

Perspectives on cardiovascular interventions in Asia



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Asia accounts for over 60% of the world population. Alongside its tremendous economic development, the Asian region has experienced the most rapid expansion in interventional cardiology worldwide: approximately 1.2 million percutaneous coronary interventions (PCI) performed in 2014; broad use and good immediate and long-term outcomes of percutaneous treatments for congenital atrial or ventricular septal defect and patent ductus arteriosus (PDA); the introduction of novel techniques and devices, such as transcatheter aortic valve replacement (TAVR), MitraClip (Abbott Vascular, Santa Clara, CA, USA) implantation, left appendage occlusion, and the Parachute® device (CardioKinetix Inc., Menlo Park, CA, USA) to isolate the malfunctioning left ventricular portion in ischaemic heart failure, among others.

Research and development (R&D) of interventional devices has also been unfolding at an unprecedented rate in Asia. Beyond the long-standing R&D centres in Japan for angiography devices such as catheters, guidewires, balloons, stents, drug-eluting stents (DES), and microcatheters (notably those used to treat chronic total occlusion [CTO]), recently, in China and India, we have witnessed the active development of drug-eluting stents (DES), biodegradable polymer DES, fully biodegradable scaffolds and TAVR devices. Biodegradable sirolimus-eluting scaffolds developed in China are undergoing clinical trials, and a safe and effective self-expandable TAVR device manufactured in China is awaiting approval from the Chinese Food and Drug Administration (CFDA).

The expansion in interventional procedures has also fuelled significant clinical and basic research, as is evidenced by the many high-quality papers originating from the Asian region which have been published in world-renowned journals. Several CTO techniques¹ masterminded by Japanese scholars have been adopted worldwide, and Korea is a global leader in PCI of left main (LM) coronary artery disease^{2,3}.

Years of research have provided insight into differential features of cardiovascular disease in Asia. For instance, as compared to Caucasians, Asians have a significantly smaller coronary artery diameter⁴; symptomatic South Asians appear to have more aggressive and diffuse arterial calcification despite similar conventional risks for coronary artery disease⁵; Chinese patients with degenerative aortic valve stenosis presenting for TAVR have a higher frequency of bicuspid valve morphology, and high aortic valve calcium burden, even in tricuspid disease⁶; and East Asian patients have a similar or even lower rate of ischaemic events after PCI, despite a higher level of platelet reactivity during dual antiplatelet therapy, the so-called “East Asian paradox”⁷. Furthermore, despite its worldwide distribution, aortoarteritis (Takayasu arteritis) is most commonly known to occur in Asians^{8,9}.

The particularities of cardiovascular diseases in Asia have promoted very active and promising research on the underlying differential mechanisms and treatment strategies, which are not only of local and regional but also of global relevance. The massive and

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increasing cardiovascular disease burden in Asia also poses formidable research, clinical and socioeconomic challenges. In China, for instance, cardiovascular disease is the leading cause of death, accounting for 41% of mortality¹⁰. The burden of cardiovascular diseases in Asia can be multifaceted, as is exemplified by valvular disease, the increasing prevalence of which reflects that of a degenerative aetiology with the aging of the population in addition to the persisting background of a rheumatic aetiology in some countries. The heavy cardiovascular disease burden often renders healthcare resources insufficient in many parts of Asia, warranting cost-effective therapy particularly tailored to Asian patients. Guidelines or expert consensus which meet the needs and characteristics of Asians should be established, and academic exchanges and collaboration are essential to address these challenges more effectively.

The Asian Pacific Society of Interventional Cardiology (APSIC) continues to play an important role in fostering academic collaborations throughout the region¹¹. AsiaIntervention, a new journal particularly focused on scientific contributions from the Asia region, has been launched officially and is successfully running with the assistance of the Editorial Office of EuroIntervention, under the guidance of Professor Patrick Serruys, the Senior Consulting Editor to the Chief Editors. Two issues will be published in 2015 and four are planned for 2016. AsiaIntervention aims to contribute further to the development of interventional cardiology in Asia by being a helpful friend to Asian cardiovascular interventionalists and by providing a unique publication venue and a much needed platform for academic exchanges within Asia and between Asia and other parts of the world. Through this and other means, the rapid expansion into a glorious future for interventional cardiology in Asia will continue unabated.

