

# Cardiovascular Health Among South Asians

## The Tide of Risk Factors Rises

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While South Asian countries, especially India, struggle through a new wave of economic development, relying upon the strength of their relatively young population and new leadership, they are simultaneously plagued by the diseases of both the developing and the developed world. South Asians, that is, people living in India, Pakistan, Nepal, Bhutan, Sri-Lanka, and Maldives or with ancestral roots in these countries, have high coronary atherosclerotic burden largely owing to substantially high metabolic risk factors such as diabetes. It has been observed that myocardial infarction presents in individuals of South Asian ancestry at ages 5 to 6 years younger than in Caucasians [1,2].

There are several factors that need attention, including a diet rich in refined sugar and saturated fat with increasingly easy availability of the same to urban dwellers both at home and at the mushrooming fast food restaurants, the lack of physical activity, indoor air pollution, as well as a possible increase in the rate of smoking with increasing affordability and increasing marketing of such products.

At the same time, the health care system is fraught with serious challenges and cannot provide adequate management for acute cardiovascular diseases. Some challenges include poor access (a large proportion of the population lives in rural areas), low public health care spending, high socioeconomic disparities and large out-of-pocket spending, a shortage of trained specialists, and a serious lack of public knowledge and rampant availability of low-quality medical advice. A lower utilization of preventive medications and a very high relative case fatality following acute presentation with all cardiovascular disease has been reported in South Asian countries as compared to high- or middle-income countries [3]. In nations with a lack of infrastructure and a zeal for sports (sports such as cricket and soccer are a favorite national pastime), growing use of mechanized transport, and a strong appetite for television entertainment, promoting physical activity will be a serious challenge unless addressed through a concerted public effort. In light of this situation, prevention is not only pragmatic but may be the only solution before the tide of risk factors turns into a tsunami of diseases and thwarts national policies toward sustained economic development. A "life course" approach may be costly but should pay high long-term dividends [4]. Whereas, there was lack of a warning system prior to the devastating tsunami in 2004 that battered the South Asian countries, the same is not true for the tide of noncommunicable disease. However, whether serious monitoring, public education, and preparedness through concerted effort and resource

allocation precedes or follows such a projected non-communicable disease tsunami remains to be seen.

Both the Centers for Disease Control and Prevention and the National Institutes of Health in the United States and similar bodies in several other countries including China have been actively tracking the prevalence and longitudinal trends in cardiovascular risk factors and their management through studies such as NHANES (National Health and Nutrition Examination Survey), and various National Heart, Lung, and Blood Institute-sponsored cohort studies. Such studies are lacking for other South Asian economies, and they may be important for providing data during this epidemiological transition, providing critical information necessary for public action, and tracking progress. Of note, National Heart, Lung, and Blood Institute cohorts do not include individuals of South Asian ancestry, which represent a large (>3.4 million individuals) ethnic group in the United States.

The *Global Heart* editors congratulate investigator-initiated studies such as the one by Gupta et al. [5] that reports on prevalence of ideal health factors among city-dwelling Indian residents and is adjusted for the 2001 census data. It is shocking to see that the ideal health factors were present in <1% of individuals. Use of tobacco in male individuals, less than moderate physical activity, and poor diet among both sexes were highly prevalent. In the absence of continued surveillance, this data collected in 2008 may not reflect the rampant changes visible in Indian cities in last 10 years. In particular, there is dearth of data on trends of cardiovascular risk profiling among South Asians residing in rural areas. Gupta et al.'s study, though limited by its sampling of urban dwellers, provides important data to support and track the World Health Assembly's adoption of 25 × 25 goals to reduce cardiovascular disease and mortality due to other non-communicable diseases by 25% by year 2025. To support these goals, the World Health Federation set targets that include stabilization of diabetes and obesity, and the reduction of physical inactivity by 10%, tobacco use by 30%, and raised blood pressure by 30%.

The lack of data in nonmigrant South Asians is further highlighted in the review article by Gijsberts et al. [6] in the current issue. It is clear that South Asian immigrants have higher metabolic risk factors than do whites and that these risk factors are impressively higher than their other Asians counterparts. This review highlights the heterogeneity in the distribution of risk factors as indexed by few biomarkers as well as the need for well-done longitudinal

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studies to find better calibrated coronary artery disease risk prediction models. Transportability of these models will be low, but the risk factors of acute coronary events were similar [7], and despite differences in absolute risk requiring calibration, discrimination of these models may be reasonable [8].

#### REFERENCES

1. Jones DA, Gallagher S, Rathod KS, et al., for the NICOR Investigators. Mortality in South Asians and Caucasians after percutaneous coronary intervention in the United Kingdom: an observational cohort study of 279,256 patients from the BCIS (British Cardiovascular Intervention Society) National Database. *JACC Cardiovasc Interv* 2014;7:362–71.
2. Gijsberts CM, Seneviratna A, Hoefer IE, et al. Inter-ethnic differences in quantified coronary artery disease severity and all-cause mortality among Dutch and Singaporean percutaneous coronary intervention patients. *PLoS One* 2015;10:e0131977.
3. Yusuf S, Rangarajan S, Teo K, et al., for the PURE Investigators. Cardiovascular risk and events in 17 low-, middle-, and high-income countries. *N Engl J Med* 2014;371:818–27.
4. Nair M, Prabhakaran D. Why do South Asians have high risk for CAD? *Glob Heart* 2012;7:307–14.
5. Gupta B, Gupta R, Sharma KK, et al. Low prevalence of AHA-defined ideal cardiovascular health factors among urban men and women in India. *Glob Heart* 2015 Mar 26 [Epub ahead of print].
6. Gijsberts CM, den Ruijter HM, Asselbergs FW, Chan MY, de Kleijn DPV, Hoefer IE. Biomarkers of coronary artery disease differ between Asians and Caucasians in the general population. *Glob Heart* 2015;10:301–11.
7. Yusuf S, Hawken S, Ounpuu S, et al., for the INTERHEART Study Investigators. Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): case-control study. *Lancet* 2004;364:937–52.
8. D'Agostino RB Sr, Grundy S, Sullivan LM, et al., for the CHD Risk Prediction Group. Validation of the Framingham coronary heart disease prediction scores: results of a multiple ethnic groups investigation. *JAMA* 2001;286:180–7.