

Can quitting the use of tobacco products promote the risk of cancer?

Cancer is the most prominent non-communicable disease, which is responsible for the high mortality and morbidity worldwide in every age group and gender. The most common cancer in India is breast cancer, followed by lung and head & neck cancer. The incidence and prevalence of all cancer are rising continuously even after the advancements in medical technology, the discovery of novel chemotherapy, and new surgical protocols. The treatment protocol for cancer involves surgical excision of the tumor, radiotherapy, or chemotherapy. Surgical removal of the tumor remains the primary choice of treatment which could be followed by flap reconstruction for functional rehabilitation. Radiotherapy is introduced in preoperative cases when the tumor size is large and needs to be shrunk to make it feasible to be removed by the surgery. Radiotherapy in post-operative cases is given if the surgical site shows positivity for residual tumor cells. Chemotherapy is given by the surgical removal of the tumor, and radiotherapy treatment is not possible.

In most cases, the use of tobacco in the form of chewing and smoking is the most prominent risk factor for the development of cancer. In the case of aerodigestive tract cancer, including the oral cavity, pharynx, larynx, lungs, and stomach, addiction history is known to play an important role. India faces a high burden of cancer primarily because of the high prevalence of tobacco use in the country. Several studies have been conducted, and many are still under investigation to find the role of tobacco in the induction of cancer. It has been proven that the use of tobacco products enhances the risk of cancer to several folds.

However, it has also been observed that cancer does not develop in many chronic smokers. Also, not all cancer patients tend to have a history of addiction to tobacco. Such cases highlight that there are many other possible mechanisms that play a vital role in the induction of cancer. It has been proposed that apart from addiction history, genetic factors, including the family history of cancer, occupation exposure to carcinogens in chemical factories, and carcinogens in the immediate environment, like the presence of heavy metals in drinking ground, water can have a role in the induction of cancer.

Individuals who are chronic smokers but do not develop cancer, possibly because of tolerance among cells of the aerodigestive tract. Cells of the aerodigestive tract remain in tolerance to the regular amount of nicotine provided by smoking or chewing tobacco by the individual. When an individual stop using tobacco products, the supply of nicotine is cut down, which disturbs the tolerance among the cells. The cells of the aerodigestive tract start to increase in number to absorb the available nicotine, which can ultimately lead to cancer. A similar phenomenon can be observed in the case of thyroid cancer. The cells of the thyroid gland increase their size to maximize the absorption of available iodine, ultimately leading to thyroid cancer.

Tobacco is clearly a risk factor for cancer, and it is recommended to avoid the use of tobacco to prevent cancer. Chronic smokers who already developed the habits of tobacco can reduce the tobacco successively to lower and lower doses instead of sudden quit. However, if the cancer has already occurred, immediate quitting of tobacco is recommended to reduce the risk of recurrence and malignancy. It is still a topic of debate, and more research is required to correctly identify the role of tobacco addiction in the induction of cancer.

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