Conflict of interest statement

The author has no conflict of interest to declare in relation to this editorial.

References

- Inohara T, Kohsaka S, Miyata H, Ueda I, Hayashida K, Maekawa Y, Kawamura A, Numasawa Y, Suzuki M, Noma S, Nishi Y, Fukuda K. Real-World Use and Appropriateness of Coronary Interventions for Chronic Total Occlusion (from a Japanese Multicenter Registry). *Am J Cardiol*. 2015;116:858-64.
- Park SJ, Kim YH, Park DW, Yun SC, Ahn JM, Song HG, Lee JY, Kim WJ, Kang SJ, Lee SW, Lee CW, Park SW, Chung CH, Lee JW, Lim DS, Rha SW, Lee SG, Gwon HC, Kim HS, Chae IH, Jang Y, Jeong MH, Tahk SJ, Seung KB. Randomized trial of stents versus bypass surgery for left main coronary artery disease. *N Engl J Med*. 2011;364:1718-27.
- Park DW, Seung KB, Kim YH, Lee JY, Kim WJ, Kang SJ, Lee SW, Lee CW, Park SW, Yun SC, Gwon HC, Jeong MH, Jang YS, Kim HS, Kim PJ, Seong IW, Park HS, Ahn T, Chae IH, Tahk SJ, Chung WS, Park SJ. Long-term safety and efficacy of stenting versus coronary artery bypass grafting for unprotected left main coronary artery disease: 5-year results from the MAIN-COMPARE (Revascularization for Unprotected Left Main Coronary Artery Stenosis: Comparison of Percutaneous Coronary Angioplasty Versus Surgical Revascularization) registry. *J Am Coll Cardiol*. 2010;56:117-24.
- Dhawan JL, Bray CL. Are Asian coronary arteries smaller than Caucasian? A study on angiographic coronary artery size estimation during life. *Int J Cardiol*. 1995;49:267-9.
- Koulaouzidis G, Nicoll R, Charisopoulou D, McArthur T, Jenkins PJ, Henein MY. Aggressive and diffuse coronary calcification in South Asian angina patients compared to Caucasians with similar risk factors. *Int J Cardiol*. 2013;167:2472-6.
- Jilaihawi HL, Wu Y, Yang Y, Xu L, Chen M, Wang J, Kong X, Zhang R, Wang M, Lv B, Wang W, Xu B, Makkar RR, Sievert H, Gao R. Morphological characteristics of severe aortic stenosis in China: imaging corelab observations from the first Chinese transcatheter aortic valve trial. *Catheter Cardiovasc Interv*. 2015;85:752-61.
- Levine GN, Jeong YH, Goto S, Anderson JL, Huo Y, Mega JL, Taubert K, Smith SC Jr. World Heart Federation expert consensus statement on antiplatelet therapy in east asian patients with ACS or undergoing PCI. *Glob Heart*. 2014;9:457-67.
- Koide K. Takayasu arteritis in Japan. *Heart Vessels Suppl*. 1992;7:48-54.
- Liu LS, Zheng DY. Aortoarteritis: a report of 480 cases. *J Hum Hypertens*. 1990;4:135-7.
- Hu SS, Kong LZ, Gao RL, Zhu ML, Wang W, Wang YJ, Wu ZS, Chen WW, Liu MB; Editorial Board. Outline of the report on cardiovascular disease in China, 2010. *Biomed Environ Sci*. 2012;25:251-6.
- Tan HC. The role of the Asian-Pacific Society of Interventional Cardiology (APSIC) in the future of interventional cardiology. *AsiaIntervention*. 2015;1:10-1.