Incidence, mortality, and risk factors of cancer epidemiology.

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Abstract

In this brief report, we offer a concise overview on current cancer epidemiology garnered from the official databases of World Health Organization and American Cancer Society and provide recent information on frequency, mortality, and survival expectancy of the 15 leading types of cancers worldwide. Overall, cancer poses the highest clinical, social, and economic burden in terms of cause-specific Disability-Adjusted Life Years (DALYs) among all human diseases. The overall 0–74 years risk of developing cancer is 20.2% (22.4% in men and 18.2% in women, respectively). A total number of 18 million new cases have been diagnosed in 2018, the most frequent of which are lung (2.09 million cases), breast (2.09 million cases), and prostate (1.28 million cases) cancers. Beside sex-specific malignancies, the ratio of frequency between men and women is >1 for all cancers, except thyroid (i.e., 0.30). As concerns mortality, cancer is the second worldwide cause of death (8.97 million deaths) after ischemic heart disease, but will likely become the first in 2060 (~18.63 million deaths). Lung, liver, and stomach are the three most deadly cancers in the general population, while lung and breast cancers are the leading causes of cancer related-mortality in men and women, respectively. Prostate and thyroid cancers have the best prognosis, with 5-year survival ~100%, while esophagus, liver, and especially pancreas cancers have the worst prognosis, typically <20% at 5 years. We hope that this report will provide fertile ground for addressing health-care interventions aimed at preventing, diagnosing, and managing cancer around the world.

Keywords: Cancer, Epidemiology, Statistics, Mortality.

Introduction

Cancer epidemiology is the study of the distribution and determinants of cancer in populations. It plays a crucial role in understanding the burden of cancer, identifying risk factors, and developing strategies for cancer prevention and control. Cancer is a major global health problem and is the second leading cause of death worldwide. According to the World Health Organization, approximately 9.6 million deaths were attributed to cancer in 2018, accounting for about 1 in 6 deaths worldwide. This article will provide an overview of cancer epidemiology, including the incidence, mortality, and risk factors associated with cancer [1].

Incidence of cancer

The incidence of cancer refers to the number of new cases diagnosed in a population over a specific period. Cancer incidence rates vary widely across different countries and populations. According to the International Agency for Research on Cancer (IARC), there were an estimated 19.3 million new cancer cases and 10 million cancer deaths worldwide in 2020. The most common types of cancer were lung, breast, and colorectal cancer, accounting for 36.8% of all cancer cases [2].

In the United States, the National Cancer Institute (NCI) estimated that there would be 1.9 million new cancer cases and 609,640 cancer deaths in 2021. The most commonly diagnosed cancers in the US are breast, lung, and prostate cancer in women, and lung, prostate, and colorectal cancer in men. The incidence of cancer varies by age, gender, and race/ethnicity. Cancer incidence rates are generally higher in men than women, and in older age groups. African Americans have higher cancer incidence rates than any other racial/ethnic group in the US [3].

Mortality of cancer

Cancer mortality refers to the number of deaths attributed to cancer in a population over a specific period. Cancer mortality rates have declined in many countries due to advances in cancer screening, early detection, and treatment. However, cancer remains a major cause of death worldwide. According to the IARC, there were an estimated 10 million cancer deaths worldwide in 2020, with lung, colorectal, and stomach cancer accounting for the most deaths.

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rate is generally higher in men than women, and in older age groups. African Americans have the highest cancer mortality rates of any racial/ethnic group in the US [4].

Risk factors of cancer

Risk factors are factors that increase the likelihood of developing cancer. Many risk factors for cancer are modifiable, meaning they can be changed to reduce the risk of cancer. The most common risk factors for cancer include tobacco use, alcohol consumption, unhealthy diet and physical inactivity, obesity, exposure to radiation and environmental pollutants, and certain infections.

Tobacco use is the leading cause of preventable cancer deaths worldwide. Smoking cigarettes increases the risk of many types of cancer, including lung, throat, mouth, pancreas, kidney, bladder, and cervix. Secondhand smoke exposure is also a risk factor for lung cancer.

Alcohol consumption is another modifiable risk factor for cancer. Heavy alcohol consumption increases the risk of many types of cancer, including liver, esophageal, mouth, throat, and breast cancer. The risk of cancer increases with the amount of alcohol consumed [5].

Conclusion

Cancer epidemiology is a vital field of study that helps us understand the incidence, prevalence, and distribution of cancer in populations. The knowledge generated by cancer epidemiology is critical in the development of prevention strategies, early detection, and effective treatment of cancer.

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