

**INTERNATIONAL JOURNAL OF ADVANCES IN
PHARMACY, BIOLOGY AND CHEMISTRY****Review Article****Impact of Life Style behavior on Lung Cancer****Priyanka Gaur, Chandan kumar, Sandeep Bhattacharya.**Department of Physiology, King George's Medical University,
UP, Lucknow, India.**Abstract**

Lung cancer is the leading cause of cancer-related death in India as well as worldwide it has been accounted for 30% of all cancer-related deaths. The majority of lung cancer cases is due to smoking. It has been found that the increasing risk of lung cancer is significantly associated with the choice of our lifestyle. The available evidence from various studies confirms that there is a direct relationship between diet, lifestyle and risk of cancer development. So we can modify our lifestyle by opting healthy lifestyle behaviors such as healthy diet, weight management, regular exercise, reduction in alcohol consumption and smoking cessation and reducing the risk of lung cancer. This article shows the association between certain lifestyle characteristics such as use of tobacco, alcohol, diet and their association with the risk of lung cancers.

Keywords: Lung Cancer, Diet, Lifestyle Behaviour.**INTRODUCTION**

Lung cancer is the leading cause of cancer-related death in India as well as worldwide, which accounting for 30% of all cancer-related deaths. The majority of lung cancer cases is due to smoking. Tobacco use has been reported to be the one of the main causes of lung cancer in 90% of male and 79% of female and about 90% of lung cancer deaths are due to smoking¹ About 17.8% of cancer deaths are attributed to pulmonary carcinoma and 5-year survival rates in lung cancer are less than 10%² The risk of the development of lung cancer in lifelong smokers is 20-40 times higher than non-smokers³. It can be determined by the balance between the metabolic activation and detoxification of the carcinogens found in tobacco smoke. Metabolites occurring during the activation of carcinogens covalently bind with DNA and formed DNA adducts which are the indicator of lung cancer risk in smokers. Free radicals found in cigarette smoke may also cause the oxidative damage and genetic alteration in DNA and cause activation of oncogenes as well as inhibition of tumor suppressor genes which cause lung cancer in smokers⁴. The available evidence from previous studies confirms that there is a direct relationship between diet, lifestyle and risk of cancer development. It has also been estimated that up to 35% of risk factors are associated to diet.

Previous studies highlights that the risk of cancer can be prevented by major lifestyle changes such as use of minimal meat consumption, increased ingestion of whole grains, fruits and vegetable, reduce fat intake and exercise at least 30 min/day. It is found that food nutrients directly affects several metabolic and signaling pathways such as P450, MAP-kinase, IGF-1, NF-kB, ROS etc. which implicated in both normal as well as pathologic cell function. Physical activity shows positive effects on tumor and strong evidence is available for the positive effect of physical activity on lowering the incidence of tumor as well as reducing the recurrence in patients with breast cancer⁵.

Smoking and lung cancer:

It is found that cigarette smoking causes 85-90% of lung cancers. Lung cancer incidence and mortality is three times higher in men than in women worldwide.⁶ These findings suggest that smoking was strongly associated with risk of lung cancer in men as well as in women⁷ and men are more susceptible to the carcinogenic effects of cigarette smoking in comparison to women. Tobacco smoking also increase the risk of lung cancer in current smokers as compared with never smokers⁸. The previous studies shows that individuals who quit smoking earlier in life have reduced risk of lung cancer. It has been

found that Current and former cigarette smoking caused 52.2% and 14.8% of lung cancer deaths in males and 11.8% and 2.8% in females. The risk was strongly associated with the intensity and duration of cigarette smoking in current smokers. The percentage of tobacco related products smoked in India are Bidi (28.4-79%), Cigarettes (9.0-53.7), Hooka (3.4- 77.3) and mixed (7.5 - 13.6).⁹

Alcohol and lung cancer:

