

9

ON LUNG CANCER INDUCTION IN EXPERIMENTAL  
ANIMALS BY TOBACCO SMOKING PRODUCTS

L.M. SHABAD

The main purpose of our recent experimental studies was the induction of lung cancer cigarette smoke products. During the past 40 years many attempts in this direction took place, but the majority of them failed. In our opinion this was due to inadequate methods used for lung cancer induction: The situation has changed since 1962, when L.M. Shabad and L.N. Pylev described the effective method of intratracheal intubation of carcinogenic hydrocarbons with adsorbents in rats.

By means of this method Ju.P. Borisjuk (1967-1968) in B.S. Ruchkovsky's laboratory (Institute of Experimental and Clinical Oncology, Director - R.E. Kavetsky, Kiev, USSR) treated rats with different fractions of cigarette tar prepared by smoking the most popular of USSR cigarettes and papirossy. It was found that the neutral fraction which contained polycyclic hydrocarbons induced, after a year of treatment, squamous-cell bronchogenic carcinoma in 4% and additionally precancerous lesions in 4% of animals. Thus the intratracheal treatment of rats by cigarette tar can induce lung cancer, although the incidence is low.

Further investigations were undertaken to clarify whether the cigarette smoke itself can produce carcinogenic effect on the lung tissue. For this purpose an improved method of inhalation was developed. Under our guidance, P.N. Krasnienskaja (1968) exposed rabbits to cigarette smoke using a special mask, which was put on their heads. One to four years after the beginning of the experiment, the animals that "smoked" 3,300 - 8,800 cigarettes or papirossy (2,800 - 7,000 grams tobacco) developed proliferative precancerous lesions of the bronchial epithelium. Malignant tumors were not found in these animals.

100111075