Original Article

Cancer Burden And Prevention Strategies

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Abstract

Cancer is a serious issue for society as it is among the top causes of mortality worldwide. The burden of cancer is increasing due to various factors such as the ageing population, unhealthy lifestyles, environmental pollution and more. It is estimated that more than 10 million people will die from cancer-related illnesses in 2021. Therefore, it is important to understand the cancer burden and develop effective prevention strategies to reduce its impact on society (Garland et al., 2012). The cancer burden is the total cost of cancer care, including direct medical costs such as treatments and hospitalizations, indirect costs such as lost productivity due to illness or death, and intangible costs such as suffering and emotional distress. This burden is increasing every year due to advances in medical technology, increased prevalence of certain types of cancer, and rising healthcare costs. While there is no one-size-fits-all solution, there are a variety of prevention strategies that can be used to reduce the threat of cancer. These strategies range from lifestyle changes, such as eating a healthy diet and exercising regularly, to medical interventions, such as vaccines or medications (Bode and Dong, 2009). To reduce this burden, doctors have been looking for ways to prevent and treat cancer. Materials and methods such as "immunotherapy, biomarker therapy, radiation therapy, radiation therapy, chemotherapy, and targeted therapy" are being used to reduce the cancer burden. Also, one such strategy is chemoprevention, which involves using drugs or other agents to reduce the risk of cancer development. Chemoprevention has been studied extensively and is effective in reducing the threat of cancer.

Keywords: - cancer burden, cancer prevalence, global cancer statistics, preventive strategies for cancer, chemoprevention, early detection technologies for cancer screening, vaccine-preventable cancers,

Introduction

The number of individuals who are diagnosed with cancer each year is remarkable. It's a major reason why people become sick and/or become disabled all around the globe. Cancer burden refers to the economic, social, and health costs associated with cancer, including treatment costs, lost productivity due to illness or death, and other societal costs (Garland et al., 2012). This burden can vary significantly from country to country depending on factors such as access to quality healthcare services and preventive measures. Prevention is a key part of reducing this burden as it can help reduce the number of people who are diagnosed with cancer each year. To reduce this burden, governments need to invest in cancer prevention strategies such as early detection programs and public health campaigns that

educate people on how they can reduce their risk of cancer. Also, some strategies include lifestyle modifications such as a healthy diet, physical activity, and avoiding tobacco use; early diagnosis; screening programs; and effective treatments for those who are diagnosed with cancer. By understanding the burden of cancer and implementing prevention strategies, we can reduce its impact on individuals, families, communities, and our healthcare system.

Materials and Methods

Cancer is a major health issue worldwide and strategies to reduce the burden of cancer are essential. The materials used in this study included data from existing studies, literature reviews, journals, and other online sources. The methods employed included descriptive epidemiology, deductive approach, qualitative method etc. Through these materials and methods, the researcher was able to gain valuable insights into the current cancer burden and suggest strategies for its prevention.

Results

Cancer is one of the leading causes of death worldwide, with an estimated 19 million new cases and 9.6 million deaths in 2020 alone. The global cancer burden is increasing, with more than 1 in 6 people expected to be diagnosed with cancer during their lifetime. Cancer affects people of all ages and backgrounds, but some populations are disproportionately affected by the disease due to unequal access to healthcare services, poverty, and other social determinants of health. The burden of cancer is immense, and the consequences can be devastating for individuals, families, and entire communities. Cancer mortality rates vary widely around the world, with low-income countries experiencing higher mortality rates than high-income countries (Kesic et al., 2012). In addition to the physical and psychological burden, cancer also has a significant economic impact on global health. The result of this cancer burden is far-reaching and includes increased healthcare costs, decreased quality of life, lost productivity, and financial hardship for individuals and families affected by the disease. The economic costs associated with cancer are also significant; it is estimated that the total cost of cancer care in 2020 will be around $1.2 trillion with direct medical costs accounting for around 70% of this figure (Umar et al., 2012). Thus, understanding the impact of the cancer burden on global health is essential for developing effective strategies for the prevention, treatment, and control of this disease.

