

Cardiac Oncology: Improving Cardiac Safety, Advancing Cancer Care



Ottawa Cardiac
Oncology Program

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Introduction

Cancer and heart disease are the two leading causes of death in the Canadian population.¹ The development of targeted cancer therapies (e.g., trastuzumab) have resulted in improved patient outcomes.² However, targeted cancer therapies may also increase the risk of side effects, including those involving the heart (cardiac toxicity). Cardiac toxicity is now the second leading cause of long-term morbidity and mortality among cancer survivors.³ Although cardiac toxicities associated with conventional chemotherapy are well known, the short and long-term effects of targeted treatments on the heart are less well understood.

For patients and their families, receiving a cancer diagnosis can be devastating. Navigating the complexities of the cancer care system is a significant challenge. These difficulties are compounded if cardiac complications from cancer treatment arise, thus justifying the need for a multidisciplinary, patient-centred approach in managing these risks.

The Ottawa Cardiac Oncology Program (OCOP) was established at the Ottawa Hospital in 2008. This multidisciplinary team, the first of its kind in Canada, consists of a medical oncologist, cardiologists, and a clinical pharmacist. OCOP provides patients with an integrated approach to cancer therapy, and promotes seamless communication between health-care providers. OCOP has three mandates: clinical service, research, and education. Through our cardiac oncology clinic (COC), patients benefit from timely access to cardiac assessment and treatment, resulting in improved quality of patient care. While the initial focus of the clinic was directed at women with early stage breast cancer exposed to chemotherapy and/or trastuzumab,⁴ the widespread



OCOP Members (Left to right): Dr. Michele Turek, Dr. Susan Dent, Sean Hopkins, Dr. Jeffrey Sulpher, Dr. Christopher Johnson, Nadine Graham. Absent: Dr. Angeline Law, Dr. Ellamae Stadnick, Jason Wentzell

adoption of targeted therapies in oncology has led to the referral of a much broader patient population. To date over 550 cancer patients with a wide variety of cardiac issues (e.g. high blood pressure, rapid heart rates) have been evaluated through this program, and the COC model is being used for similar clinics throughout Canada.

Research Program

The goal of OCOP's research program is to develop a national cardiac oncology patient registry, in order to facilitate the development of evidence-based guidelines for diagnosis and treatment of cardiac toxicity. In collaboration with basic scientists, we are in the process of establishing a translational research program that will evaluate the role of novel biomarkers and specialized cardiac imaging techniques in predicting early signs of cardiac toxicity.

The goal of the educational component of the program is to educate patients, practitioners, and other health care professionals at various stages of training. The educational needs of trainees are currently met through clinical rotations supplemented by self-directed learning activities. Future efforts will focus on producing electronic learning resources.

We have established bimonthly multidisciplinary cardiac oncology rounds to foster education of our staff, residents and fellows. In July 2013, OCOP established a cardiac oncology research fellowship at the University of Ottawa, the first of its kind in North America. This research fellowship is designed to provide trainees with the opportunity to increase their knowledge and expertise in the detection and treatment of cardiac complications related to systemic cancer therapy (including chemotherapy and targeted agents). Future education activities will focus on web-based information about the interactions between cancer therapies and the heart.

In recognition of these efforts, the Ottawa Cardiac Oncology Program received the 2013 Innovation Award from the Cancer Quality Council of Ontario (http://www.cqco.ca/awards/recipients_2013).

Collaboration

As OCOP gained clinical expertise in the management of cardiac toxicity related to cancer therapy, it became apparent that a national organization devoted to furthering this area of cancer care was necessary. In 2011, the Canadian Cardiac Oncology Network (CCON) was established to facilitate collaboration among health care professionals interested in the emerging field of cardiac oncology. CCON's vision is to optimize cardiac care for cancer patients receiving

potentially cardiotoxic therapy. CCON's missions are to: 1) gain a better understanding of cardiac complications related to oncology treatments, 2) develop early detection and intervention strategies to optimize cardiac health, and 3) optimize patient outcomes by collaborating with allied healthcare professionals.

