

GENETIC POLYMORPHISMS OF K-RAS GENE IN SMOKING RELATED DISEASES

Thesis

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ABSTRACT

Worldwide, a person dies every 8 seconds from smoking related disease. Cigarette smoking accounts for most cases of chronic obstructive pulmonary disease. The single most major cause of lung cancer is smoking. Chemicals in cigarette smoke cause mutation in ras gene that are commonly associated with many human cancers. The aim of the study is to detect genetic polymorphism of K-ras gene in smoking related diseases which include COPD (chronic obstructive pulmonary disease) and bronchogenic carcinoma. The study included 40 patients (20 of them were cases of chronic obstructive lung disease and other 20 were cases of bronchogenic carcinoma) and 10 normal subjects. All patients and normal subjects were smokers. Patients were inpatients of Chest Department of Kasr El-Aini University Hospitals and National Cancer Institute of Cairo University in the period from October 2005 to July 2008. Each of the 40 patients and 10 healthy subjects were subjected to:

- Full history taking.
- Through clinical examination.
- Evaluation of chest radiography.
- Pulmonary function testing.
- C.T finding suggestive of lung cancer.
- Biopsy from pulmonary lesion: to confirm diagnosis
- Laboratory data finding: blood samples using PCR (polymerase chain reaction) for detection of genetic polymorphisms of k-ras gene.

Out of the 50 smokers, 6 patients proved to have k-ras gene mutations [2 COPD patients (18%) and 4 lung cancer patients (20%)]. All of the 6 patients were males and heavy smokers. All the lung cancer patients showed NSCLC as regards the pathology whereas FEV1 of the COPD patients was moderate obstruction in one patient and severe obstruction in the other one.

Keywords:

K-ras gene- COPD- lung cancer-genetic polymorphism