



## RACP Foundation Research Awards

### FINAL REPORT

<b>Project / Program Title</b>	Assessment of remote ischemic conditioning on post-cardiac arrest myocardial dysfunction by magnetic resonance imaging, invasive coronary hemodynamic measurements and makers of inflammation	
<b>Name</b>	Dr Dion Stub	
<b>Award Received</b>	2016 RACP/JDRF Research Establishment Fellowship	
<b>Report Date</b>	1 May 2017	
<b>Chief Investigator / Supervisor</b>	Prof David Kaye	
<b>Administering Institution</b>	Alfred Hospital	
<b>Funding Period</b>	Start Date:	1 Feb 2016
	Finish Date:	1 Feb 2017

#### PROJECT SUMMARY

Cardiac arrest remains the most devastating consequence of cardiovascular disease. Despite significant advances in treatment techniques survival remains very poor. Even following successful resuscitation many people do not recover due to the inflammation caused by a lack of blood flow to the heart and brain. The research establishment fellowship provided support to expand my research into post cardiac arrest care. Local and international collaborations have led to the commencement of three landmark randomised controlled trials; 1) Role of coronary angiography following cardiac arrest 2) Role of high flow or low flow oxygen in cardiac arrest. 3) Role of mild therapeutic hypercapnia following cardiac arrest. These trials will provide vital information to the optimal management of a very difficult group of patient

#### PROJECT AIMS / OBJECTIVES

To assess the feasibility and safety of early angiography in patients with OHCA without STEMI on initial ECG

To assess the impact on early coronary angiography on: coronary haemodynamics, left ventricular recovery via cardiac magnetic resonance imaging (CMR), post arrest markers of inflammation.

#### SIGNIFICANCE AND OUTCOMES

Cardiac arrest, is a common and devastating presentation of cardiovascular disease. In up to 50% of patients, cardiac arrest will be their first presentation of underlying heart disease, which

commonly includes heart attack. I have previously shown in small patient series, and large Victorian and USA observational cohort data, an association between early angiography and improved patient outcomes. Conversely there may be risks with a early invasive strategy including increased bleeding and renal dysfunction.

There has never been a randomized trial of coronary intervention following cardiac arrest. The time has come to move forward with such a prospective, randomized pilot clinical trial specifically designed to answer the questions of the safety of emergent coronary angiography in a randomized population of post-cardiac arrest patients without STEMI on initial ECG. With our team of internationally recognised researchers in cardiac emergencies, this project will be one of the first randomized trials to explore this common clinical scenario. The study will lay the foundation for a large phase three efficacy based study, with the potential to significantly impact the management and outcome of patients with cardiac arrest.

#### **PUBLICATIONS / PRESENTATIONS**

Bray JE, Stub D, Bloom JE et al, Changing target temperature from 33°C to 36°C in the ICU management of out-of-hospital cardiac arrest: A before and after study. *Resuscitation*. 2017 Apr;113:39-43.

Sharma R, Stub D. Controversies in Out of Hospital Cardiac Arrest. *Interventional Cardiology Clinics*. October 2016; 5 (4), 551–559.