



RACP Foundation Research Awards

YEAR 1 PROGRESS REPORT

Project / Program Title		Australian Cardio Oncology Registry
Name		A/Prof Rachel Conyers
Award Received		2019 Kids' Cancer Project Research Establishment Fellowship
Report Date		5 February 2020
Chief Investigator / Supervisor		A/Prof Rachel Conyers
Administering Institution		Murdoch Children's Research Institute
Funding Period	Start Date:	1 January 2019
	Finish Date:	31 December 2020

PROJECT SUMMARY

A side effect of a number of valuable chemotherapeutic drugs is heart damage. Cancer survivors treated with these drugs are nine times more likely, than the average, to develop heart failure (Lipshultz, Alvarez et al 2008). However, only 20-30% of patients are susceptible to chemotherapy-induced heart disease. Currently there are no longitudinal studies in Australia that seek to collate all patients exposed to cardiac toxicity oncology medications. This study will aim to begin recording all paediatric and young adult (0-35 years) patients exposed to heart toxic medications ultimately with the aim to understand their long-term outcome, cost of health care, interventions for cardiac complications and provide a platform for genetic studies into anthracycline cardiac toxicity.

PROJECT AIMS / OBJECTIVES

The primary objectives of ACOR are:

1. Establish and maintain a registry of Australian paediatric patients who have been exposed to cardio toxic chemotherapy
2. Quantify the life-long burden of disease for patients with cancer therapy related heart toxicity
3. 3. Assess the long-term management of ACT/ CRTCD and characterise progression and other clinical outcomes
4. 4. To screen for genetic variants that predispose to anthracycline cardiomyopathy and CTRCD
5. 5. To use pluripotent stem cell models to functionally validate genetic variants in patients with anthracycline cardiomyopathy and CTRCD.
6. Generate data that facilitates reliable estimates of incidence and population prevalence of CTRCD in Australian paediatric cancer survivors

SIGNIFICANCE AND OUTCOMES

The advances made over the last year will contribute significantly at the end of the project to what is known about cancer therapeutic related cardiac toxicity with chemotherapy and new and novel immunotherapy/targeted therapy approaches. The additional predisposition to cardiac abnormalities heralded by genetic factors will also help our understanding of patients at risk, and how to risk mitigate this.

PUBLICATIONS / PRESENTATIONS

The Australia and New Zealand Cardio-Oncology Registry (ACOR): evaluation of chemotherapy-related cardiotoxicity in a national cohort of paediatric cancer patients.

Lapirow D, La Gerche A, Toro C, Masango E, Costello B, Porello E, Ludlow L, Marshall G, Trahair T, Mateos M, Lewin J, Byrne J, Boutros R, Manudhane R, Heath J, Ayer J, Gabriel M, Walwyn T, Saundankar J, Forsey J, Le H, Mason K, Celermajer D, Downie P, Walker R, Holland L, Martin M, McLeman L, Diamond Y, Marcocci M, Donath S, Cheung M, Elliott DA, Conyers R. Intern Med J. 2019 Dec 16. doi: 10.1111/imj.14719.

Pediatric Anthracycline-Induced Cardiotoxicity: Mechanisms, Pharmacogenomics, and Pluripotent Stem-Cell Modeling.

Tripaydonis A, Conyers R, Elliott DA. Clin Pharmacol Ther. 2019 Mar;105(3):614-624. doi: 10.1002/cpt.1311.

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As above.