Heart Disease in Asia

Shigetake Sasayama

People desirous of knowing the diversities of the races of mankind, as well as the diversities of regions of all parts of the East, read through this book and you will find in it the greatest and most marvelous characteristics of the people... From the Prologue to The Travels of Marco Polo

With the advent of an aging society, heart disease has become one of the most important health problems worldwide. Heart disease is estimated to increase continuously during the next few decades. In fact, the number of people ≥60 years of age is expected to double by 2025 and to triple by 2050 globally. The proportion of this aged population is likely to increase more in the Asia-Pacific region; thus, half of the world’s cardiovascular burden is predicted to occur in this area.

Risk Factors of Cardiovascular Diseases

Increases in levels of risk factors, in particular total cholesterol and blood pressure, appear to account for a substantial amount of the age-related increase in coronary heart disease. This themed issue highlights the perspective for the contributions of risk factors to the excess coronary heart disease mortality in populations of the Asia-Pacific region. Cardiovascular risk factors are traditionally derived from studies in whites. However, relationships between these traditional risk factors and cardiovascular disease may differ in Asian and Western societies. The ethnic differences in the association between diabetes mellitus and ischemic heart disease are noted even within Asian populations. In Asian countries, as a consequence of the economic developments, the prevalence of overweight and obesity is increasing, and more important, rates of diabetes are increasing even more quickly. In particular, a moderate increase in body mass index makes South Asians more prone to insulin resistance and related diseases. Thus, it has been suggested that lower cutoff points for body mass index be adopted in Asian than in Western countries.

In most Asian countries, mean levels of total cholesterol are lower than those found in Western countries, with a lower incidence of coronary heart disease. In the Asia-Pacific region, up to two thirds of cardiovascular diseases are indicated to be attributed to hypertension, underscoring the importance of blood pressure–lowering strategies. Recent data show that in the Asia-Pacific region, there is clear evidence of the hazards of higher blood pressure at all levels of cholesterol and of the hazards of higher cholesterol at all levels of blood pressure as reported in the Western population. Stroke is a major cause of death and disability in most populations of eastern Asia, and the incidence, particularly of hemorrhagic stroke, is generally higher than in the Western population. The Eastern Stroke and Coronary Heart Disease Collaborative Research Group assessed the contributions of blood pressure and blood cholesterol concentration to stroke risk in populations from eastern Asia and reported that blood pressure is an important determinant of stroke risk, whereas cholesterol concentration is less important, affecting the proportions of stroke subtypes more than overall stroke numbers. This themed issue provides information on the association between risk factors and cardiovascular disease, as evidenced by studies carried out in the Asia-Pacific region, and it highlights different modifiable factors that may influence heart disease.

Socioeconomic Status and Cardiovascular Diseases

There is a considerable body of evidence for a relation between socioeconomic factors and all-cause mortality. Studies carried out in developed countries provide convincing evidence of an inverse relationship between socioeconomic status and cardiovascular disease, primarily coronary artery disease and stroke. However, this relation is quite variable, and a growing vulnerability to coronary heart disease has been shown in lower socioeconomic groups.

In the Asia-Pacific region, many countries are attaining economic development, and as this region undergoes a transition to a Western lifestyle, living more sedentary lives and consuming foods with higher energy and fat, cardiovascular disease is increasing. The proportion of overweight individuals is increasing very rapidly in China, especially among adults, associated with an increase in hypertension and stroke. In India, the shift is most pronounced among urban residents and high-income rural residents with adult-onset diabetes. In rapidly developing economies, income inequality and the double burden of undernutrition and overnutrition has brought about the coexistence of diseases associated with both poverty and affluence. The negative consequences of economic development have been shown in many lower- and middle-income countries in the Asia-Pacific region. Governments are expected to implement a strong intervention policy to prevent obesity, particularly among children, in these countries. The review of the Asian-Pacific Cohort Collaboration provides valuable insight into this matter.
Racial Difference in Cardiovascular Diseases
Cardiovascular disease may affect different races differently. Genetic factors appear to contribute to the ethnic differences in the prevalence of coronary heart disease as exemplified by Asian Indians in whom the incidence of premature coronary heart disease is among the highest reported for any major ethnic group. This genetic predisposition can be exaggerated by nutritional and environmental factors. The profile of cardiovascular disease tends to be different in Asia, where there are more strokes than coronary heart disease events, and strokes are more often hemorrhagic than ischemic compared with the West. Clinical and pathophysiological differences between Asian and white patients are noted in many aspects of heart disease. The incidence of organic coronary artery disease, a major cause of heart failure in Western countries, is relatively low in East Asian countries. The age-adjusted death rate resulting from ischemic heart disease in Japan has been estimated to be one-sixth that observed in the United States. The study comparing the posthospital outcomes of acute myocardial infarction in Japanese and North Americans during an average follow-up of 26 months revealed a significantly greater risk of experiencing a primary end point of cardiac death, nonfatal myocardial infarction, or unstable angina in North American patients.

