

DePPaRT UK: Scientific Summary

Death Prediction and Physiology after Removal of Therapy

Research Full Title - Prediction of Time to Death and Description of Physiologic Function During the Dying Process following Withdrawal of Life-Sustaining Therapy: An Observational Study

Background

Many individuals who die in intensive care have previously expressed a wish to be organ donors. Classically, such donation follows a diagnosis of brain death. Recently, our ability to meet such wishes has been improved by an increase in organ donation after the circulatory determination of death (DCD; i.e. donation after the heart stops and death has been declared). This type of donation can occur where there is already a plan to withdraw life-sustaining treatment (WLST), on account of the severity of the patient's condition. However, nearly half of dying patients, whose families agreed to DCD, do not go onto donate; the majority (24% overall) owing to a prolonged time (beyond three hours) from WLST to death. If donation does not go ahead, this is a cause of additional distress and disappointment for families in an already tragic situation. As we heard from families we consulted for this research:

“You are in a state of upset, not donating was just an additional added disappointment.”

Aim

The use of an accurate prediction tool for determining which patients are most likely to die within time limits that allow for organ donation, will reduce emotional distress amongst families and maximise organ donation in the UK. This research proposal, Death Prediction and Physiology after Removal of Therapy (DePPaRT), fulfils calls from the UK Donation Ethics Committee and the Intensive Care Society to develop such a prediction tool.

Research Question: What is the performance of a novel tool for predicting death within 3 hours after WLST in a UK potential DCD population?

Additionally DePPaRT will generate the largest prospective biological waveform dataset to date, which will describe the physiology of death in detail. This will affirm the safety of the criteria doctors use to diagnose and confirm death.

Investigation Plan

DePPaRT is a multicentre, prospective, observational study, planned in co-ordination with international collaborators. Patients dying in six large UK intensive care units, whose families are already being approached by Specialist Nurses for Organ Donation to consider DCD, will be eligible for entry into this study. DePPaRT involves no new interventions and requires no alteration to a family's ability to be with their loved one as they die. Instead the research will unobtrusively collect and analyse the vital signs that are already being measured on the patient in the intensive care.

This information will be used to validate a prediction tool of time to death, developed as part of the Canadian cohort of DePPaRT, in a UK potential DCD population.

A total of 264 UK patients are required for statistical validation. Internationally more than 800 patients will be recruited. DePPaRT UK provides an opportunity for the UK to access Canadian funded research and statistical and technical support at no additional cost, to create a prediction model applicable for immediate use in a UK potential DCD population.

Potential benefits to patients and the NHS

It is anticipated this study will have an immediate impact on patients dying in UK intensive care units and their families, by identifying which patients have a high probability of actual donation. This will enable health care professionals to better support and advise families on the likelihood of donation proceeding and allow more accurate deployment of organ retrieval teams. The cost of sending an organ retrieval team to non-proceeding donors last year was £1.5 million. Total financial loss to the NHS is far in excess of this and added family distress cannot be measured. DePPaRT will establish a network of motivated researchers in the UK capable of carrying out further sensitive but needed prospective research in organ donors and their families.