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Cardiothoracic Imaging in China
Opening Up New Horizons

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Since the mid-1990s, China has experienced profound economic and social changes, as well as seismic shifts in residents' living and health conditions. With the acceleration of population aging and urbanization, the impact of chronic disease risk factors on the health of residents has become more and more significant, among which cardiovascular disease has become the leading cause of death in urban and rural residents in China.[1,2] Approximately 4 million people die of cardiovascular disease in China every year.[2] To fight against these chronic disorders and emerging infectious diseases, scientists and radiologists from China have made many efforts and important contributions in the past 2 decades.[1,2]

Driven by the rapid development of computing power, algorithm optimization and data storage capabilities, Chinese cardiothoracic radiology is experiencing its second development peak. Chinese cardiothoracic radiologists have developed and validated many advanced imaging techniques and integrated them into routine clinical use, such as dual-energy computed tomography pulmonary angiography, computed tomography–derived fractional flow reserve (CT-FFR), and both cardiac magnetic resonance and computed tomography myocardial perfusion techniques. These advanced imaging techniques have been demonstrated to have impressive discriminative capabilities, receiving sufficient attention in Chinese medical research.[3–7] In recent years, a large number of articles on artificial intelligence methods to solve imaging tasks have flooded into medical journals, promoting the interdisciplinary integration of radiology, engineering, computer science, and other fields, culminating in the creation of machine learning based pulmonary nodule detection software and machine learning CT-FFR software in China.[4,8] In this special China issue of the Journal, Tang and colleagues'[9–11] review articles briefly describe the past, present, and future of cardiovascular imaging, thoracic imaging, and imaging in cardiac intervention in China, reflecting the progression and achievements of Chinese Cardiothoracic Radiology over the past 2 decades.

Thoracic and cardiovascular imaging is involved in many complex imaging and analysis procedures. To facilitate the dissemination of advanced cardiovascular imaging techniques in a standardized manner across China, Chinese cardiothoracic radiologists are actively involved in the development, promotion, and application of clinical guidelines, expert consensus, and recommendations. In this special issue, we publish the Chinese expert consensus document addressing CT-FFR on behalf of the Chinese Society of Radiology.[12] Nowadays, Chinese cardiothoracic radiologists are pushing these advanced cardiovascular imaging techniques into clinical routine applications, an additional effort to lay a solid foundation for future research.

When the coronavirus disease 2019 (COVID-19) pandemic swept the world, causing serious losses of life and property, Chinese cardiothoracic radiologists fought in the forefront against this new disease. They rapidly summarized a series of imaging manifestations, dynamic changes of COVID-19 in chest and heart imaging, reported bioimaging markers of COVID-19, used machine learning techniques to automatically, efficiently and accurately detect COVID-19, classified the severity and assessed the prognosis of the disease.[13–18] The infection control measures and experiences of radiology departments were published and disseminated in some international journals such as the *Journal of Thoracic Imaging* and the *Korean Journal of Radiology*.[19,20] These experiences are still playing an important role in combating COVID-19 around the world.

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Although still facing many great challenges such as methodological limitations and the lack of a large prospective multicenter study, Chinese Cardiothoracic Radiology has been exploring safer, more cost-effective, and patient-friendly noninvasive modalities to replace invasive methods. Many knowledge gaps still exist and must be bridged. Multidisciplinary cooperation and breakthroughs are imperative to improve the levels of scientific study and clinical transformation, with sustained cooperation being essential to solve future problems. As Chinese Cardiothoracic Radiology matures, we are eager to unite with more clinical physicians and scientists around the world to bring discoveries in cardiothoracic radiology from the laboratory to the larger public arena of clinical daily practice. Chinese Cardiothoracic Radiology is moving forward with an unyielding steadfastness, embracing its most prosperous era. We firmly believe that with our best efforts, the future of Chinese Cardiothoracic Radiology is promising.

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