Donation after circulatory death

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Donation after circulatory death describes the recovery of organs for transplantation after death confirmed by circula tory criteria. These donors were formerly called asystolic or non-heart-beating donors. There have been very significant increases in DCD programmes in many countries over the last decade. The modified Maastricht classification is widely used to ca tegorise DCD (Table 88.2). Organ donation after unexpected and irreversible cardiac arrest is referred to as uncontrolled DCD. Donation after death resulting from the planned withdrawal of life-sustaining cardiorespiratory support is called controlled DCD. In DCD donors cardiorespiratory arrest occurs prior to starting organ retrieval. The organs are therefore warm but not being perfused with oxygenated blood for a period of time before they are flushed with cold preservation solution. This warm ischaemia period should be limited as much as possible. Controlled DCD donors are ICU-based and have su ff ered massive and irreversible cerebral damage but have an intact brainstem so that they are self-ventilating. In a situation wher further attempts at treatment would be futile, the withdrawal of supportive treatment inevitably leads to cardiorespiratory arrest, and this usually occurs within a short time. In the UK, after cardiac arrest there is a mandatory ‘no-touch’ period of 5 minutes. This is deemed to be the time beyond which there is irreversible loss of cardiac and cerebral function. The donor is transferred from ICU to the operating department and a rapid median sternotomy and midline laparotomy are performed. The ascending aorta and abdominal aorta are cannulated and the organs are perfused with ice-cold preservation fluid without any initial dissection. The warm ischaemic period is usually less than 10 minutes. Organ procurement is then car ried out in standard fashion. Uncontrolled DCD donors have usually su ff ered an unexpected and irrecoverable cardiac event either outside or inside hospital. After a period of attempted, but failed, cardiopulmonary resuscitation (CPR) and observation of the 5-minute rule, CPR with administration of high-concentration oxygen is recommenced, often using a mechanical resuscita tion device. In situ renal cooling is performed by placing a double-balloon, triple-lumen perfusion catheter into the aorta via a femoral artery cut-down (Figure 88.1). The donor can then be transferred to the operating theatre and the kidneys are Frederic Eugene Basil Foley , 1891–1966, urologist, Ancker Hospital, St P - tion is usually reserved for the kidneys only as they are able to recover from warm ischaemic periods of up to 45 minutes. - - - -

TABLE 88.2 Modi /f_i ed Maastricht classi /f_i cation of donation after circulatory death (DCD). Category Description Type of DCD Location I Dead on arrival at Uncontrolled ED hospital Uncontrolled ED II Unsuccessful resuscitation after cardiac arrest Controlled ICU III Anticipated cardiac arrest after withdrawal of support IV Cardiac arrest in brain- Controlled ICU dead donor V Unexpected cardiac Uncontrolled ICU arrest in ICU ED, emergency department; ICU, intensive care unit.

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