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Harmonization of Cardiovascular and Oncology and the Blossoming of Cardio-Oncology in Japan



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CARDIOVASCULAR DISEASE AND CANCER IN JAPAN

The life expectancy in Japan is among the highest in the world. After the reduction in mortality of communicable diseases in the mid-20th century, the improvement of life expectancy thereafter has been achieved by a combination of multiple factors; these factors include advanced medical technologies made affordable through universal insurance, public health services such as widespread routine health check-ups and screening for cardiovascular (CV) disease and cancer, and a traditional diet and healthy lifestyle (1). However, the burden of CV disease and cancer remains significant and is still increasing in Japan. Indeed, although the long-term outcomes of patients have improved remarkably for CV disease and cancer, cancer has long been the leading cause of mortality, followed by CV disease (2). In addition, the incidence of CV disease and cancer are increasing (3,4) and rapidly growing, particularly in the aging population (5). CV adverse events related to cancer therapies

have also become a serious concern, determining clinical outcomes and quality of life in cancer patients and survivors.

CV disease and cancer have long been viewed as disparate disease entities of direct opposition. CV disease is a disease of circulatory disturbance mostly caused by insufficient proliferation or regeneration of CV cells, whereas cancer is fundamentally a disease of dysregulated cell proliferation. In Japan, as well as in other developed countries, medical care for CV disease and cancer has traditionally been provided in distinct departments, which allows provision of high-quality and specialized care and enhancement of clinical expertise. However, with the growing demands for the care of cancer patients with CV comorbidities or complications, cardiologists are in need of information and knowledge across the broad spectrum of current cancer therapies, and the reverse is also true for oncologists. Close communication and coordination between cardiologists and oncologists have been built and strengthened using a multilayered framework involving collaboration across health care services, hospitals, medical institutions, and academic societies.

INTERSECTION OF CARDIOLOGY AND ONCOLOGY

The Japanese Circulation Society (JCS) was founded in 1935. As of June 2019, there were ~26,000

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members. Although one-third the age of the JCS, the Japanese Society of Medical Oncology (JSMO), founded in 1993, has a membership of ~9,200 as of August 2019. The shared mission of the JCS and the JSMO is to reduce the burden of each disease and to achieve a healthy, extended life in Japan. Both societies have greatly contributed to advancing medical services, promoting research and development, providing education, fostering clinical experts, and enhancing public awareness in the fields of cardiology and oncology. Each society has initiated academic collaborations amidst the growing needs for cardio-oncology. Joint sessions focusing on a wide trajectory of cardio-oncology topics have been included in the program of scientific meetings of each society, and cardiologists and oncologists pursue in-depth discussions together from the standpoint of each field's respective expertise. Through the exchange of information and opinions among cardiologists and oncologists, the gaps in knowledge and practice of cardio-oncology also have become more clear.

To further energize the interdisciplinary collaboration between cardiologists and oncologists for moving cardio-oncology forward, the Japanese Onco-Cardiology Society (JOCS) was established in October 2017 (6). The members of JOCS comprise cardiologists, oncologists, radiologists, nurses, pharmacists, allied health professionals, and researchers; the ratio of cardiologists to oncologists is ~1.5:1. The JOCS is engaging in academic activities to solve the unmet needs in cardio-oncology, and it aims to promote the connection between the JCS and the JSMO to enlighten the members of both societies on cardio-oncology and to develop cardio-oncology as a new subspecialty within the fields of cardiology and oncology.

We celebrate the 1-year anniversary of *JACC: Cardio Oncology*, serving to advance the burgeoning field of cardio-oncology. The Journal consistently provides us with evidence-based knowledge of clinical practice and cutting-edge science in cardio-oncology, stimulates our interest, and promotes close collaboration between cardiologists and oncologists worldwide.

THE BLOSSOMING OF CARDIO-ONCOLOGY IN JAPAN

Our societies will continue to push cardio-oncology forward in harmonious collaboration. Since 2010, when the first “onco-cardiology unit” in Japan was established at Osaka Medical Center for Cancer and Cardiovascular Diseases (the predecessor of the Osaka International Cancer Institute), cardio-oncology clinics with a multidisciplinary team of dedicated

professionals have been organized in an increasing number of cancer care hospitals throughout Japan (6). Our societies and the JOCS will increase efforts to strengthen the function of cardio-oncology clinics, construct regional networks among health care providers and patient advocates, and raise public and social awareness for seamless and long-term CV care of cancer patients and survivors (7).

As many as 10 new drugs are approved annually for anticancer treatment in our country (8). Most anticancer agents are first studied for approval in patients with advanced cancers, with a shorter study duration given the late stage of the cancers. Cancer patients with comorbid CV diseases are excluded from these studies in general. Therefore, CV adverse events may well be underestimated during the observation period of these clinical trials, especially if their incidence is low or they occur only after long-term administration. Our societies and the JOCS will develop registries with the goal of understanding the epidemiology of CV adverse events and address the long-term safety of cancer therapies in a real-world setting. The exchange of views from the standpoint of cardiologists and oncologists is of prime importance, not only to design and conduct clinical and epidemiologic studies but also to develop evidence-based guidelines for cardio-oncology. The JCS and the JSMO have issued a number of official guidelines in the fields of cardiology and oncology, respectively. Our societies and the JOCS are taking the initiative to develop guidelines for risk prediction, screening, prevention, diagnosis, treatment, and long-term surveillance of CV complications in patients with cancer.

Emerging evidence suggests that CV risk factors such as smoking, diabetes mellitus, and hyperlipidemia are associated with an increased risk of some types of cancer (9). Chronic inflammation commonly contributes to the pathogenesis of CV disease and cancer, and clonal hematopoiesis of indeterminate potential attracts much attention as a driver of hematological malignancies and CV disease (10). Basic scientific research in cardio-oncology is focused on the shared genetic, molecular, and cellular basis of CV disease and cancer, as well as the molecular mechanisms underlying the pathogenesis of CV toxicities by cancer treatment, which our societies and the JOCS will pursue in collaboration.

Following the enactment of the Cancer Control Act in 2007 in Japan, the Stroke and Cardiovascular Control Act was passed in 2018 (6,11), which promotes a nationwide approach for the following: raising public awareness and prevention; improving systems

for health, medical, and welfare services; and promoting basic, translational, and clinical research. Our societies will continue efforts to reduce the growing burden of CV disease and cancer and to make cardio-oncology blossom in Japan, putting much emphasis on harmonization of heart and cancer experts.

AUTHOR DISCLOSURES

The authors have reported that they have no relationships relevant to the contents of this paper to disclose.

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