In the year 2017, the number of people living with cancer worldwide was estimated to be 15.5 million. This is a staggering figure and it has been rising steadily over the past few decades. Cancer is one of the most common causes of death in both developed and developing countries, with more than 10 million deaths annually. Cancer is a disease that has been on the rise in low-middle-income countries over recent decades due to increased screening programs, which have led to more cases being diagnosed with cancer. The result of the cancer burden in low-middle-income countries is more than double that of high-income countries (Umar et al., 2012). This is because there are fewer screening and prevention tools in these countries, which leads to a higher number of deaths from cancer. Thus, people aren't able to get the cancer-prevention vaccinations and screenings they require, are identified with the disease at a later stage, are denied therapy and pain medication, and don't get the emotional and material care they need while they're sick. The increasing number of people living with cancer has led to an increase in mortality rates, making it difficult for individuals who have been diagnosed with cancer to live long enough for their treatment plan to work effectively (Kensler et al., 2003). The burden of cancer in low-middle-income countries is high as they have limited resources to provide treatment for patients who are suffering from the disease. The result of the cancer burden is that many people are dying from this disease and there are a lot of long-term effects. The most common long-term effects include pain, impaired mobility, reduced quality of life, and reduced productivity. There has been a significant failure to implement existing interventions, which has helped keep cancer a top death threat. Protecting individuals and

decreasing unnecessary harm requires a multifaceted approach that emphasises protection, accurate intervention, therapy, and medication management, all of which will enhance cancer's eventual elimination in this decade.

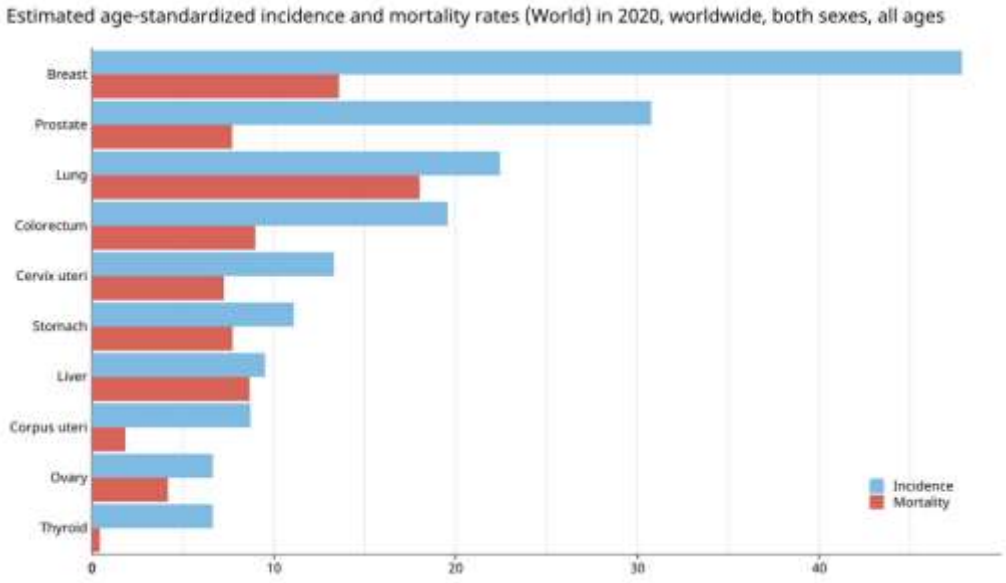

Figure 1 global cancer observatory

Source: (Umar et al., 2012)

According to the World Health Organization (WHO), approximately one in six deaths globally are due to cancer. Furthermore, World Health Organization (WHO) estimates that more than 40% of cancers can be prevented through lifestyle changes such as avoiding smoking and alcohol consumption and maintaining a healthy diet and weight (Kensler et al., 2003). These figures demonstrate the importance of raising awareness about the risks associated with cancer to reduce its prevalence globally. With greater understanding come greater prevention efforts – ultimately leading to fewer cases and lower mortality rates from this deadly disease. This highlights the need for global action to reduce the burden of cancer on global health. By improving access to healthcare services and investing in research and development for new treatments, we can make progress towards reducing the impact of cancer on global health. These strategies include lifestyle modifications, such as quitting smoking and avoiding excessive sun exposure; early detection and screening; vaccination against certain viruses; improved nutrition; and access to quality healthcare services.

