

INTERNATIONAL PERSPECTIVE

Cardio-Oncology in Israel

Development and Future



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The tremendous success of anticancer treatment has brought us to a new reality that substantial proportions of patients with cancer are living longer and with a chronic disease. The absolute survival of patients with cancer increased from 34% in 1960 to 1969 to 62% in 2000 to 2009, with a prevalence of cancer survivors in the total Israeli population of 1.9% in 2009 (1). In these patients, heart and vascular disease burden is high as a consequence of the following: 1) pre-existing cardiovascular disease [CVD] (known or subclinical); 2) cancer therapy-related CVD; and 3) age-related cardiovascular morbidity (2). Cancer survivors have increased odds of subclinical myocardial damage as assessed by elevated high-sensitivity cardiac troponin T (3). The importance of CVD-related morbidity and mortality is demonstrated by several recent studies showing an improvement in breast cancer outcomes in patients without comorbidities, whereas early-stage breast cancer patients who were older or had pre-existing CVD had increased mortality, with heart disease among the most common causes (4). Similar trends have been observed after chemotherapy and chest radiation for Hodgkin's lymphoma (5).

All citizens of Israel—a population of more than 9 million—have had universal health coverage since the introduction of a progressively financed statutory health insurance system in 1995 (6). All oncology services are provided mostly by 180 hospital-based

medical oncologists and a similar number of hematology oncologists in 26 general hospitals (M. Mittelman, personal communication, 2019). The number of active cardiologists in Israel is more than 800.

We recognized the increased demand for specialized cardio-oncology service and in 2013 established the first dedicated cardio-oncology clinic in Israel, in the Rabin Medical Center, through the Department of Cardiology in close collaboration with the Davidoff Comprehensive Cancer Center. The initiative was fully supported by the management and administration of these respective departments as a component of the multidisciplinary disease management program. The hospitals are part of Rabin Medical Center, owned by Clalit Health Services, the largest health care provider in Israel, and they are located in close proximity to each other. Davidoff Center provides comprehensive medical treatment to more than 16% of Israel's patients with cancer. Initially, our clinic model included a day of outpatient clinic each week with complete coverage of in-hospital consultant services to the Davidoff Cancer Center. During the next year, in response to increased demand, the outpatient clinic frequency was increased to 2 days per week. We provide the full spectrum of cardiology services to active cancer patients and cancer survivors. As of the beginning of 2019, more than 1,600 patients with cancer were followed in this clinic, and 84.3% of them were able to complete prescribed anticancer therapy. These results have been reported at national and international meetings.

Our initial experience was followed in 2013 with the launch of 4 more cardio-oncology services in the central Israeli hospitals: Hadassah Hebrew-University Medical Centers in Jerusalem, Tel Aviv Sourasky Medical Center, Rambam Healthcare Campus in Haifa, and the Chaim Sheba Medical Center at Tel Hashomer, providing the whole spectrum of cardiology service to their respective oncology and

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hematology-oncology departments. Since then, according to a recent 2019 survey, 15 of the 26 general hospitals in Israel have established dedicated cardio-oncology services, with variable volume of activities, within existent cardiology departments.

To promote the field further, in 2015 we organized the first International Meeting on Cardio-Oncology (IMCO) in Tel Aviv with more than 180 participants from Israel and abroad. In 2017, IMCO hosted more than 200 participants.

Cardio-oncology field leaders applied to the Israeli Ministry of Health Council on Cardiovascular Disease Management with the vision of further growing cardio-oncology in Israel. After a thorough discussion, the Council appointed a special subcommittee to develop strategies for the implementation and proliferation of cardio-oncology services in the country relevant to both hospitals and the community.

Multiple research efforts are ongoing to explore the impact of cancer on cardiovascular outcomes. Using the biennial Acute Coronary Syndrome Israeli Survey (ACSIS) database, Itzhaki Ben Zadok et al. (7) showed that short-term outcomes are not different among patients with and without prior cancer who have acute coronary syndrome but observed increased mortality at 1 year in the group with cancer. Following the significant need of providing effective anticancer treatment to patients with severe aortic stenosis in the era of the rapidly developing field of transcatheter aortic valve replacement (TAVR), an international registry of TAVR in active cancer patients was created (TOP-AS [Outcomes of Transcatheter Aortic Valve Implantation in Oncology Patients With Severe Aortic Stenosis]). Results of this effort were recently published supporting the use of TAVR in carefully selected active cancer patients with reasonable life expectancy (8). Laufer-Perl et al. (9) also reported an association of decreased global longitudinal strain with cancer therapy-related CVD in a prospective single-center registry. Numerous review papers were published by Israeli cardio-oncologists on the use of imaging in cardio-oncology (10).

In 2019, the Israeli Heart Society supported the establishment of a Cardio-Oncology Forum with participation of all stakeholders, including representatives of different subspecialties in cardiology and encouraging associate membership of oncology and hematology-oncology colleagues. This forum is at an advanced stage of organization and is positioned to lead the development and further growth

of the field of cardio-oncology in Israel. The main goal of this forum is to provide organizational, structural and professional guidance to practicing physicians and all medical professionals involved in the cardiovascular care of patients with cancer for the prevention, detection, and management of cancer-associated CVD.

During the past 6 years, considerable progress has been made in the field of cardio-oncology in Israel, but many challenges remain to be overcome:

- Incorporation of cardio-oncology into the curriculum of fellowship in cardiology in Israel
- Creation and implementation of unified consensus-based risk assessment, cardiovascular toxicity management protocols in everyday practice of academic and community-based cardiology clinics, and disease management programs for cancer survivors
- An increased awareness of patients with cancer and their caregivers about cardiovascular health and preventive cardiology.

The establishment of the Israel Heart Society Forum on Cardio-oncology with active participation and involvement of other professional societies representing oncologists and hematologists in Israel is a first major step toward beginning to solve the foregoing obstacles. We hope to engage more cancer specialists in multidisciplinary care teams focused on managing the unique group of patients with cancer with CVD and to expand collaboration with the American College of Cardiology and the European Society of Cardiology Councils on Cardio-Oncology, including multinational prospective registries and randomized controlled trials.

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