

In Situ Preservation of Kidneys From Donors After Cardiac Death: Results and Complications.

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OBJECTIVES:: To describe the results and complications of in situ preservation (ISP) of kidneys from donors after cardiac death (DCD). **BACKGROUND::** DCD donors are increasingly being used to expand the pool of donor kidneys. ISP reduces warm ischemic injury which is associated with DCD donation.

METHODS:: Insertion of a double-balloon triple-lumen catheter allows selective perfusion of the abdominal aorta to preserve the kidneys in situ. From January 2001 until August 2005, 133 ISP procedures were initiated in our procurement area. **RESULTS::** Fifty-six (42%) ISP procedures led to transplantation; in the remaining 77 cases (58%), the donation procedure was abandoned or both kidneys were discarded because of ISP complications (n = 31), poor graft quality (n = 23), no consent for donation (n = 13), medical contraindications (n = 8), or unknown cause (n = 2). Increasing donor age (odds ratio (OR) 1.06 per year, P < 0.001) and uncontrolled DCD donation (OR 5.4, P < 0.001) were independently correlated with ISP complications. After transplantation, prolonged double-balloon triple-lumen catheter insertion time was an independent predictor of graft failure (OR 2.0, P = 0.05). Selected controlled DCD donors were managed by rapid laparotomy and direct aortic cannulation; graft survival of these kidneys was superior to kidneys from controlled DCD donors managed by ISP.

CONCLUSIONS:: A minority of initiated ISP procedures led to transplantation, resulting in a high workload compared with donation after brain death. The association between increasing catheter insertion time and inferior graft outcome emphasizes the need for fast and effective surgery. Therefore, rapid laparotomy with direct aortic cannulation is preferred over ISP in controlled DCD donation. Despite these limitations, we have expanded our donor pool 3- to 4-fold by procuring DCD kidneys that were preserved in situ.