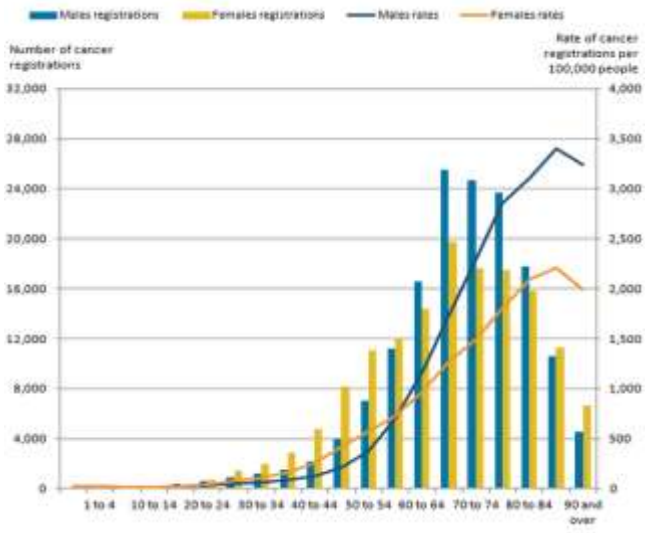

Figure 2 statistics of cancer registration

Source: (Kensler et al., 2003)

Discussion

Cancer is one of the deadliest diseases in the world. Cancer prevalence is increasing in many parts of the world, particularly in developing countries, due to factors such as population growth, ageing populations, unhealthy lifestyles, and environmental exposures. Cancer mortality rates are also increasing globally – even though there have been some improvements in mortality rates due to advances in prevention and treatment – resulting in a growing number of people living with cancer. The cancer burden is a major health concern worldwide, and its burden is increasing every year (Nagai and Kim, 2010). It is estimated that more than 10 million people die from cancer each year. However, several strategies can be used to reduce the burden of cancer and prevent it from occurring in the first place. To reduce this burden, it is essential to understand the prevention strategies that can be implemented to reduce the risk of cancer. The volume of people diagnosed with cancer has increased along with the development of new cancer treatments. This is why it is important to explore different types of prevention strategies aimed at reducing the risk of developing certain cancers.

This will explain the various prevention strategies that can be used to reduce the cancer burden and help people live longer healthier lives. It discusses how lifestyle changes, such as maintaining a healthy weight and diet, avoiding environmental toxins, avoiding tobacco use and excessive alcohol consumption, dietary modifications and getting regular medical check-ups can help reduce the risk of cancer (Bode and Dong, 2009). Additionally, it will discuss how early detection through screening tests and a genetic test can help detect cancer in its early stages when treatment is more likely to be successful. Also, Chemoprevention is a promising approach for reducing the risk of developing certain types of cancers. It involves using drugs, vitamins, or other agents to prevent or delay the development of cancer. Chemoprevention strategies have been studied in many different types of cancer, including breast, colorectal, prostate and lung cancers.

Figure 3 Prevention Strategy

Source: (Wild, 2019)

Vaccines are one of the most effective tools for preventing cancer. Vaccines protect against cancer-causing viruses and bacteria, protecting individuals from certain types of cancers. Vaccination schedules have been established to ensure that individuals receive the necessary protection throughout their lives (Wild, 2019). Vaccines are especially important for adults, as they may not have received all the necessary immunizations during childhood. In addition to vaccines, screening tests can detect cancer in its early stages and help doctors identify those at risk for developing certain cancers. Regular screenings can help detect cancer in its earliest stages when it is most treatable. Screening tests can also help doctors decide on appropriate treatments if a person is diagnosed with cancer. Vaccines and screening tests play an essential role in preventing cancer and saving lives. These strategies can help to reduce the risk of cancer by preventing or detecting it early on (Ladabaum et al., 2020). Additionally, they can also help in reducing the severity and mortality rate associated with certain cancers. All these strategies are important for cancer prevention as they help to reduce the risk of developing certain cancers by making healthy lifestyle choices and taking preventive measures.

