

Secondary Prevention of CVD in LMIC Care for the Growing Affected Population



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The age-standardized cardiovascular disease (CVD) death rate has declined in most countries since 1990; albeit the decrease has been less in low and middle-income countries (LMIC) [1]. CVD prevalence has increased over the same period, resulting in an increasing need to deliver medical care to a growing chronic disease population. The evidence supporting secondary prevention interventions has never been stronger; numerous randomized trials over the last 4 to 5 decades have demonstrated the effectiveness of secondary prevention strategies, including essential medications, revascularization, rehabilitation after cardiac and stroke events, nonsurgical and surgical replacement of cardiac valves, and treatment of arrhythmic disorders, and have contributed to improved survival and quality of life in patients experiencing CVD. Though more scientific advances are needed, an even more critical challenge would be to deliver evidence-based and good quality secondary prevention to all CVD patients, regardless of geographic location or income. This issue of *Global Heart* highlights current gaps and challenges in secondary prevention in LMIC, and provides roadmaps for improving chronic CVD care worldwide.

Secondary prevention is an efficient way for countries and health systems to realize large health benefits by providing highly effective treatments to relatively few high-risk patients, but a number of studies have identified shortfalls in secondary prevention in LMIC. LMIC registry studies demonstrated that less than one-half of patients discharged after hospital admission for acute coronary syndrome were prescribed all of the key recommended secondary prevention treatments including aspirin, beta-blocker, renin-angiotensin system blocker, and statins [2]. Poorer CVD patients in LMIC are likely to be uninsured and unable to cover high out-of-pocket medication costs [3], and lower income status has been associated with low adherence to prescribed secondary prevention treatments [4]. In this issue of *Global Heart*, Avezum et al. [5] demonstrate that only 3% to 4% of 1,257 post-hospital, chronic CVD patients in 4 Latin American countries enrolled in the PURE (Prospective Urban Rural Epidemiology) study received *all* recommended secondary prevention medications, and that only 31% of ischemic heart disease and 54% of stroke patients received *any* of the recommended medications. Again, low socioeconomic status was the determinant of poor adherence. Cardiac rehabilitation could effectively contribute to secondary

prevention in patients recovering from ischemic heart disease. A review of cardiac rehabilitation in LMIC by Ragupathi et al. [6] in this issue reports that it is unavailable in most countries and appears only to be more accessible to patients of higher socioeconomic status. A report from the EUROASPIRE surveys [7] in this issue highlights that signs of shortfalls in secondary prevention, such as persistently high rates of metabolic disorders and active smoking, are also prevalent in the high and middle-income countries of Europe.

The World Health Organization (WHO) and World Heart Federation (WHF) have proposed an overarching goal of a 25% reduction in premature noncommunicable disease deaths by 2025 (25×25 goal), through no increase in diabetes prevalence, 25% reduction in raised blood pressure, 30% reduction in tobacco use and dietary sodium consumption, and 10% reductions in alcohol and tobacco abuse. However, one component of the plan to achieve the 25×25 goal distinctly applies to secondary prevention, i.e., at least 80% availability of essential medications and basic technologies to treat CVD and other noncommunicable diseases [8].

The WHF Roadmap for Secondary Prevention makes it clear that to achieve substantive improvement in secondary prevention, a comprehensive package of interventions is needed [9]. These can be summarized into 7 components that integrate patient, health care provider, local health facility, and government or public-private partnerships, and include the following: (1) health care facilities (accessible and well provisioned acute and chronic care facilities); (2) human resources (health care providers trained to provide care for acute and chronic CVD and other non-communicable diseases); (3) provider knowledge support (locally relevant clinical guidelines for secondary prevention); (4) patient financial support (meaningful health insurance coverage and other financial supports for CVD patients); (5) patient knowledge support (health education and treatment adherence); (6) regulatory environment that defines and promotes affordable access to essential medications; and (7) health information support (systems to track CVD patients over time and evaluate secondary prevention programs).

The world has made progress in controlling the CVD epidemic, but the victims will be living among us for decades to come. The WHF Secondary Prevention Roadmap may appear complex and ambitious in scope, but it

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emphasizes the building blocks essential to providing equitable secondary prevention to all people living with CVD.

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