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Letter to the Editor

Use of mechanical cardiocompressor in uncontrolled donation after cardiac death

Sir,

For more than 20 years uncontrolled donation after circulatory death (uDCD) has been an alternative to other types of donation in Spain and elsewhere in the world [1]. Although at first the transfer of these patients from the incident site to the reference center was performed under manual chest compression maneuvers, the increasing use of mechanical cardiac compression devices for Advanced Vital Support has led to a significant change [2]. Some studies have shown that the use of mechanical devices seems to reduce the rate of organs transplanted per donor [3]. Nevertheless, organs derived from uDCD donors with this approach show post-transplant outcomes similar to those observed in recipients of organs from brain death donors [4 5].

To understand current practices and trends in uDCD, the National Transplant Organization collects a series of data on all actual donors in the country on an annual basis. This communication is a retrospective observational study on the implementation of CCD in the uDCD procedure in Spain between 2012 to 2016 and its impact on organ recovery and utilization.

There were 520 type IIa donors (out-of-hospital cardiac arrest) from 7 uDCD programs (Table 1). The average age was 47.9 (SD 9.7), with a predominance of males (90%) and a cardiac cause of death in 81% of donors (31% ischemic/50% arrhythmic origin). The use of CCD out of the hospital increased from 70% in 2012 to 91% in 2016.

Table 1
Type of cardiac compression in uncontrolled donation after circulatory death. Spain, 2012-2016.

	OUT OF HOSPITAL (N = 520)	
Manual	**81**	**(15.5%)**
Mechanic	**410**	**(80%)**
LUCAS 1®	28	(6.8%)
LUCAS 2®	369	(90.0%)
Autopulse®	13	(3.2%)
No data	**29**	**(5.5%)**

The average number of organs recovered per donor was higher with out-of-hospital mechanical versus manual chest compression (2.4 versus 2.1; $p < 0.001$), due to more liver (26% versus 1%; $p < 0.001$) and lung recoveries (11% versus 5%; $p = 0.109$).

The percentage of kidney donor utilization was also higher with mechanical chest compression, 69% vs 48% (over actual kidney donors), although the difference is not significant after adjusting for in-hospital chest compression (Implant OR = 1.4;p = 0.222). No differences in utilization were found for liver and lung donors.

In addition, CCDs increase the safety of the emergency team during the transfer of the potential donor under chest compression and ensure the continuous perfusion of the organs.

These data allow us to conclude that the use of mechanical devices is widely implemented in uDCD programmes in Spain at both the extra-hospital and the intra-hospital setting and does not have a negative impact on organ recovery and utilization.

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