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PROGRESS REPORT

Project / Program Title		The BEST Fluids Study: Better Evidence for Selecting Transplant Fluids
Name		Dr Michael Collins
Award Received		2017 The Jacquot Research Establishment Fellowship
Report Date		30 June 2017
Chief Investigator / Supervisor		
Administering Institution		Auckland District Health Board
Funding Period	Start Date:	1 March 2017
	Finish Date:	28 February 2018

PROJECT SUMMARY

End-stage kidney disease (ESKD) is a significant, expensive health problem that affects 23,000 Australians and 4,500 New Zealanders, and their families. Kidney transplantation improves survival, quality of life, and is much cheaper than dialysis treatment for ESKD. However sometimes kidney transplants function poorly after surgery, and a period of continued dialysis is needed. In addition to complicating recovery, this can adversely affect long-term kidney function and the health of the recipient. Intravenous fluids given during and after transplantation (usually sodium chloride, or saline) are critical to preserve kidney transplant function, but there is evidence that saline may not be the safest fluid to use due to its high chloride content.

The BEST-Fluids study (Better Evidence for Selecting Transplant Fluids) is a randomised controlled trial that is comparing saline with a balanced low-chloride solution, Plasmalyte, in kidney transplant recipients. The trial will determine whether using Plasmalyte will improve kidney transplant function, reduce complications and improve long-term outcomes.

PROJECT AIMS / OBJECTIVES

The BEST Fluids study is an investigator-initiated, pragmatic, multi-centre, registry-based randomised controlled trial to test the hypothesis that using a balanced low-chloride solution (Plasmalyte) instead of 0.9% sodium chloride (saline) will improve kidney transplant function and other outcomes in deceased donor kidney transplantation.

The primary objective is to evaluate the effect of intravenous therapy with Plasmalyte versus 0.9% saline on Early Kidney Transplant Function, a ranked composite of delayed graft function and early kidney transplant graft function recovery in deceased donor kidney transplant

recipients. A total of 574 participants will be recruited from renal transplant units in Australia and New Zealand that perform deceased donor kidney transplantation.

SIGNIFICANCE AND OUTCOMES

Despite the substantial disease burden and high cost of treatments for ESKD, there is a critical lack of evidence for many aspects of standard care; nephrology has significantly fewer clinical trials than other medical specialties. Kidney transplantation affords the best outcomes to patients with ESKD but acute kidney injury and delayed graft function (DGF) after kidney transplantation are common, clinically important, and lead to increased costs and inferior patient outcomes. Interventions that reduce the impact of DGF and improve early kidney transplant function are urgently required. The BEST-Fluids study examines a promising intervention to reduce DGF: the peri-transplant use of a low chloride, balanced crystalloid solution (Plasmalyte) in comparison with the current standard of care, 0.9% saline, which has a non-physiologically high chloride content. Given the low cost and ubiquitous nature of the intervention, if proven efficacious and safe the results of this trial will have an immediate impact on transplant clinical practice globally. The innovative registry-based design will enhance integration into routine care, enable low cost long-term follow-up, and provide a template for future Nephrology trials being conducted at significantly reduced cost.

PUBLICATIONS / PRESENTATIONS

Weinberg L, Harris L, Bellomo R, Ierino F, Story D, Eastwood GM, Collins MG, Churilov L, Mount P. The Effects of Normal Saline and Plasma-Lyte 148 on Hyperkalaemia in Deceased Donor Renal Transplantation: a Double-Blind Randomised Trial. Br J Anaesth 2017 (In press; Accepted 24 April 2017)

[This is the publication of the pilot trial for the BEST Fluids study.]