The possible role of alcohol intake is one of the important risk factor for lung cancer. The consumption of beer, spirits and regular use of alcohol were associated with increased risk of lung cancer¹⁰ High consumption of beer and liquors may be associated with increased risk of lung cancer whereas modest wine consumption may be inversely associated with the risk of lung cancer development¹¹ Association between recent hard-liquor consumption and lung cancer risk was observed and it has been found that elevated lung-cancer risk was observed for past liquor consumption¹² it is also found that positive association between alcohol consumption, current smokers and lung cancer risk in a population-based prospective cohort study¹³ Subjects who were light to moderate drinkers, alcohol consumption was not significantly associated with the risk of lung cancer development¹⁴

Diet and lung cancer:

Dietary lifestyle plays an important role in the development of lung cancer. There is increasing evidence shows that some dietary factors may be protect while some may increase the risk for lung cancer. It was shown that persons with the lowest intake of beta-carotene had the highest risk for lung cancer in the Western Electric study¹⁵ . Smoking with deficiency of Vit A increases the risk of developing squamous cell carcinoma and Deficiency of retinoids also leads to squamous cell carcinoma and increased B(a)-P DNA adduct formation. The protective effects were observed for black tea in non-smokers women and physical exercise, vitamin supplements in smoker women in a case-control study. Frequent intake of fruits also reduced the risk of lung cancer in men. The intake of wine and physical exercise was inversely associated with the risk of adenocarcinoma and small cell cancer. Intakes of fruits and vitamin supplements reduced risk of squamous cell carcinoma in women, fat foods were directly associated with the risk of squamous cell cancer, while the frequent intake of apples were inversely associated with the risk of squamous-cell and small cell cancers in men¹⁶ Plant carotenoids alpha-carotene found in carrots and tomatoes and

lycopene found in tomatoes are associated with 20-25% lower risk of lung cancer.¹⁷ The consumption of carrots also reduced the risk of squamous cell carcinoma, small cell carcinoma and adenocarcinoma in women and high consumption of vegetables such as tomatoes, lettuce, carrots, margarine, raw fruits and dairy products such as cheese reduced the risk of lung cancer.¹⁸ Flavonoids found in apples and isothiocyanates found in cruciferous vegetables has also been found to reduce the risk for lung cancer.¹⁹ while the consumption of Red meats, beef and fried meat caused a significant increase in risk of squamous cell carcinoma²⁰ Dietary cholesterol and animal fat increases the risk of lung cancer. It has been also found from the previous studies that the Consumption of vegetables and fruits may reduce lung cancer risk of squamous cell carcinomas in current smokers²¹

CONCLUSION

It has been found from the various studies that there is a direct relationship between unhealthy diet and lifestyle with the increased risk of tumor development and cancer . Hence a good nutritional status based on a balanced diet constitutes one of the main preventive factors for tumors²² Several studies have been shown the evaluation of lifestyle exposure and cancer outcomes and the impact of lifestyle on overall cancer risk. While adhering to one specific recommendation has a moderate impact on the proportion of prevented cancer cases combining healthy behaviors such as being a nonsmoker, drinking moderately, consuming the recommended amounts of fruits and vegetables, being physically active and having a BMI within the recommended range may substantially decrease the incidence of lung cancer. These results should encourage research into ways of enforcing these five simple health behaviors in the general population to improve cancer prevention²³.The possible role of alcohol intake is one of the important risk factor for lung cancer. The consumption of beer, spirits and regular use of alcohol were associated with increased risk of lung cancer while Free radicals found in cigarette smoke may also cause the oxidative damage and genetic alteration in DNA and cause activation of oncogenes as well as inhibition of tumor suppressor genes which cause lung cancer in smokers. It has been concluded from various studies that the use of tobacco, cigarette smoking, intake of high fat diet, red meat, fried meat and consumption of beer, spirits and regular use of alcohol increase risk of lung cancer while regular intake of fruits such as apples, banana, fresh vegetables like tomato, carrot and milk products have protective effects against lung cancer.

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