PERSPECTIVE

Epidemic of Cardiovascular Disease in China

Current Perspective and Prospects for the Future

oronary artery disease was once rare in China; in a large central hospital in Shanghai during the 1950s, <10 patients per year were hospitalized because of myocardial infarction.¹ Now, with rapid improvements in living standards and dramatic lifestyle changes having occurred during the last 2 decades in China, the prevalence and mortality of cardiovascular disease (CVD) have increased significantly (Figure).² As a consequence, it is now urgent that Chinese society mounts a comprehensive attack on CVD, harnessing all available resources to slow, arrest, and possibly even reverse the epidemic of CVD.

Numerous factors contribute to the epidemic of CVD in China. Rapid aging of the population, improved survival from other illnesses, progressive urbanization, increased calorie consumption, decreased physical activity, mental stress, and air pollution all play important roles. Consequently, the steadily rising incidence and prevalence of CVD in China is likely to continue into the future, particularly for coronary artery disease, stroke, heart failure, and age-related degenerative valve diseases. Therefore, it is high time to sound the alarm before all of Chinese society to focus attention and resources on this grave issue and to develop feasible and effective strategies to stem the unremitting expansion of CVD burden.

MULTIDIMENSIONAL STRATEGY FOR SUCCESS

Risk Factor Modification and Prevention

Smoking, obesity, hypertension, hyperlipidemia, hyperglycemia, and physical inactivity constitute 6 modifiable CVD risk factors.³ In an effort to reduce CVD morbidity and mortality, a program has been established by the China Cardio-vascular Association to promote healthy lifestyles through educational activities focusing on these modifiable risk factors. Indeed, the China Cardiovascular Association is working with media, both television and radio, and is leveraging the power of the internet and social media (eg, WeChat, Weibo) to promote healthy lifestyles around the nation. Besides education, it has proven effective in other countries to disfavor unhealthy behaviors by making them costlier, such as by raising taxes on tobacco, sugar-sweetened beverages, and high-calorie foods. Related recommendations have been formulated and relayed to Chinese governmental authorities.

Beyond lifestyle measures, we must establish practicable disease management models to combat and treat the asymptomatic population with hypertension, hyperlipidemia, and diabetes mellitus. Annual health checkups with regular monitoring of blood pressure, lipids, and glucose, ideally free of charge, are essential ways to identify this high-risk population and provide appropriate treatChengxing Shen, MD Junbo Ge, MD

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FRAME OF REFERENCE



Figure. Mortality rates and prevalence of CVD in China.

Data quoted from report on cardiovascular diseases in China.² **A**, Mortality rates of CVD in urban and rural Chinese residents from 1990 to 2015. **B**, Prevalence of ischemic heart diseases (IHD), cerebrovascular diseases (CBD), and hypertension (HTN) from 1991 to 2013. The prevalence of CBD and IHD are depicted as a permillage. CVD indicates cardiovascular disease.

ments. It is important to note that China's population is aging faster than other developing countries. This phenomenon is likely to contribute to increased CVD burden, and efforts should be launched to address the healthcare needs of older people in China now and in coming years.

Hierarchical Medical Infrastructure

A standardized, hierarchical treatment network is being established in China, incorporating medical clusters of tertiary care, provincial hospitals, and grassroots medical services; intensifying bidirectional referrals between community and provincial hospitals; improving treatment patterns in community hospitals; and facilitating justified personnel, equipment, medications, and other resource allocations to community hospitals. Furthermore, Chinese patients with CVD will benefit from real-world application of national and international cardiovascular disease guidelines and consensus-guided therapies. Last, the development of stroke units, heart failure units, and chest pain centers is underway in China to enhance disease management quality control. Rehabilitation education and establishment of multilevel cardiovascular rehabilitation/secondary prevention models are of importance to foster reemergence of patients with CVD as active participants in society.

Environmental Improvements

Environmental pollution is a key element underlying the high incidence of various diseases, including CVD, in China. Rapid development of the Chinese economy during the past 3 decades has occurred at the expense of the environment. Happily, the current Chinese government recognizes that economic growth that entails sacrificing the environment is unsustainable in the long run. A sustainable development strategy has been proposed to reduce pollution and thereby improve the health of the population. By implementing environmentally friendly measures, such as reducing coal consumption, shuttering heavily polluting enterprises, dredging rivers, planting trees, reducing pesticide use, and promoting recycling of waste, prospects for restoring the environment are substantially improved.

Fundamental Role of Research

CVD manifests unique features across different societies and ethnic/racial groups; CVD in China differs in meaningful ways from that elsewhere in the world. As such, research is required to glean underlying mechanisms and develop diagnostic and treatment strategies with optimal efficacy. Basic and translational research is being promoted by the central government as well as by local and hospital leaders. Clinical and epidemiological research has been intensified in China in recent years. The application of contemporary information technology and large data platforms is essential for elucidating trends in CVD epidemiology and therapeutic efficacy of new approaches. In aggregate, these efforts are pivotal to success in the struggle against CVD.

CONCLUSION

The path ahead to mitigate the burden of CVD in China is long and daunting, but failure is not an option. Speaking figuratively, a sword of Damocles is hanging over the Chinese people, indeed much of the entire world, for the foreseeable future. Prevention of CVD and application of workable strategies to achieve the goal of controlling modifiable risk factors will require a concerted effort across all of Chinese society: government officials, academic leaders, community medical professionals, family members, and, of course, patients. With this effort, we foresee a future in which the epidemic of CVD is tamed.

ARTICLE INFORMATION

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