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WHO/ISH total risk approach for primary prevention of cardiovascular disease shows greater decrease in costs for women but not the elderly in Jamaica

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Abstract

Objectives: To investigate cost savings from and implications of replacing the single risk with a total cardiovascular risk approach in primary prevention of cardiovascular disease (CVD).

Study Design and Setting: A cost analysis using data from the 2007−08 Jamaica Health and Lifestyle Survey of 1,432 persons aged 40 years and older with 10-year risk estimated from region-specific World Health Organization/International Society for Hypertension (WHO/ISH) CVD risk charts. The WHO/ISH and local treatment guidelines were used to cost lifestyle changes, medications, and provider visits.

Results: Use of the total cardiovascular risk approach was less costly regardless of age. Women showed greater cost disparity. However, if 10-year CVD risk was estimated without measured cholesterol, both approaches resulted in similar costs in men ≥60 years. The annual per capita cost of lifestyle recommendations, critical in the absence of pharmacotherapy, was estimated at US $869.05 for diet and US $80 for physical activity. This represents about a third of the annual income of a minimum wage earner. At the national level, implementation of the WHO/ISH total risk approach could reduce health care costs by US $5 million annually.

Conclusion: Cost savings that mainly resulted from reduced care for women may lead to gender disparity in CVD outcomes.

Keywords: Cardiovascular disease; Prevention and control; Cost analysis; Risk assessment; Health care disparity; Jamaica

1. Introduction

Cardiovascular disease (CVD) is the leading cause of mortality in the Caribbean region [1,2]. In Jamaica, the incidence of CVD is expected to increase because of the high prevalence of risk factors such as obesity (25.2%) and hypertension (25.2%) [3]. Although the prevalence of hypertension is comparable between sexes in Jamaica, there is a disparity in obesity rates (12% in men vs. 38% in women) and this is associated with a greater prevalence of diabetes (6.4% vs. 9.3%) and elevated cholesterol (8% vs. 16%) in women [3]. In addition, the prevalence of these CVD risk factors increases with age [3,4].

Care for chronic diseases constitutes an economic burden in the Caribbean [5], especially with most governments providing free or subsidized health care for a majority. In Jamaica, although only 19% of the population (mostly men) have private health insurance [3], everyone can access government health care facilities without paying an access fee irrespective of age and income. Moreover,

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What is new?

Key findings

- Except in men 60 years and older, the World Health Organization/International Society for Hypertension (WHO/ISH) total cardiovascular disease (CVD) risk approach resulted in a lower health care cost for Jamaican patients. The per capita cost of lifestyle interventions was estimated to be US $869.05 per annum for diet and US $80 per annum for physical activity. At the national level, cost of primary prevention of CVD amounted to US $399 million under the individual risk factor approach and US $394 million under the WHO/ISH total risk factor approach, a difference due entirely to reduced prescription medications and fewer consultations.

What this adds to what was known?

- A switch from the individual risk factor to the total risk approach will result in greater savings, particularly in the cost of treatment for Jamaican women.

What is the implication and what should change now?

- It is critical that systems are in place to support lifestyle changes should the total cardiovascular risk approach be used to determine therapy. In the absence of government subsidy for the individual risk factor approach to care, out-of-pocket expenses to continue treatments will be highest in women. Cost of lifestyle interventions may be prohibitive for the economically vulnerable leading to nonadherence, thus, potentially increasing their risk for CVD in the absence of pharmacotherapy.

individuals with specific chronic diseases regardless of age benefit from a medication subsidy through a government-funded agency, the National Health Fund (NHF) [6]. The NHF also administers an additional government medication subsidy, the Jamaica Drugs for the Elderly Programme (JADEP), with a very limited formulary to persons aged 60 years and older [7]. As of July 2014, enrollment in NHF was in excess of 350,000 persons, whereas more than 250,000 senior citizens were enrolled in JADEP [8]. For both programs, more than 60% of enrollees were female. Among those using the NHF Individual Benefit (NHFCard), 51% had hypertension, diabetes, or high cholesterol. An additional 14% had vascular or ischemic heart disease [9]. During the 2011−12 fiscal year, the NHF disbursed J$2.73 billion, equivalent to US $30.65 million, in subsidies for the NHFCard. This represented a subsidy rate of 57% for the period and covered some 2.66 million prescriptions of which hypertension (1.12 million), diabetes (657,000), and high cholesterol (232,000) accounted for the top three conditions claimed. Subsidy for individual disease condition varied from 48% to 66% for hypertension, ischemic heart disease, vascular disease, diabetes, and high cholesterol [9].

The NHF and the no-user-fee policy are major government initiatives implemented in the 2000s to improve access to health care. A no-user-fee policy had existed previously in the 1970s, was removed in 1984, and reintroduced in 2008 [10,11]. Since its reintroduction, the policy has been credited for improving access to health care services, especially among low-income and vulnerable groups [10,12]. It has also been criticized for contributing to a deteriorating quality of health care delivery in the public sector [10,13]. Patients have generally expressed satisfaction with the policy and have shown support for it to be maintained [10,12], whereas the government has indicated its willingness to review the policy [14].

In relation to CVD, the current approach to prevention in Jamaica focuses on the identification of individual CVD risk factors and the institution of pharmacotherapy when these risk factors are discovered. The World Health Organization/International Society for Hypertension (WHO/ISH) total risk approach uses the 10-year risk of a cardiovascular event for each patient (based on their age, sex, blood pressure, cholesterol, diabetes status, and smoking history) to determine treatment. Lifestyle interventions addressing smoking, alcohol, diet, and physical activity (PA) are recommended for all persons. Pharmacotherapy is reserved for patients with a 10-year cardiovascular risk score of more than 30% for developing countries, but this can be lowered to 20% depending on the available resources within the region [15].

The introduction of the total cardiovascular risk approach to treatment may have some merits in Jamaica if it is proven to be more cost effective. This may appeal to policy makers who, amid the government's current fiscal challenges, could see it as an opportunity to reduce government expenditure. Studies from other countries had shown that the total cardiovascular risk factor approach to health care management was more cost effective [16−18] and resulted in cost savings [19]. However, none of these studies had (1) considered the cost of instituting the lifestyle interventions, (2) examined the issue in settings where there is a female predominance of cardiovascular risk factors, and (3) examined the effect of the use of WHO/ISH charts that do not take cholesterol into account when assessing 10-year cardiovascular risk.

Here, we present a cost analysis (CA) of the WHO/ISH total cardiovascular risk and the individual risk factor approaches to primary prevention of CVD. We evaluated the differences in costs of care by sex and age group in Jamaican adults and investigated whether the use of charts with or without cholesterol for risk assessment might modify any differences in costs.