Despite a lower incidence of organic coronary artery disease, vasomotor angina is reported to be more common in East Asia. Oriental patients with recent myocardial infarction have greater coronary vasoreactivity than their white counterparts, and spasm is more important in the pathogenesis of myocardial infarction in oriental patients. The first comparative study of coronary spasm across racial groups recruited patients by the same criteria, using the same provocative tests applied by the same team of investigators and centralized analysis of the angiograms. In this study, focal or segmental spasm was observed in 80% of Japanese and 37% of white patients. The spastic response increased from proximal to distal coronary segments in both populations, but the rate was significantly higher in Japanese in all segments. Medical treatment carried out during the acute phase of myocardial infarction differed significantly between the 2 racial groups. It is of particular interest that the greater use of calcium antagonist in Japanese was proportional to the difference in the incidence of vasospastic angina. On the basis of these findings, it was suggested that coronary spasm is more important in Japan as the pathogenesis of myocardial infarction. These ethnic differences are reflected in the interventional strategies summarized in this issue.

The racial difference in therapeutic strategies is also exemplified by the use of inotropic agents in chronic treatment of heart failure. Several extensive clinical trials carried out in Western society have revealed that newly synthesized orally active inotropic agents that increase the concentration of intracellular cAMP either by promoting its synthesis by β-adrenergic receptor agonists or by inhibiting its degradation by phosphodiesterase inhibitors produce a dramatic short-term hemodynamic benefit in patients with advanced heart failure, yet the long-term use of these agents is associated with mortality excess. Therefore, all of these agents are now contraindicated for the treatment of chronic heart failure. However, patients enrolled in heart failure trials in Western countries do not represent typical patients encountered in Japan. Similar studies of these agents carried out in Japan demonstrated that inotropes favorably modified the prognosis and quality of life of heart failure patients without affecting mortality. Therefore, in Japanese patients, chronic therapy with inotropic agents may be justified as the optimal treatment strategy in the context of relief of symptoms and an improved quality of life.

Diseases Recognized in Asia and the Treatment Developed in Asia
This issue also provides several reviews recognizing Asia’s contribution to the discovery of new diseases and the development of new therapeutic strategies. One hundred years ago, a Japanese ophthalmologist, Mikito Takayasu, reported a 21-year-old woman who had some particular retinal anastomotic shunts of arterioles and venules. This condition was later called Takayasu’s arteritis. However, the discovery of Takayasu’s arteritis likely dates back as far as 1830, when Rokusyu Yamamoto, an expert in Japanese oriental medicine, described in old Japanese literature a case of a 45-year-old man who initially had high fever and developed pulselessness in the radial and carotid arteries 1 year later. The disease is characterized by female predominance and ethnic difference, but its origin is still unknown. Nevertheless, the pathological process of vasculitis is being elucidated by recent progress in vascular biology and immunology.

Kawasaki disease is an acute, febrile systemic vasculitis of early childhood in which coronary artery aneurysms may develop in up to 25% of untreated children. Tomisaku Kawasaki saw his first case in January 1961, which he presented as an emergent disease called mucocutaneous ocular syndrome. Subsequently, coronary artery thrombosis was found at autopsy of a child previously diagnosed as having mucocutaneous ocular syndrome who died suddenly and unexpectedly. Kawasaki disease is now the most common cause of acquired pediatric heart disease in the developed world. Future research may produce new insight into the nature of the disease.

In 1990, Sato described a syndrome of an acute onset of peculiar asynergy, which consisted of hypokinesis or akinesis from the mid portion to the apical area and hyperkinesis of the basal area on contrast left ventriculogram without coronary artery stenosis. The syndrome was called tako-tsubo cardiomyopathy because the end-systolic left ventriculogram looks like a tako-tsubo, an octopus pot or trap used in Japan. This syndrome initially was thought to be restricted to Japan but has now been shown to be more universal. It is often precipitated by emotional or physical stress, but the precise cause remains unclear.

In closing, it is our hope that this issue provides a clear exposition of the current state of cardiovascular disease in Asia and provides readers with a better understanding of some of these diseases, with an emphasis on therapy and insight into specific problems that face patients suffering from cardiovascular disease in Asia and throughout the world.
Disclosures

None.

References


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