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Cancer Epidemiology And Prevention Strategies

Choudhary S*
Department of Pharmacy, University of Punjab, India

Short Communication

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***For Correspondence**
Choudhary S, Department of Pharmacy, University of Punjab, India.

E-mail: choudhary.srin@gmail.cm

INTRODUCTION

The study of the distribution, determinants, and prevalence of malignant disease in particular populations is known as cancer epidemiology [1]. The aim is to identify causative factors in order to develop disease-prevention strategies. Epidemiologic evaluation provides the clinician with a quantitative assessment of cancer risk, lays out the foundation for high-risk population screening modalities, and assesses the effectiveness of any preventive intervention.

In the field of cancer, there are three forms of epidemiologic study. Descriptive epidemiology is concerned with disease patterns and prevalence in a given population. Analytic epidemiology is concerned with determining the causes of disease and the risk factors that contribute to disease growth. Clinical epidemiology describes screening services and assesses the overall effect of prevention interventions.

Descriptive Epidemiology

According to the American Cancer Society, there will be 1,252,000 new cancer cases and 547,000 cancer deaths in the United States in 1995. A total of 120,000 new cases of carcinoma in situ (uterine, cervix, breast, and melanoma) will be diagnosed, as well as over 800,000 basal and squamous-cell skin cancers [2].

Males have a higher cancer incidence and mortality rate than females [2]. Furthermore, Americans over the age of 65 have a tenfold increased chance of contracting cancer than younger people. Despite an increase in overall cancer mortality rates between 1950 and 1990, mortality rates for all cancers combined have decreased significantly for people under 45, but have risen for people over 55. Lung cancer deaths account for the majority of the rise. Cancer mortality is higher among African-Americans than among whites [3].

Analytic Epidemiology

The aim of analytic epidemiology is to classify and quantify the factors that predispose individuals to disease growth. Environmental exposures, genetic vulnerability, and immunosuppression are also cancer risk factors, but they may also be secondary to a previous history of malignancy, virus infection, or treatment. These risk factors may play a role at various stages of carcinogenesis.

Clinical Epidemiology

Cancer screening modalities and preventive methods was established in part thanks to epidemiologic studies. Cancer prevention focuses on reducing the occurrence of cancer by lowering the risk of the disease by improvements in lifestyle and behaviour. The aim of primary prevention is to halt the progression of cancer. Cancer screening and early detection are used in secondary prevention to increase cure rates.

Chemoprevention

Chemoprevention experiments are investigating a relatively new approach to cancer prevention. The reversal of carcinogenesis in the premalignant process is known as cancer chemoprevention [4]. The discovery that retinoids, as cell differentiation modulators, are effective in suppressing oral carcinogenesis and, as a result, in preventing second primary tumours in squamous-cell carcinoma of the head and neck, has led to the investigation of these agents as chemopreventive therapy for tumours of the upper aerodigestive tract in high-risk populations [5]. Adjuvant hormone treatment with tamoxifen for breast cancer has been shown to reduce contralateral disease by 50% in studies. A national tamoxifen chemoprevention trial is being carried out to see if it can reduce the risk of primary breast cancer in high-risk women. Chemoprevention trials will be assisted by the identification of premalignant lesion markers as new molecular techniques are developed.

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