Original Study

Challenges in Facing the Lung Cancer Epidemic and Treating Advanced Disease in Latin America

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Abstract

Latin America will soon be facing a lung cancer epidemic. The region is not prepared to deal with the amount of patients and the resources needed to give the patients proper state of the art molecular diagnosis and access to targeted therapies. In this paper, we review the current management of lung cancer in Latin America from the clinician's perspective.

Lung cancer, the deadliest cancer worldwide, is of particular concern in Latin America. The rising incidence poses a myriad of challenges for the region, which struggles with limited resources to meet the health care needs of its low- and middle-income populations. In this environment, we are concerned that governments are relatively unaware of the pressing need to implement effective strategies for screening, diagnosis, and treatment of lung cancer. The region has also been slow in adopting molecularly-based therapies in the treatment of advanced disease: testing for epidermal growth factor receptor mutations and anaplastic lymphoma kinase rearrangements are not routine, and access to targeted agents such as monoclonal antibodies and tyrosine kinase inhibitors is problematic. In this paper, we review the current situation in the management of lung cancer in Latin America, hoping that this initiative will help physicians, patient associations, industry, governments, and other stakeholders better face this epidemic in the near future.

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Introduction

Most countries in Latin America have been through or are experiencing the epidemiologic transition that has led to a shift in the primary burden of disease from infections to chronic non-communicable disorders. The rising incidence of cancer is an important contributor to new mortality patterns in the continent as more than 70% of cases are diagnosed at later stages.

Worldwide, lung cancer is the leading cause of cancer deaths in men and the second leading cause of cancer deaths in women, with about 1.8 million new lung cancer cases and 1.5 million deaths expected to occur in 2015.[1] In the 19th and early 20th centuries, lung cancer was a rare disease. The growing popularity of cigarette smoking in subsequent decades led to a rapid rise in lung cancer incidence worldwide.[2] It was not until the 1950s that solid studies clearly identified the link between lung cancer and smoking.[3-7]

In men, the highest lung cancer incidence rates are reported in the United States (US) and in Eastern European countries, and the lowest rates are found in Africa and Central and South America. In women, the highest lung cancer rates are reported in North America and parts of Europe, including the United Kingdom and Denmark,

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and the lowest rates are found in Africa, South Central Asia, and Latin America. It is anticipated, however, that if smoking rates do not decrease in the region, lung cancer will emerge as the main killer in the next few decades.[8] Cancer incidence and mortality trends observed for Latin American populations resemble those observed in the US Hispanic population, where cancer is also increasing.[9] US Hispanic men and women have higher rates than those of most cancer registries or countries in Latin America. Most public healthcare systems in Latin America, which are fragmented and under-financed, are not prepared to address this imminent challenge. In the last decade, lung cancer mortality in women rose by 1% to 3% per year in all Latin American countries except Mexico and Costa Rica.[10]

Lung Cancer Is a Major Public Health Problem in Latin America

Lung cancer is projected to increase in the Americas: by 2030, there will be more than 541,000 new cases and approximately 445,000 deaths. Among Latin American women, the number of cases and deaths from lung cancer is expected to almost double by 2030. Among men, it is estimated that the number of new lung cancer cases and deaths will increase by around 60% in North America and by 50% in Latin America and the Caribbean.[11] Lung cancer epidemiology is related to smoking patters and is expected to change accordingly in the future[11]: In North America, almost half of all cases of lung cancer occur in women, whereas in Latin America and the Caribbean almost two-thirds of cases occur in men. Among women, the number of new lung cancer cases is almost 4 times higher in North America than in Latin America and the Caribbean. Among men, it is more than 2 times higher. In women, lung cancer rates are highest in North America and Cuba, and lowest in the Caribbean. In men, lung cancer rates are highest in Uruguay, the United States and Cuba, and lowest in Central America and Bolivia. The incidence/mortality ratio is close to 1 for both men and women in all countries, indicating a very high case-fatality rate for the disease.

Interestingly, Hispanics who relocate to the United States benefit from the preventive strategies employed for infectious agent-associated cancers such as gastric cancer; however, smoking-associated lung cancer remains the number one cancer killer in both populations.[11]

Smoking accounts for about 80% of global lung cancer deaths in men and 50% in women. In contrast to western countries, in Latin America, lung cancer rates are increasing and they are likely to continue to do so in the next few decades unless interventions to accelerate smoking cessation are stepped up.[12] Lung cancer incidence rates within Hispanic subpopulations vary substantially according to historic differences in smoking patterns.[11,13,14] Environmental exposures (other than smoking) that may contribute to regional variations in lung cancer rates include radon, asbestos, certain metals (chromium, cadmium, arsenic) and organic chemicals, radiation, air pollution, coal smoke, and indoor emissions from burning other fuels.[15] The last one is a particular concern in the Andean regions.

Despite the long-waged battle against smoking, through restrictive legislation or heavy taxation of tobacco products, smoke-free indoors public policies, educational campaigns, public programs for smoking prevention among children and teens, and public health therapeutic programs for quitting smoking, the epidemiologic impact of lung cancer is still high. There is particular concern in low-income populations in which smoking is still highly prevalent and increasing, as well as associated with a heavy economic burden. Cigarettes can represent between 24.8% and 38% of all expenditures of low-income families and individuals.[16,17]

Lung Cancer and Challenges for the Public Health Care System

Most governments in the region tend to focus on addressing challenges related to infections and maternal-child health, largely ignoring the markedly increased incidence of chronic non-communicable diseases, including lung cancer. Early detection programs are usually absent, and when available, often ineffective and patchy. Cancers are therefore commonly diagnosed at later stages, when chances for recovery are unlikely and prognosis is dismal. Treatment for late-stage cancers typically occurs in public hospitals that have limited resources owing to a combination of poor funding and large demand for services. As a result, most health care institutions can only provide a minimum of activities that cannot keep up with an overwhelming caseload, compromising the quality of care. Most countries also lack basic cancer planning tools such as population-based cancer registries, up-to-date clinical guidelines, and consistent provision of care. A few countries have a National Cancer Control Plan with established strategies in place but which often are not executed, and vast underserved populations remain vulnerable due to geographical gaps in the availability of cancer treatment, early detection, and palliative care services. Finally, there is limited access to the latest generations of molecular testing, modern staging procedures, and targeted agents. Finally, in many countries in the region, cancer—and more specifically lung cancer—is stigmatized and viewed as a "death sentence," with a culture of silence surrounding the disease.

Civil society action is common in the region. In selected countries in Latin America, including Mexico and Brazil, among others, advocacy activities through Non-Government Organizations have started to develop networks of cancer survivors that help provide emotional and practical support (but mostly for breast cancer). Moreover, many individuals in Brazil and Colombia sue their governments to access expensive treatments that are otherwise available to privately insured citizens. Most patients who sue the State in these 2 countries win their cases, but these are usually patients who are wealthy enough to hire lawyers, compounding the inequity existing in health systems. Critics have also argued that if public providers included these medications, governments could negotiate better prices with the provider companies.[18]

Cancer Control Plans in the Region

Cancers that were once known as diseases of industrialized countries, such as lung cancer, are now commonly occurring in economically transitioning and less developed countries. A significant proportion of the future Latin American burden of lung cancer could probably be prevented through the application of existing cancer control knowledge, and by implementing programs for tobacco control and early detection as well as better treatments.