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**PATHOPHYSIOLOGICAL ASPECTS OF LUNG CANCER**

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The pathophysiology of lung cancer is very complex and incompletely understood. It refers to the physical changes in the body that lead to lung cancer. Despite constant progress in diagnosis and therapy, survival rates of patients diagnosed with lung cancer remain unsatisfactory.

Various studies over past decade shows that risk factors that lead to lung cancer are smoking, environmental and occupational factors. The leading cause of lung cancer is exposure to tobacco smoke. Many people link nicotine to cancer, especially lung cancer. Nicotine is considered as a main component in cigarettes that is the driving factor that causes the addiction. However, «tar» is the carcinogen in the cigarette while studies proven that smokers that smoke high percentage of «tar» conditioning cigarettes are more leaned towards lung cancer. Cessation of smoking can reduce the probability of lung cancer.

According to other researches the asbestos, chromium, and arsenic also the indoor and outdoor air pollution triggers in development of lung cancer. About 93% non-smokers with cancer affected by this. Age of which lung cancers found in non-smokers are younger than the smokers. There can be several reasons to develop cancer in a non-smoker person due to exposure as a second-hand smoker commonly due to a smoking spouse, environmental exposure, genetic factors mostly due to a mutation in epidermal growth factor receptor.

Lung cancer which is a common life-threatening condition can be caused by somatic gene mutation in the genes that are responsible for growth and division of cells in an organism. Approximately 85% of cases in lung cancer are due to non-small cell lung cancer (NSCLC). A specialist can find the type of the gene mutation type via different genomic testing. Biomarkers of lung cancer appears in TP53, EGFR, KARS genes.

The latest studies evaluates that there are effective therapeutic strategies and personalized treatment for lung cancer. Chemotherapy, surgical procedures, and immunotherapy are most frequent type of methods that use in treatment. NSCLC patients who are in stage 1,2 or 3 considered to be medically stable patients, for these patient's curative surgical excisions are accepted. Removal of the tumour from the lung and the lymph nodes which are metastatic are offered in surgical resection.

Risk factors for lung cancer have been mostly understood and well characterized. Primary prevention of this disease therefore seems to be easy to implement by eliminating environmental hazards and smoking. Despite this, lung cancer remains the leading cause of death among malignant cancers in all highly developed countries. The causes of this phenomenon should be sought in the growing problem of environmental pollution, but above all in the difficulty of eliminating the addiction to smoking. In the prevention of lung cancer, the basic factor is not smoking. Tobacco smoke is the most common cause of lung cancer. It is worth noting that electronic cigarettes are also not recommended in the context of prevention. The lack of proper education means that young people continue to reach for nicotine-containing products, first e-cigarettes and then traditional cigarettes. However, nicotine addiction is extremely strong in many people, and eliminating the addiction using traditional methods (psychotherapy, nicotine replacement therapy, pharmacotherapy) turns out to be impossible. In such cases, reducing the health risk associated with smoking cigarettes can be achieved by replacing them with smokeless products containing nicotine. Many scientific studies have shown that aerosols from e-cigarettes and tobacco heating devices contain over 90% less carcinogenic substances than cigarette smoke.

To sum up, the vast majority of lung cancer cases are the result of inhalation of substances that promote their formation, e.g., tobacco smoke, car exhaust fumes and smoke from burning coal. Proper prevention of lung cancer and reduction in exposure to carcinogens increase the chance of staying healthy. Constant progress in diagnostic and therapeutic methods gives rise to hopes for an improved prognosis in patients with lung cancer.