Priorities and Challenges for Cancer Prevention and Surveillance

Prioridades e Desafios para a Prevenção e Vigilância do Câncer
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Living in the world today is quite challenging not only because of climate changes but also due to ensuing serious geopolitical conflicts, and discussions on human longevity emerge as strongly as ever. Important advances in public health initiated in early 20th century shaped vigorously the demographic transition and rising progressively life expectancy of human beings. Recent gains have been achieved by reducing death rates at middle and older ages[1].

These life periods are exactly when cardiovascular diseases and cancer are the leading causes of death. Estimates for 127 countries in 2019 indicate these diseases are the first cause of death in 70 countries, including Brazil and India and cancer is ranked second[2], but for 57 countries, cancer is the first cause of death. Whether these trends continue, cancers will be the first cause of death for the majority of the countries still in this century.

The projection of cancer burden on the profile of morbimortality of the population will continue as challenging as before for health systems and the economy. It appears to be paramount that health managers in the whole world endeavor to minimize the effects of sickening that several types of cancer can cause. To deal with this scenario, it is necessary to invest in public health actions and political authorities of all countries make prevention and surveillance a priority. In that line, cancer policies need to be based on consistent epidemiologic studies and health information systems, expanding the knowledge of the causality, evaluation of early detection actions and access to diagnosis and treatment.

The first reports on cancer prevention were published in medical literature as early as the 18th century. In 1727, Le Clerc suggested cutting out polyps and tumefactions before they became cancerous and in 1775, Pott described the causal relation between soot exposure and cancer of the scrotum in chimney sweepers[3].

In the classic study *The causes of cancer: quantitative estimates of avoidable risks of cancer in the United States today* published in 1981, Doll and Peto[4] analyzed the variation of mortality by cancer in 35-64 aged adults in different geographical areas and considered the results of some epidemiologic studies. The authors concluded that 25% to 40% of deaths by cancer are attributable to smoke, 10% to 70% to poor feeding habits, 4% to occupation and 2% to pollution. Further to these factors, subsequent studies[5] indicate the multiplying role of obesity and sedentary lifestyle. The multifactorial nature of the causality of the cancers has as assumption that prevention is possible given the innumerous etiological pathways arising from the accumulation and integration of lifelong exposures to different risk factors.

The great challenge of cancer primary prevention is connected to the effects of globalization which has provoked significant demographic changes and increase of sedentarism, affecting middle-and-low income countries more dramatically.

The last edition of Global Cancer Statistics[6] (Globocan) estimated 20 million new cases and 10 million deaths by cancer worldwide in 2022 , being lung (12.4%) the most incident, followed by breast, colorectal, prostate and stomach cancer. Although the increase of proportional mortality is higher in high-and-middle income countries, no doubts remain that poorer countries will bear the toll as well where the impact on health systems should be noteworthy.

To the existing scientific knowledge so far about acknowledgedly carcinogenic risk factors, it is possible to predict that an important proportion of all types of cancer could be avoidable with effective primary prevention measures and that mortality can be reduced through early detection actions.

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In Brazil, a study investigated the contribution of risk factors associated with lifestyle, infections, occupational and environmental factors and estimated that 34% of the cases in women and 35% in men as well as 46% and 39% of deaths, respectively, could be avoided[7].

The factors that impacted the most were smoking, infections, poor intake of fruits and greens, overweight, reproductive factors and physical inactivity. Still in relation to cancerous risk factors, in 2020, for the first time in history, 194 countries committed to eliminate cervical cancer (more than 95% HPV-related), a goal that appears to be reachable by the whole world with screening strategies, more accessible HPV molecular tests, optimization of offer of screening and treatment and a single dose of HPV vaccine.

Understanding what causes cancer continues as intense as before across the whole world and has been gaining momentum when several areas of scientific knowledge are integrated. Yet, many are the gaps to be filled in but the accumulation of evidences so far appears to be sufficient to justify prevention strategies that need to be implemented globally.

In Brazil, the experience that is being constructed since the 1980s with tobacco control has been effective in regard to legislative, educational and regulatory measures which made the prevalence of smokers to drop substantially in the last decades[8].

Following the tobacco example, other policies need to be implemented with legislative and economic measures to promote large scale changes to eliminate or control prevalent and avoidable risk exposures. Effective prevention strategies should be supported by epidemiologic studies that ensure future comparisons and improvement of health surveillance.

Priorities of investigation should be defined given the large populational diversity and socioeconomic inequalities in Brazil. Disadvantaged and vulnerable population groups living in underserved conditions are more exposed to cancer risk factors and they will bear the toll of poor access to timely diagnosis and quality treatment.

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