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Opinion Article

Various Phases of Carcinogenicity and Its Prevention

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DESCRIPTION

Cancer is a disease that can be prevented in numerous ways. According to estimates, around half of all cancer occurrences are either preventable or detectable as precursor lesions before the onset of a disease with the potential to spread to other parts of the body.

Cancer can be prevented on a number of different levels

- Primary prevention targets the cancer's underlying causes to avoid illness.
- Secondary prevention disease from spreading and detects it before symptoms appear.
- Tertiary prevention slows disease progression and complications after symptoms become clinically evident.

Cancer is currently the second most common cause of death in the United States of America for men and women under the age of 85, but it is the leading killer of Hispanics, Asian-Americans, and Native Americans. Age-standardized cancer death rates in the USA have been declining, despite the fact that the number of cancer deaths is still rising due to population growth and ageing. The USA cancer death rate decreased to 149.0 per 100,000 people in 2018 from a peak of 215.1 per 100,000 people in 1991. Since 2013, the overall incidence rate of cancer in women has slightly risen, whilst it has stayed steady in men.

These reductions have been linked to early disease detection, risk reduction efforts, and treatment strategy advancements. To summarise the research supporting prevention in cancer, this review focuses on the first two of those factors.

Risk assessment programmes have been developed at several cancer centres to identify persons who are at high risk; this is a crucial step in the prevention of cancer. Reviewing one's own and their families' medical histories, employment history, and lifestyle might assist determine whether a risk factor for cancer is modifiable. Some individuals have a disproportionately high chance of developing cancer due to a combination of controllable and non-modifiable risk factors.

To calculate a person's risk for a particular type of cancer, models of cancer risk have been developed. The Gail model, one of the best-known of these, predicts breast cancer risk based on current age, race, age at which menstruation began, age at which a person gave birth to their first live child, the number of close relatives who have the disease, the quantity of breast biopsies, and the presence or absence of atypical hyperplasia on breast biopsies. The Gail model has limitations, just like the majority of cancer risk models: it does not take into account ovarian cancer history or breast cancer in second-degree relatives like aunts, cousins, or grandparents. Moreover, this approach might perform worse at identifying risk in women of colour. Hence, to calculate risk as precisely as feasible, risk models should be chosen based on each individual's condition.

In all, inherited predisposition, such as mutations in cancer susceptibility genes, causes around 10% of malignancies (eg, BRCA1 and BRCA2). A blood or tissue sample can be used to identify several of these alterations. For people who have a personal or family history that points to an inherited cancer syndrome, genetic testing is currently advised.

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