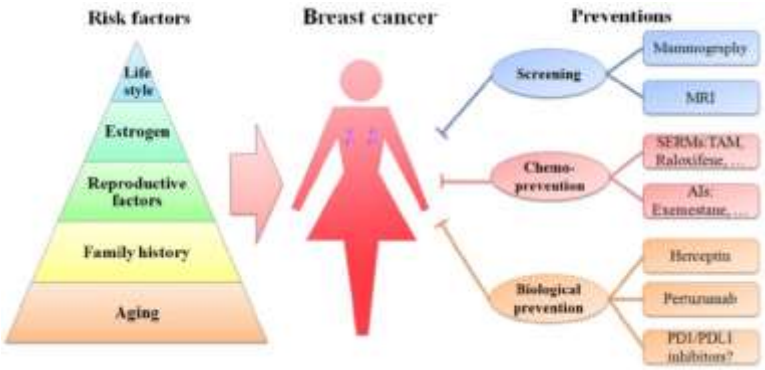

Figure 4 Prevention strategy of Cancer

Source: (Ladabaum et al., 2020)

Conclusion

Cancer is a major public health challenge, and it's growing day by day. Every year, millions of people die from various types of cancer and the number is steadily increasing. This has created an immense burden on the health care system, society, and economy. Cancer is one of the most dreaded diseases in the world, and prevention is always better than cure. To combat this growing issue, prevention strategies must be implemented to reduce cancer incidence and mortality rates. We must take action to improve public health and reduce risk factors associated with cancer. This includes promoting healthy lifestyles, increasing access to quality healthcare, providing preventive screenings and treatments, chemoprevention and investing in research to find new treatments. Additionally, we must ensure that everyone has access to quality healthcare services to detect and treat cancer at its earliest stages. By taking these actions, we can reduce the global cancer burden and save lives around the world.

References

1. Bode, A.M. and Dong, Z., 2009. Cancer prevention research—then and now. Nature Reviews Cancer, 9(7), pp.508-516.
2. Garland, S.M., Bhatla, N. and Ngan, H.Y., 2012. Cervical cancer burden and prevention strategies: Asia Oceania perspective. Cancer epidemiology, biomarkers & prevention, 21(9), pp.1414-1422.
3. Kesic, V., Poljak, M. and Rogovskaya, S., 2012. Cervical cancer burden and prevention activities in Europe. Cancer epidemiology, biomarkers & prevention, 21(9), pp.1423-1433.
4. Kensler, T.W., Qian, G.S., Chen, J.G. and Groopman, J.D., 2003. Translational strategies for cancer prevention in the liver. Nature Reviews Cancer, 3(5), pp.321-329.
5. Ladabaum, U., Dominitz, J.A., Kahi, C. and Schoen, R.E., 2020. Strategies for colorectal cancer screening. Gastroenterology, 158(2), pp.418-432.
6. Nagai, H. and Kim, Y.H., 2017. Cancer prevention from the perspective of global cancer burden patterns. Journal of thoracic disease, 9(3), p.448.
7. Umar, A., Dunn, B.K. and Greenwald, P., 2012. Future directions in cancer prevention. Nature Reviews Cancer, 12(12), pp.835-848.
8. Wild, C.P., 2019. The global cancer burden: necessity is the mother of prevention. Nature Reviews Cancer, 19(3), pp.123-124.

