneys need to be switch in randomization because of polar artery. Comparative analysis shows a beneficial effect of the HMP in reduce DGF and fDGF, p=0.042 and p=0.016. Comparative data are showed in Table 2. We did not have PNF.
Comparative Data (Table 2)

	Machine Perfusion (22)	Cold storage (22)	p
Receptor Age (Years)	59 (IC95%: 53 - 64)	58 (IC95%: 54- 63)	0.9494
Hemodyalisis time Before Surgery (month)	31 (CI95%: 23-39)	35 (CI95%: 27-42)	0.5601
Residual Diuresis Volume (ml)	86% (19) 979(CI95%: 632-1326)	55% (12) 792(CI95%: 428-1156)	0.021 0.4529
Cold ischemia time CIT (min) Median (IQR)	575 (505-815)	304 (266-436)	0.000
Rejection (biopsy confirmation)	9% (2)	14% (3)	1.000
DGF (need of hemodialysis during the first week after surgery)	14% (3) 10% (2)*	36% (8) 37% (7)*	0.082 0.042*
fDGF (absence of the decrease in serum creatinine level by minimum of 10% per day during 3 consecutive days after surgery)	27% (6) 25% (5)*	64% (14) 63% (12)*	0.015 0.016*
DGF duration (days) Median (IQR)	4 (2-13)	9 (5-12)	0.431
Number of dialysis Mean (CI95%)	3 (CI95%: 1 - 5)	4 (CI95%: 2 - 6)	0.5113
24-48h ^{99m}Tc-MAG-3 Slope Median (IQR)	2.8 (1.8-4) 3.3(2.2-4.4)*	1.7 (1.1-3.4) 1.3 (1.3-5)*	0.117 0.268*
24-48h US Resistance	0.71 (CI95%: 0.67-0.74) 0.70 (CI95%: 0.67-0.74)*	0.74 (CI95%: 0.71-0.76) 0.74 (CI95%: 0.71-0.77)*	0.2078 0.0549 *
Discharge day serum creatinine (umol/L) Median (IQR)	123 (103-222) 121 (103-197)*	206 (111-392) 245 (108-405)*	0.1794 0.0497*
Admission days Median (IQR)	10(7-15) 7(7-16)*	9(6-19) 9(6-14)*	0.6952 0.4535*

*We exclude the rejection case for the analysis.

Conclusions: Hypothermic Machine perfusion preservation seem to produce a beneficial effect in order to reduce de DGF and fDGF, despite de difference in CIT between groups.