

INTERNATIONAL PERSPECTIVES

Cardio-Oncology in Cuba

The Present and the Future



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Latin America has experienced an epidemiologic transition and an increased life expectancy of its population during the last several years. One important consequence is that chronic noncommunicable diseases—cardiovascular disease (CVD) and cancer—currently constitute the primary causes of death in the region (1,2).

In Cuba, with a population of 11,201,550 inhabitants (5,570,081 male and 5,631,469 female inhabitants), CVD is the main cause of death, followed by cancer (238.1 and 223.0 per 100,000 inhabitants, respectively) (3). However, when based on sex, male CVD and cancer mortality rates are similar (256.9 vs. 255.3 per 100,000 inhabitants), whereas female mortality CVD rates are higher than mortality due to cancer (219.6 vs. 191.0 per 100,000 inhabitants) (3).

The most common causes of cancer death in Cuba over the last 20 years have been lung, prostate, and colon cancers in men and lung, breast, and colon cancers in women. The most frequent cancer types by sex (with the exception of skin cancer) were 81.9 and 66.7 for prostate and lung cancers (male) and 68.7 and 38.6 for breast and lung cancers (female) per 100,000 inhabitants, respectively (3).

Cardio-oncology is a relatively new, rapidly growing multidisciplinary subspecialty. Modern cancer treatments have significantly increased long-term survival rates in cancer patients. Nevertheless, there is a concern that cardiotoxicity secondary to several treatment types, including not only anthracycline chemotherapy regimens and chest radiotherapy, but

also many targeted therapies and immunotherapies, may surpass cancer-related mortality in patients with breast, hematological, and childhood cancers (4-6).

In addition to the management of cardiotoxicity due to cancer treatments, the subspecialty of cardio-oncology also includes the assessment of comorbid CVD and cancer, as well as the stratification of cardiovascular risk prior to cancer treatment. Given that smoking, sedentary lifestyle, and obesity are common risk factors for cancer and CVD, there are opportunities for CVD prevention and detection before, during, and after cancer treatment.

In addition, as cardiologists and oncologists have different clinical roles that influence their respective approaches to the care of cardiac risk or disease in cancer patients, it is crucial to establish a collaborative effort to achieve the best possible cancer outcomes and the longest possible survival without cardiac complications.

The establishment of a cardio-oncology service in the country began in 2010 in the Institute of Oncology and Radiobiology with a team of cardiologists, oncologists, and additional clinicians who evaluated oncologic patients with a history of CVD or signs of cardiotoxicity. Concurrently, the Hermanos Ameijeiras Hospital (tertiary level) established a cardio-oncology group. Additional hospitals developed cardio-oncology programs in other provinces of the country, including Matanzas (2019), Artemisa (2020), and Ciego de Avila (2020). Further, in 2016 the Institutes of Oncology and Cardiology established a collaborative platform with the aim of achieving the more effective use of imaging resources using a multimodality approach focused on diagnosis and risk stratification of CVD in cancer patients.

This work meant that cardiologists needed to enhance their expertise regarding the potential effects of oncologic treatments on cardiovascular health as well as the need to prevent, diagnose,

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monitor, and most safely and effectively treat cardiotoxicity manifestations to make possible the completion of these treatments. Similarly, oncologists and hematologists needed to understand the importance of cardiovascular assessment before, during, and after cancer treatment, including identifying modifiable cardiovascular risk factors and promoting management protocols to ensure a heart-healthy lifestyle. As of early 2019, more than 6,433 cancer patients (including 5,062 of whom were evaluated for the first time) were followed in these clinics, and 95% were able to complete prescribed anticancer therapy. The primary purpose of these cardio-oncology groups includes early monitoring and secondary prevention of cardiotoxicity, cardiovascular risk stratification prior to cancer-related treatments; management of comorbid cardiac disease in cancer patients; training of cardiologists, oncologists, and hematologists; and development of research studies that may enhance management of these patients.

Three international symposia on the subspecialty of cardio-oncology have been organized in Cuba since 2017, with the participation of more than 400 specialists, including cardiologists, oncologists, clinicians, surgeons, and fellows in training. These symposia were sponsored by the Cuban Societies of Cardiology and Oncology and, in 2019, also by the International Cardio-Oncology Society, whose Executive Director, Stephen Casselli, inaugurated the event. The keynote speakers included Dr. Cyril D Pettit (United States), president of the Health and Environmental Sciences Institute, with the talk “Making Patient Quality of Life an Active Research Priority: A Nonprofit’s Perspective on Bridging Drug Development, Safety Assessment, Clinical Practice, and Patient Experience,” and Dr. Eric E. Harrison (United States), with the presentation “Use of Cardiac CT Aps to Evaluate Patients’ Coronary Arteries after Coronary Radiation Exposure in Cancer Patients: Sherlock Program, HeartFlow (CT-Fractional Flow Reserve [FFR]), and the Fat Attenuation Index (FAI).”

In 2019, the Cuban Society of Cardiology established the Cuban Chapter of Cardio-Oncology, including representatives of different subspecialties in cardiology and encouraging associate membership of oncologists and hematologists-oncologists. This chapter aims to provide organizational, structural, and professional guidance to practicing physicians and related professionals involved in the cardiovascular care of oncology patients.

Multiple efforts are under way in Cuba to enhance cardio-oncology prevention, detection, treatment, and monitoring, including the following:

- Establishment of cardio-oncology groups in all provinces of the country.
- Use of interventional methods to treat cancer patients with pericardial effusions.
- Use of local antineoplastic drugs and pericardiocentesis as a therapeutic option in pericardial effusion secondary to neoplastic disease.
- The development of protocols for optimal cardiology management of HER2+ breast cancer patients with moderate ventricular dysfunction.
- Determination of early predictors of chemotherapy-related cardiac dysfunction from anthracycline-based chemotherapy at 1 year after completion of anthracycline therapy in women with breast cancer through the Imaging in Cardio-Oncology Study, a multinational project sponsored by the International Atomic Energy Agency.

Despite the many advances that have taken place in Cuba, there are still several areas in the subspecialty of cardio-oncology that need to be addressed, including the following:

- Raising awareness of the risk of cardiotoxicities secondary to cancer treatment in patients with cancer, their caregivers, and clinicians overall and the crucial role of preventive cardiology for these patients, with a special emphasis on reduction of modifiable risk factors for CVD and the promotion of a healthy lifestyle.
- Continuously strengthening the relationship and collaboration between oncologists and cardiologists with the aim of offering the best possible care to cancer patients.
- Incorporating cardio-oncology in the curriculum of the fellowship in cardiology.
- Improving protocols for diagnosis, evaluation, monitoring, and risk stratification of CVDs in cancer patients.
- Promoting national and international exchange, collaboration, and research in cardio-oncology.

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