Medical trial aims to identify those at risk of heart damage following cancer treatment

August 7 2020

Credit: Chinnapong

The Murdoch Children's Research Institute (MCRI) is recruiting patients for a new national trial aiming to identify those at risk of heart damage following cancer treatment.

The Australian Cardio Oncology Registry (ACOR)/Bio-bank study, a national first and the largest of its kind in the world, is recruiting across 12 hospitals for all current or previously treated patients exposed to therapies which can damage heart tissue, like chemotherapy, radiotherapy and immunotherapy. Cancer survivors can be of any age, including children, adolescents and adults.

Anti-cancer therapies successfully treat 80 percent of children with cancer but can cause heart disease in many survivors.

Childhood cancer survivors are 15 times more likely to have heart failure and eight times more likely to have cardiovascular disease than the general population. This high incidence rate makes cancer therapy related cardiac toxicity the most significant cause of long-term disease and death in cancer patients.

Associate Professor Rachel Conyers, a pediatric oncologist at MCRI, said these high numbers of "treatment-related deaths" were unacceptable and called for a major change in the management, diagnosis, treatment and monitoring of cancer therapeutic related cardiovascular diseases.

She said anthracyclines, a particularly cardiotoxic drug used in chemotherapy treatment, were used to treat more than 70 percent of childhood, adolescent and adult cancers.

"Anthracyclines have boosted childhood cancer survival rates dramatically," Associate Professor Conyers said. "But anthracyclines can have irreversible and sometimes fatal side effects, with up to 7 percent of patients developing severe heart complications."

The ACOR/Bio-bank study is trying to find clues (biomarkers) in genetics and heart imaging studies to reveal which children are vulnerable to heart damage if treated with cancer drugs.

"Heart imaging and finding predictive biomarkers will help move the standard of care towards more personalized medicine and reduce cancer therapy related cardiac diseases," Associate Professor Conyers said. "These changes will improve the long-term quality of life of cancer survivors."

ACOR is guided by Associate Professor Conyers together with a national steering committee of 24 leaders in cardio-oncology health.

"Our ultimate goal is that after a child is diagnosed with cancer, we would immediately run a genetic test to see if they are at risk of heart damage. We will then be able to use protective medications."

ACOR has provided a platform for discovering new cardio-protective medications, and will also pave the way for new cardio-oncology clinics across Australia to better prevent, detect, monitor and treat cancer patients with, or at risk of, cardiovascular disease.

The team, which includes MCRI stem cell biologist Associate Professor David Elliott, has previously studied blood samples from 300 children treated with chemotherapy at The Royal Children's Hospital and Monash Children's Hospital.

"These blood samples allowed us to begin analyzing the child's genomics, to pinpoint genetic variations that may explain heart toxicity," he said. "We're narrowing the genetic field, but we need to look at more patients to be absolutely certain about which genes are involved."

Associate Professor Elliott said, importantly, ACOR would have a parent and patient advisory group to actively improve care and raise awareness about cardiovascular health for affected families.

"We need to understand what patients' families require to feel cared for

during and especially after treatment," he said.

"We are confident that this national approach that includes patients, their families, researchers and doctors will improve the heart health of cancer survivors."

Heart Foundation chief medical advisor Professor Garry Jennings said, "Australia has one of the highest cancer survival rates in the world. The immediate focus is on surviving the cancer, but survivors' long-term health is also crucial.

"This important study will increase our understanding of what causes heart problems in people who survive cancer and may lead to more effective therapies to prevent and treat these cardiac complications," he said.

More information: To learn more about the study or the registration process visit www.acor-registry.org.au

Provided by Murdoch Children's Research Institute