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EXTRACORPORAL NORMOTHERMIC ABDOMINAL PERFUSION "IN SITU" BY LEUKOCYTES-FREE OXYGENATED BLOOD AS RESUSCITATION PRACTICE FOR KIDNEYS FROM UNCONTROLLED DONORS WITH ONE-HOUR WARM ISCHEMIC TIME

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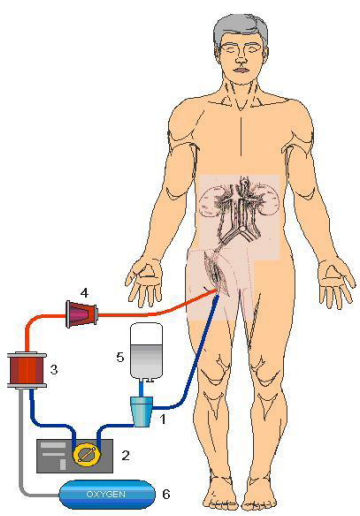
Introduction The use of uncontrolled donors after cardiac death is an actual issue.It is not always possible in an uncontrolled donation to save organs before the start of procurement.We have studied the normothermic extracorporal perfusion(NEP) in situ with membran oxygenation by donor's blood with eliminated leucocytes as procedure allowing kidney resuscitation after ischemic damage inside donor body before procedure of procurement. Materials and methods In 2009,we had 8 organ donors with unexpected circulatory death,or uncontrolled donors.Donor average age 44.1±10.2 years.The reasons of death were cerebrovascular disease and traumatic brain injury.The procurement team with perfusion equipment arrived 30-60 minutes after the information call from donor's hospital about suddenly died person with irreversible asystole.The warm ischemic time(WIT) was defined as the time between a declaration of patients' death and the beginning of a perfusion procedure.The average WIT was 76.25±15.4 minutes (min = 45; max = 91). A perfusion contour presented on Fig.1.Through the femoral access the three-luminal double balloon was inserted in aorta,and a vena cava drainage catheter was attached through the femoral vein.Then these ports were connected to the perfusion contour and the normothermic extracorporal perfusion of isolated abdominal region in situ commenced.The following agents were successively injected to the perfusion contour:heparin,streptokinase,perfluorocarbonic emulsion,steroids.The initial blood flow was 500 ml/min with a gradual increase up to 1800 ml/min.Oxygen supply was 200-250 ml/min and the temperature was 27-30°C. Leukocyte count and gas, pH probes were taken at the start and end of the procedure. The perfusion procedure commenced prior to the arrival of a forensic expert,yet procurement was performed only after completion of legal documentation.A decision to begin a procurement procedure was made after an evaluation of leukocyte count decrease in a perfusion circuit was conducted.If it reached $1x10^9$ or lower,the result of perfusion was considered satisfactory.Laparotomy and mobilization of kidney were performed during extracorporal normothermic perfusion with membrane oxygenation.Kidney were transplanted to 16 recipients.Average recipients' age was 53,4±7.2 years



Results The average NEP time was 147.5±28.7 minutes (min = 120, max = 210).In 3 of 8 cases,spontaneous diuresis recovery up to 100 ml was registered within the explantation procedure.Immediate function of kidney grafts was observed in 6 out 16 (37,5%).By the end of the third month, the average creatinine was 117.9±21.9 mmol/L, and no rejection episodes occurred. Conclusion Our first preliminary outcomes of kidney transplantation obtained with new protocol with with oxygenation and leukocyte depletion during NEP allow extending the warm ischemic time up to one hour and more and expanding the donor pool due to inclusion of resource of donors with unexpected cardiac death.

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OUTCOMES FOLLOWING RENAL TRANSPLANTATION AFTER MULTI-ORGAN RETRIEVAL VERSUS KIDNEY ONLY RETRIEVAL IN DONATION AFTER CARDIAC DEATH DONORS

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Introduction. DCD organ procurement involves an inherently prolonged period of warm ischaemia prior to intra-corporeal cooling. It is imperative that the delayed explantation of the kidneys during multivisceral DCD procurement does not compromise renal transplant outcomes. This study compares the outcomes of renal transplantation after multivisceral and kidney only DCD procurement from a single UK centre. Methods. A retrospective study of DCD organ procurements from 2002 to 2009 was performed. Rates of renal transplant DGF, primary non function (PNF), acute rejection (AR) and 1 year graft and patient survival were compared after multivisceral and kidney only DCD procurement. Categorical data were compared using X^2 or Fishers exact test; longitudinal data were compared using a Student t test; all at a 5% level of statistical significance. Results. From 2002 to 2009, 201 DCD kidneys were transplanted. Sixty-eight involved procurement of the donor kidneys alone and fifty-six involved multivisceral procurement. Donor information was not available with 34 donors and were therefore excluded from further analysis. Mean cold ischaemia times were significantly longer after multivisceral procurement (14 h 55 mins vs 16h 11 mins; t=-2.07; p=0.04). Rates of delayed graft function, primary non function and acute rejection were comparable regardless of kidney only or multivisceral procurement (50% vs 55%; X^2= 0.33; p-0.56 and 5% vs 6%; X^2=0.02; p=0.88 and 20% vs 18%; X^2=0.06; p=0.81 respectively). One year rates of recipient (86% vs 90%; X^2=4.2;p=0.52) and graft survival (85% vs 86%; X^2=0.07; p=0.79) were similarly comparable. Conclusions. DCD donation involving multivisceral procurement is associated with a significantly increased cold ischaemia time for DCD renal grafts. However, the short term outcomes of renal transplantation using grafts from multivisceral DCD donors are not significantly inferior to those of grafts from DCD kidney only donors.

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