Appendixes

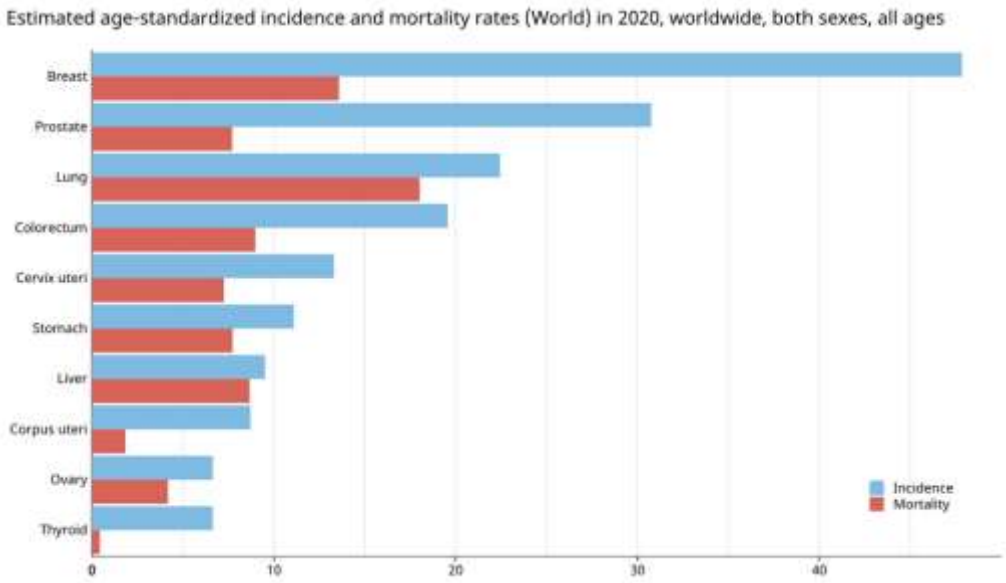

Figure 5 global cancer observatory

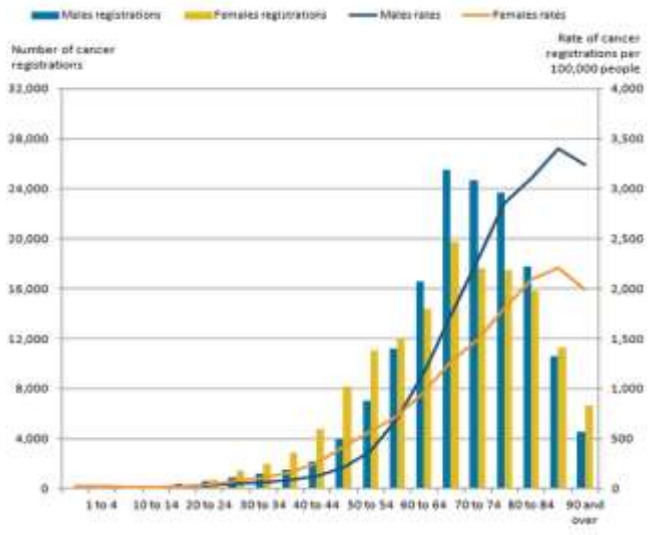

Figure 6 statistics of cancer registration

Figure 7 Prevention Strategy

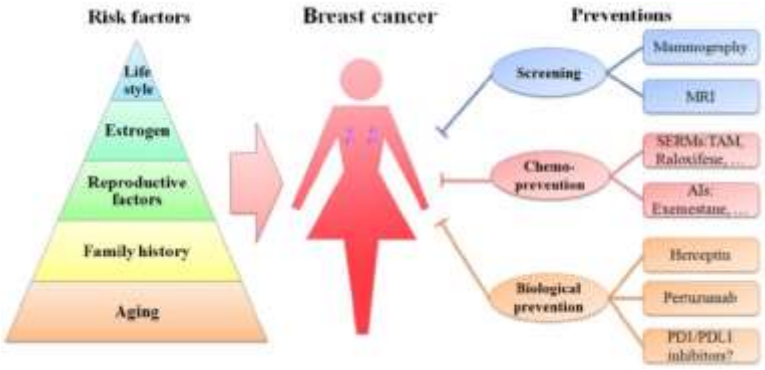

Figure 8 Prevention strategy of Cancer