Uncontrolled Donation after Circulatory Death Feasibilty Study

Retrieval Advisory Group – For Information

Author – Dominic Summers, Consultant Transplant Surgeon, Addenbrooke's

Background:

There are only around 1500 deceased organ donors in the UK, despite widespread public support for donation, and a great shortage of organs for transplantation[1]. Every year there are 34000 patients with out-of-hospital cardiac arrests, and only 8% survive to discharge from hospital. In the UK, there is no current donation pathway for these patients, although there are well-established programmes in Spain and France[2,3]. The outcomes of kidneys transplanted from 'uncontrolled donation after circulatory death donors (uDCD)' in the era of normothermic perfusion are excellent – with 1 and 10 year graft survival exceeding results from transplants 'expanded criteria donors (ECD)'. N.B. ECD donors (donors aged over 60 years) make up around half of all kidney donors in the UK[4].

uDCD kidneys do carry some additional risks for recipients compared to other donor type kidneys, primarily a great risk of irreversible ischaemic injury and primary non-function. The risk of this in the French and Spanish data is 5-8%, compared to 3-4% for a UK ECD kidney[2].

The planned feasibility study:

The proposed study has been supported by grants from NHSBT, the Royal College of Surgeons of England and the Addenbrooke's Charitable trust. The study has received Research Ethics Committee (REC) approval and has been reviewed and approved by RINTAG, SMT and KAG, is currently under review by the NRP implementation group.

The aim is to deliver 5 'utilised donors' in Cambridge in 12 months. There are an estimated 25 patients who meet the study inclusion criteria every year (inclusion criteria: <60 years, witnessed, non-traumatic out of hospital cardiac arrest within <40 mins drive time of Addenbrooke's). Patients will be brought to Addenbrooke's emergency department in cardiac arrest during ongoing, active resuscitation. A pre-alert system will allow the transplant team to be ready prior to arrival, to activate NORS, SNOD team, perfusion team and coroner and check the organ donor register. Following a decision from the resuscitation team that ongoing resuscitation is futile, the resuscitation team will stop treatment, gain verbal consent from donor families and diagnose death. The transplant team will perform a rapid femoral cannulation, with placement of endoclamp balloon (Intraclude, Edwards) in the descending thoracic aorta, prior to starting normothermic regional perfusion in the emergency department.

Formal consent and donor screening will then take place, while the donor remains on NRP for up to 4 hours. Finally, the organ recovery operation will take place and the

kidneys recovered. Kidneys will be transplanted into recipients on the Cambridge and Royal Free waiting lists.

In addition to the feasibility workstream, there are two further projects in the study. Donor families will be invited to participate in semi-structured interviews following the donation to evaluate the donation experience. There is a further workstream that aims to produce pilot data for an 'assay' of 'irreversible ischaemic injury'.

Issues for retrieval:

If the Cambridge NORS team is available, we will use their personnel to staff the uDCD pilot. If not, we will supply a second, in house team. There may be times when we are unable to muster a team (for example if our NRP are already with a donor), and we will stand down early. This event forms one of the outcomes of the feasibility study.

Further Questions:

Please contact Dominic Summers dms39@cam.ac.uk

References

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