Ischemic heart disease in Latin American women current perspective and call to action

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Cardiovascular diseases (CVDs) constitute the main cause of death in Latin America (LA), with ischemic heart disease (IHD) as the principal cause in most countries. Women are particularly at risk of premature death by CVDs. Nevertheless, in LA, as in other parts of the world, there is a misconception at public level of the importance of CVDs in women; thus, CVDs do not get as much coverage as breast cancer campaigns. Women frequently have atypical symptoms and nonobstructive coronary artery disease as well as inequity in medical and interventional treatments; therefore, care should be built upon these differences. We show the epidemiological situation of IHD in LA women and present a strategy to face the problem, considering the control of risk factors, the optimized utilization of available resources, and the role of research. The role of the International Atomic Energy Agency is highlighted. To adequately face the problem of CVD in LA women, a coordinated approach is necessary, involving medical professionals, governments, scientific societies, and international organizations, as well as the population concerned. In low- and middle-income countries, where the best use of available financial and technological resources is mandatory, a clinical management combining prevention, guidelines, and clinical judgment is required.

Key Words: CAD • diagnostic and prognostic application • cost-effectiveness

Cardiovascular diseases (CVDs) constitute the main cause of death in Latin America (LA), with ischemic heart disease (IHD) as the principal cause in most countries.[1]

LA is experiencing a large-scale epidemic of CVDs, partially due to increased life expectancy and the epidemiological transition. The significant burden of CVDs in the region is related to a high prevalence of cardiovascular risk factors (RFs) such as diabetes mellitus (DM), high blood pressure (HBP), obesity, smoking, dyslipidemia, and lifestyle.

Women are particularly at risk of premature death by CVDs. Nevertheless, in LA, as in other parts of the world, there is a misconception at public level of the importance of CVDs in women; thus, CVDs do not get as much coverage as breast cancer campaigns, which lead to an underestimation of the magnitude of the problem.

Women frequently have atypical symptoms and nonobstructive coronary artery disease (CAD) as well as inequity in medical and interventional treatments; therefore, care should be built upon these specific differences and more attention should be paid by stakeholders to the specific situation of IHD in LA women.

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EPIDEMIOLOGICAL SITUATION OF IHD IN LATIN AMERICAN WOMEN

As part of the INTERHEART study, 1237 cases of first acute myocardial infarction and 1888 controls were enrolled from six LA countries. History of smoking, HBP, DM, diet, physical activity, alcohol consumption, psychosocial factors, anthropometry, and lipids were recorded.[2,3] Odd-ratios were higher in women compared to men for abnormal waist-to-hip ratio, ratio of ApoB to ApoA-1, DM, and HBP.[2]

Miranda et al. found a smoking prevalence of 19.5% in women and 32.2% in men from LA. Higher prevalence was found in younger people independently of sex.[4] Tobacco companies' marketing strategies targeting young women, different gross domestic products per capita, and cultural differences in patterns of tobacco consumption could explain the differences in smoking prevalence among countries in LA.

STRATEGY TO FACE THE PROBLEM

Control of Risk Factors

CVD RFs are highly prevalent in LA women. In addition, unique RFs that should be considered are polycystic ovarian syndrome, functional hypothalamic amenorrhea, premature delivery, preeclampsia and pregnancy-associated hypertension, gestational diabetes, and cardiac complications observed during breast cancer treatment (See Figure 1).

In a milieu of limited financial resources, as in LA, it is of utmost importance to design campaigns targeted at primary prevention at public level. This will contribute to the reduction of the burden of IHD and other chronic entities, such as cerebrovascular and peripheral artery diseases. Specifically, in the case of women, it is necessary to include their unique risk factors in these campaigns and to have the support of WHO-PAHO, and national and regional scientific societies of medicine and cardiology, to advise on the prevention programs and to educate patients and medical professionals.

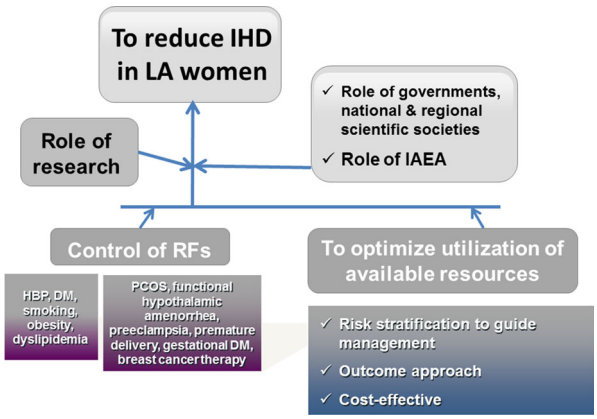

Figure 1. Strategy to contribute to the reduction of ischemic heart disease in Latin American women. *DM*, diabetes mellitus; *HBP*, high blood pressure; *IAEA*, International Atomic Energy Agency; *IHD*, ischemic heart disease; *PCOS*, polycystic ovarian syndrome; *RFs*, risk factors.

