Cancer Burden in Latin America and the Caribbean

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ABSTRACT

Background: In Latin America and the Caribbean, the epidemiological transition has been occurring in an unequal manner. Infectious-contagious diseases share space with the increase of chronic nontransmissible diseases, such as cancer, which already represents the second most common cause of death, after cardiovascular illnesses.

Objectives: This study provides a global picture of the burden of cancer in Latin America and the Caribbean, as well as the challenges faced when controlling this disease in these regions.

Findings: Epidemiological information on cancer in Latin America originates mainly from mortality registries and from a limited number of population-based cancer registries. Estimates indicate increases of 72% in the incidence of cancer and 78% in the mortality of men between 2012 and 2030, and for women the rates are 62% and 74%, respectively. These increases in incidence rates, accompanied by disproportionally high mortality rates, when compared with other regions of the world, reveal the magnitude of the challenge of controlling cancer in Latin America and the Caribbean. Although neoplasms are among the main causes of death, the control strategies are faced with issues such as organization and development of the health system, and the public policy formulation mechanism.

Conclusions: Establishing knowledge on the real impact of incidence, mortality, and survival in Latin America and the Caribbean is quite a challenge due to the lack of an updated and dynamic information system on mortality and incidence, although some improvement has been made in the information systems of some countries within the most recent decade. Other obstacles for cancer control are the uneven allocation of resources, lack of investments in equipment and infrastructure, and the concentration of health care professionals in large urban centers, which contribute to the reproduction of socioeconomic inequities in the assistance of populations that suffer from cancer.

Key Words: cancer, incidence, Latin America, mortality

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INTRODUCTION

In recent decades, Latin America and the Caribbean have been undergoing political, economic, and social transformations that have caused changes in the morbidity and mortality profile of the population. In these countries, the epidemiological transition has been occurring in an unequal manner, which causes infectious-contagious diseases to share space with the increase of nontransmissible chronic diseases, such as cancer, which already represents the second most common cause of death, the first being cardiovascular illnesses, in many countries.[1,2] Nontransmissible chronic diseases such as cardiovascular disease, diabetes, and cancer, are responsible for 69% of deaths in Latin America.[3] The burden of nontransmissible chronic diseases often is accompanied by a significant economic impact for governments.[4]

The description of the geographic distribution of cancer incidence identifies the profile of the population and, consequently, its quality-of-life standards. The increase in cancer burden in the future can occur due to changes in the population exposed to risk as well as due to an increase in population, and to modifications in the age-group distribution of this population.[5-8] Population growth estimates indicate increases in total population and changes in the distribution of age groups in the populations of Latin America and the Caribbean. The aging process, reduction of fertility, and increase in life expectancy has been accelerated in most Latin American countries. Until the 1960s, the demographic characteristics showed young countries, with high fertility rates; however, the 1960s brought a process of demographic

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transition and aging, which was not followed by social and economic development to assist the new rising demands for health services.[9,10]

The epidemiological information on cancer in Latin America originates mainly from mortality registries and from a limited number of population-based cancer registries (PBCRs) that present reliable data. Therefore, incidence data are still limited to specific populations. Only 6% of the Latin American population is covered by PBCRs compared with 96% of the US population and 32% of the European population.[11]

Within this perspective, the objective of this study was to describe the epidemiological situation of cancer in Latin America, through comparison with international data. Mortality data were obtained from the web page of the World Health Organization (WHO) and from GLOBOCAN, available on the web page of the International Agency for Research on Cancer (IARC). The IARC gathers incidence data from PBCRs of several countries since 1959, through the publication *Cancer Incidence in Five Continents*.[12] This study provides a global picture of the burden of cancer in Latin America and the Caribbean, as well as the challenges faced when controlling this disease in these regions.

INCREASE OF CANCER BURDEN IN LATIN AMERICA AND CARIBBEAN

In 2012, approximately 533,000 new cancer cases and 313,800 deaths from cancer occurred in men in Latin America and the Caribbean, and for the year 2030, estimates indicate an increase of 72% in the incidence and 78% in mortality (917,300 new cases and 557,800 deaths). In women, the incidence increase is estimated at 62% (from 563,000 new cases in 2012 to 914,000 in 2030) and the mortality increase is 74% (from 289,500 deaths in 2012 to 503,700 in 2030).[13]

In the male population, prostate cancer was the most frequently diagnosed cancer, with an adjusted incidence to the world population of 54 cases and 17 deaths per 100,000 inhabitants per year, followed by lung cancer (19 cases and 17 deaths/100,000 inhabitants/year), colorectal cancer (15 cases and 8 deaths/100,000 inhabitants/year), stomach (13 cases and 11 deaths/100,000 inhabitants/year), and liver (7 cases and 6 deaths/100,000 inhabitants/year). In women, the breast is the most common location, with standardized rates of 47 cases and 13 deaths per 100,000 inhabitants per year. Cervical cancer occupies the second position with 22 cases and 9 deaths per 100,000 inhabitants per year. Colorectal cancer follows (13 cases and 7 deaths/100,000 inhabitants/year), then lung (10 cases and 8 deaths/100,000 inhabitants/year), and stomach cancer (7 cases and 6 deaths/100,000 inhabitants/year).[13]

The cancer incidence patterns observed in Latin American and Caribbean countries are directly related to social and economic inequalities, whereas mortality standards reflect the structure and organization of the health system of each country. Figures 1 and 2 show the spatial distribution of the incidence and mortality rates adjusted to the world standard population. Incidence for all cancers (except nonmelanoma skin cancer: ICD code C44) in men and women is higher in more developed regions such as Uruguay, Brazil, Barbados, and Martinique, whereas the lowest rates are found in less-developed countries such as Haiti and Nicaragua. Regarding mortality, the rates are higher in men than in women and the highest rates are found in countries providing low coverage of the public health system (Paraguay, Uruguay, and Guyana).[14,15] However, data presented in the figures must be analyzed with caution because they reliability vary depending on the origin country. In Brazil, for example, incidence data are high quality because they are supplied by PBCRs, although with low coverage of population, and therefore it is not possible to establish differences between urban and rural areas. Bolivia does not present with reliable data, and incidence data presented were estimated using data on relative frequency of different cancers (by age and sex), whereas mortality data originated from national incidence estimates using modeled survival.[13]

The high incidence rates of cancers that are typical of less-developed countries, such as cervical and stomach cancers, occur paradoxically at the same time as increases are verified in the incidence of cancers that are most common in developed countries, such as breast and prostate cancers. Additionally, in young adults, tumors associated with infection, such as the HPV, which are common in developed countries, as well as penile, oropharyngeal, and cervical cancers, are frequent in less-developed regions and in those with low socioeconomic conditions.[16]

Lung cancer is still the great villain of incidence and mortality for men, with high rates. This neoplasm presents 80% of cancers caused by tobacco. In Brazil, the consumption prevalence of tobacco has decreased from 30% to 15% with reduced mortality rates, mainly in the southern region of the country.[17] Unfortunately, this decrease in consumption occurred only in men and the effect on women should be seen within the next decade.

The ratio between mortality and incidence in Latin America is 0.59, higher than the European Union (0.43) and the United States (0.35), which reflects better support of cancer treatment in developed countries.[14] However, there are differences that must be mentioned when comparing different Latin American and Caribbean countries. Haiti, Guatemala, Nicaragua, and Honduras present the worst indicators, with a ratio higher than 0.60, whereas Puerto Rico, Barbados, Costa Rica, and Martinique present values less than 0.50 (Fig. 3). These differences must be observed with caution: In Latin American countries, especially those with great territorial extensions, internal differences might exist, which are not revealed through these indicators.