In order to accomplish these goals, several projects and initiatives are currently in progress. To date, CCON has hosted four National cardiac oncology conferences in Ottawa, with a growing interest from a number of health care providers including: oncologists, cardiologists, nurses, pharmacists, radiologists and basic scientists. Our fourth conference was held in Ottawa May 8-9, 2014, and several international speakers shared their expertise and perspective on cancer care and heart health. CCON has also developed a one day workshop in Ottawa for visiting health care professionals to facilitate the establishment of cardiac oncology clinics at their respective centres. In October 2015, CCON will co-host the first global cardio-oncology summit with the International CardioOncology Society.

CCON, in collaboration with the Canadian Cardiovascular Society (CCS), is in the process of formulating a national position statement on best practices for monitoring and management of cancer therapy-related cardiotoxicity. Dr. Susan Dent, founder of CCON, is working with members

Patient Perspective

"It was so organized, and it all happened very quickly. The chemotherapy unit had very close dealings with the cardiologists. The oncology and cardiology teams were very well integrated. It means a great deal to me to know I'm getting such great care and medically these teams know exactly what is happening. I was under the care of one team, not several teams doing different things. There was less confusion."

Elizabeth Lee,
Cardiac Oncology Clinic Patient

The Ottawa Cardiac Oncology Clinic at a glance

		# Patients	%
Referrals 2008-13		428	
Cancer type	Breast	246	57
	Gastrointestinal	63	15
	Genitourinary	52	12
	Lung	17	4
	Hematological	31	7
	Other	19	4
Exposure to potentially cardiotoxic cancer therapy	Total	376	88
	Chemotherapy	207	48
	Targeted Therapy	169	39
Prescribed Cardiac Medication		175	41
Cancer Therapy Outcome	Completed	224	52
	Ongoing	12	3

of the International Cardiac Oncology Society (ICOS) to review current evidence and develop a similar comprehensive consensus statement for international use. In partnership with other leading world-class institutions in cancer care (i.e. Vanderbilt University - Nashville TN, University of Chicago - Chicago IL, MD Anderson Cancer Centre - Houston TX, University of South Florida - Tampa FL, and University of Pennsylvania - Philadelphia PA), CCON is working to develop a North American cardiac oncology fellowship program. This will foster the training of future health care providers in this novel area of medicine.

In an effort to reach out to patients, caregivers, and healthcare professionals, CCON launched its official website (www.cardiaconology.ca) in November 2013. This website provides an opportunity to share the latest information on cardiac oncology, form research partnerships, and promote upcoming events.

Summary

In 2014, more than one million individuals in Canada will be considered cancer survivors. It is imperative that we work together to ensure these individuals do not face long term sequelae from their cancer treatment; in particular cardiac toxicity. Individuals with heart disease may face a diagnosis of cancer - a multidisciplinary approach will be needed to allow these individuals to receive the best cancer care without compromising their heart health. Cardiac Oncology is a new medical discipline that is breaking down the traditional 'silos' to offer individuals a patient-centred approach to cancer care.

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ESTABLISHING A CARDIAC ONCOLOGY CLINIC TIPS FOR ACHIEVING SUCCESS

The organization of a specialized cardiac oncology clinic is a complex process involving multidisciplinary collaboration, administrative support, and institutional resources. Here are tips on forming your own successful COC clinic.

- 1. Logistics** - COC clinics require close interaction between oncologists and cardiologists. Choose a clinic location in close proximity to a cancer centre, preferably with an electronic health record and point-of-care access to cardiac imaging.
- 2. Expertise** - Cardiologists with imaging experience are well suited to this area of clinical care. Focus on recruitment of specialists who are interested in learning more about cancer therapy and prognosis.
- 3. Allied Health Support** - Clinics require significant support from allied health professionals. Consider recruitment of clinic nurses with experience in both cancer treatment and cardiac disease, and who have an interest in clinical research.
- 4. Resources** - Cardiac oncology is a rapidly growing field. Access to the latest medical literature and research tools is crucial for clinic success.
- 5. Collaboration** - Multidisciplinary clinics work best with consistent communication between health care providers. We recommend regular case review rounds and educational sessions (with participation of clinical fellows and residents) to keep members of the clinic informed and up to date.

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