The United Nations (UN) Organizations have recognized the importance of tackling the burden of CVDs and other noncommunicable diseases (NCDs), to accomplish the 2030 UN agenda for sustainable development. The Sustainable Development Goals (SDGs) are a collection of 17 global goals set by the UN Development Programme.[5] Goal 3 ''Ensure healthy lives and promote wellbeing for all at all ages'' has different targets, among them target 3.4 aims at reducing premature NCD mortality by 30%, by 2030.

Further to the SDGs, the WHO has designed the Global Action Plan (GAP), 2013-2020, which aims at preventing and controlling NCDs.[6] The GAP offers a paradigm shift by providing a road map and a menu of policy options. The aim is to attain, collectively, 9 voluntary global targets between 2013-2020, some of them will have a direct impact on the burden of CVDs, e.g., a 10% relative reduction in the prevalence of insufficient physical activity; a 10% relative reduction in prevalence of insufficient physical activity; a 30% relative reduction in prevalence of current tobacco use in persons aged 15+ years; a 25% relative reduction in the prevalence of raised blood pressure or contain the prevalence of raised blood pressure, according to national circumstances; at least 50% of eligible people receive drug therapy and counseling (including glycemic control) to prevent heart attacks and strokes and a 25% relative reduction in premature mortality from NCDs by 2025.

To Optimize the Utilization of Available Resources

The determination of a woman's risk status for IHD should guide the clinical management and shared decision making between the female patient and her doctor. The recommended initial diagnostic test for an intermediate-risk woman is an exercise electrocardiogram (ECG) if functionally capable of exercising and with an interpretable resting ECG.

Women at intermediate to high risk who have an abnormal resting ECG or who are unable to exercise should be referred to a stress imaging: myocardial perfusion imaging (MPI), and echocardiography or cardiac magnetic resonance (CMR). Test selection may consider team experience and resources availability. Focus should not be placed solely on the diagnostic

accuracy, but on the effectiveness in improving outcomes. Post-stress test risk stratification should be based on the extent, localization, and severity of ischemia induced by stress.

In limited resources settings, it is essential to carefully select the appropriate test and to diligently evaluate the impact of introducing new protocols or technologies.

Role of Research

Strengthening clinical research in LA and encouraging women-specific trials in prevention and image-guided therapy is necessary. This should be aimed not only at the obstructive CAD, but also at the nonobstructive, which is especially prevalent in women. In this sense, the use of positron emission tomography and the assessment of coronary flow reserve play an important role.[7]

ROLE OF THE INTERNATIONAL ATOMIC ENERGY AGENCY (IAEA)

More than a decade ago, the END study,[8] performed in symptomatic women, demonstrated that MPI can be used as a gatekeeper to prevent patients from undergoing unnecessary invasive procedures and revascularization, leading to cost reduction. Identifying a patient with IHD by MPI could allow the initiation of an aggressive secondary prevention strategy using guideline-directed optimal medical treatment, as well as an ischemia-guided invasive treatment.

IAEA supports Member States (MS) by training health staff, providing medical equipment and fostering communication among the different stakeholders. Education plays a key role in maintaining the quality of practice.

In order to support MS to tackle the burden of CVDs, the IAEA has implemented two regional technical cooperation projects during the last six years: 1. ''Harmonization of Nuclear Cardiology techniques in patients with heart failure, with emphasis on Chagas' cardiomyopathy,'' completed in 2014, and 2. ''Facing the high incidence of cardiovascular diseases in Latin America and the Caribbean through nuclear cardiology,'' to strengthen capacities for early diagnosis and risk stratification in IHD, as well as providing guidance for interventional procedures.

A new regional project ''Tackling the burden of cardiac and neurological disorders with nuclear medicine techniques'' will commence in the coming years. The project will include specific activities on diagnosis and risk stratification of IHD in LA women.

Cooperation among IAEA, and national and regional medical societies will contribute to strengthening human and technical capabilities in the region with the aim of reducing morbidity and mortality by CVDs.

The IAEA embraces an integrated approach to support professionals to choose the best imaging modality, appropriate for the specific patient, thus include MPI, CMR, Echo, and coronary computed tomographic angiography, all of which are indispensable in high-quality cardiovascular care.

CONCLUSION

CVDs are the first cause of death in LA women. To adequately face the problem, a coordinated approach is necessary, involving medical professionals, governments, scientific societies, and international organizations, as well as the population concerned. In low- and middle-income countries, where the best use of available financial and technological resources is mandatory, a clinical management combining prevention, guidelines, and clinical judgment is required.

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