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VIEWPOINT

The Potential Impact of the 2022 ESC Cardio-Oncology Guidelines on Clinical Practice in China

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The first European Society of Cardiology (ESC) guidelines on cardio-oncology focus on cancer therapy-related cardiovascular toxicity (CTR-CVT) and provide a highly comprehensive overview of the definition, diagnosis, and management strategies of CTR-CVT.[1] The concept of dynamic cardiovascular risk in cancer patients is of particular importance, and the need for individualized strategies during and after cancer treatment is emphasized. Herein, we provide our perspective on the applicability of the ESC guidelines to cardio-oncology care in China.

CARDIOVASCULAR TOXICITY RISK STRATIFICATION, MONITORING, AND DIAGNOSIS OF CARDIOVASCULAR COMPLICATIONS

The ESC guidelines have proposed clear definitions for the diagnosis of CTR-CVT, covering the broad spectrum of possible presentations and links with different anticancer therapies. Baseline cardiovascular (CV) risk assessment and estimation of 10-year fatal and nonfatal CV disease risk with Systematic Coronary Risk Estimation 2 or Systematic Coronary Risk Estimation 2-Older Persons are recommended. However, before the application of these scores within China, their external validity and generalizability to Chinese populations first need to be established. The guidelines recommend the Heart Failure Association/International Cardio-Oncology Society model for cardiotoxicity risk stratification before the initiation of any anticancer therapy, stratifying patients into low, moderate, and high or very high risk. However, the risk assessment system is complex and may be difficult to implement for most Chinese oncologists, thus limiting their uptake to daily practice. Online calculators may help to improve their accessibility.

Although the present guidelines establish an evaluation and monitoring system for at least 18 potentially cardiotoxic anticancer therapies, not all of these newer drugs are currently available in China. However, this document provides a useful resource as these therapies become approved for cancer treatment in China. For most cardiologists who are not familiar with these newer classes of cancer drugs and their combinations in oncology practice, the algorithms help to simplify their monitoring practices, making the management approach more accessible.

Regarding the biomarker and imaging tests for risk assessment, diagnosis, and longitudinal monitoring, these are well laid out in the ESC guidelines. The diagnosis of cancer therapy-related cardiac dysfunction (CTRCD) can be made by assessing new-onset CV symptoms, imaging, and biomarkers. Patients presenting with symptomatic or asymptomatic CTRCD are divided into distinct phenotypes based on left ventricular ejection fraction and the severity of dysfunction, which is consistent with the latest classification of heart failure, thereby facilitating the application of prevention and treatment strategies.[2]

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However, there are some challenges and gaps that remain to be addressed for cardio-oncology practice in China. First, the accepted thresholds and reference values of CV biomarkers for Chinese patients need to be validated. Second, although global longitudinal strain assessment is particularly important in patients with low to normal left ventricular ejection fraction to detect asymptomatic myocardial damage, global longitudinal strain is not routinely obtained in China, especially in nontertiary hospitals and cancer hospitals. Third, cardiac magnetic resonance is recommended for the assessment and monitoring of cardiotoxicity. However, the accessibility of these modalities throughout all of China is limited.

PREVENTION AND MANAGEMENT OF CV TOXICITY

The ESC guidelines are more comprehensive than previously published consensus statements on the topic of CV disease prevention and treatment.[3-5] They include comprehensive recommendations for primary and secondary prevention and treatment strategies for 10 types of acute and subacute CV toxicities. In this paper, we discuss some of these toxicities and how they might apply to the care of our cancer patients in China.

IMMUNE CHECKPOINT INHIBITOR–ASSOCIATED MYOCARDITIS. For the diagnosis of immune checkpoint inhibitor (ICI)-associated myocarditis, cardiac magnetic resonance and cardiac positron emission tomography are not always accessible in China, especially in cancer hospitals. Endomyocardial biopsy requires specific expertise and is similarly not widely available. However, the refined clinical classifications presented in the current guidelines are useful in providing a detailed understanding of ICI-associated myocarditis and guiding risk stratification. For patients with elevated troponin levels without clinical symptoms, significant left ventricular dysfunction, or unstable hemodynamics, which may be termed "subclinical" ICI-associated myocarditis, studies to guide early management are needed; clarifying the role of oral prednisone therapy rather than intravenous glucocorticoids would be important. Aside from myocarditis, ICIs can lead to other cardiovascular toxicities such as coronary artery disease, myocardial infarction, and stroke. In the future, with the increasing use of ICIs in China, data on the epidemiology and burden of cardiovascular events will emerge.

HYPERTENSION. Detailed management and treatment strategies have been described in the ESC guidelines. Given that several anticancer therapies that cause hypertension also cause CTRCD, treatment of hypertension with angiotensin-converting enzyme inhibitors or angiotensin receptor blockers as first-line therapy is recommended to reduce the risk of CTRCD, with a target systolic and diastolic blood pressure of <130 mm Hg and <80 mm Hg, respectively. Data from China suggest that in older patients with hypertension, intensive treatment with a systolic blood pressure target of 110 to <130 mm Hg resulted in a lower incidence of CV events compared with those receiving standard treatment with a target of 130 to <150 mm Hg.[6] How this applies to cancer patients remains to be defined.

ATRIAL FIBRILLATION. For cancer patients with atrial fibrillation, the ESC recommended a treatment algorithm based on T (thrombotic risk), B (bleeding risk), I (drug interaction), and P (patient preference). However, the TBIP scoring system still needs to be validated in Chinese cancer patients.

LONG-TERM FOLLOW-UP AND SPECIAL POPULATIONS

Longitudinal follow-up is recommended for cancer survivors for risk factor management. However, in China, a proportion of cancer patients do not systematically receive long-term monitoring by clinicians despite their elevated cardiovascular risk.[7] The reasons are multifactorial, including a lack of awareness of the benefits and need for long-term follow-up from both patients and physicians and insufficiencies and inconvenience in some situations. Similarly, children with cancer represent a problem. More than 300,000 children are diagnosed with cancer in China each year,[8] and their long-term, cumulative CTRCD risk is significant, especially in those receiving cardiotoxic anticancer treatment. Given these issues, establishing an infrastructure for long-term patient care is crucial. There is a need for the implementation of individualized monitoring plans and the development of educational programs to patients and their relatives. The importance of building a collaborative network and clinical data platform for cardio-oncology in China, developing remote monitoring and management tools, and strengthening education for patients has become amplified during the coronavirus disease-2019 pandemic.

KNOWLEDGE GAPS AND OUR VISION TO BUILD A NATIONWIDE CARDIO-ONCOLOGY PLATFORM

There is much work ahead for cardio-oncology in China. We must make a concerted effort to strengthen collaborations and cooperation between oncologists

and cardiologists. At the systems level, dedicated cardio-oncology services are lacking even in some tertiary care hospitals. These must be established to coordinate clinical, research, and teaching activities. This will ensure excellence in care for cancer patients and provide well-defined training pathways and continuing education for clinicians. In the long-term, collaborations between specialty cardio-oncology centers will provide opportunities to conduct multicenter clinical trials to investigate the optimal treatment strategies for different cancer groups and to establish multicenter registries with standardization of data entry and collection, treatment plans, and outcomes to enable meaningful comparisons and to reduce unwanted variations in clinical practice.

Overall, the present ESC guidelines cover comprehensive topics including nomenclature and definitions, diagnosis, treatment, surveillance, and prevention. With the cooperation of leading centers in China, we hope to adapt the guidelines to our region with consideration for our unique demographics, susceptibility to cancers, and treatment responses.

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