

## Refractory Cardiac Arrest: Do We Go beyond, Do We Increase the Organ Donation Pool or Both?

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**Abstract :** Background: Spain and other European countries have implemented Uncontrolled Donation after Cardiac Death (uDCD) programs. After 15 years of experience in Spain, many things have changed. Recent evidence and technical breakthroughs achieved in resuscitation are relevant for uDCD programs and raise some ethical concerns related to these protocols. Aim: To rethink current uDCD programs in the light of recent evidence on available therapeutic procedures applicable to victims of out-of-hospital cardiac arrest (OHCA). To address the following question: What is the current standard of treatment owed to victims of OHCA before including them in an uDCD protocol? Materials and Methods: Review of the scientific and ethical literature related to both uDCD programs and innovative resuscitation techniques. Results: 1) The standard of treatment received and the chances of survival of victims of OHCA depend on whether they are classified as Non-Heart Beating Patients (NHBP) or Non-Heart-Beating-Donors (NHBD). 2) Recent studies suggest that NHBPs are likely to survive, with good quality of life, if one or more of the following interventions are performed while ongoing CPR -guided by suspected or known cause of OHCA- is maintained: a) direct access to a Cath Lab-H24 or/and to extra-corporeal life support (ECLS); b) transfer in induced hypothermia from the Emergency Medical Service (EMS) to the ICU; c) thrombolysis treatment; d) mobile extra-corporeal membrane oxygenation (mini ECMO) instituted as a bridge to ICU ECLS devices. 3) Victims of OHCA who cannot benefit from any of these therapies should be considered as NHBDs. Conclusion: Current uDCD protocols do not take into account recent improvements in resuscitation and need to be adapted. Operational criteria to distinguish NHBDs from NHBP should seek a balance between the technical imperative (to do whatever is possible), considerations about expected survival with quality of life, and distributive justice (costs/benefits). Uncontrolled DCD protocols can be performed in a way that does not hamper the legitimate interests of patients, potential organ donors, their families, the organ recipients, and the health professionals involved in these processes. Families of NHBDs' should receive information which conforms to the ethical principles of respect of autonomy and transparency.

**Keywords :** uncontrolled donation after cardiac death resuscitation, refractory cardiac arrest, out of hospital cardiac, arrest ethics

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