

TOBACCO-CANCER RELATIONSHIP and ITS SIGNIFICANCE FOR TURKEY

Prof. Dr. Nazmi Bilir

Director, Institute of Public Health, Hacettepe University

HISTORICAL BACKGROUND OF TOBACCO USE

Tobacco is a product which has been known and used by humans for more than 2000 years. While tobacco was used by Native Americans in religious ceremonies in ancient times, later on the use of it by burning the rolled tobacco leaves and inhaling the smoke started. Although tobacco was known and used for a long time by Native Americans, its arrival at and widespread use in Europe began after the discovery of the American Continent by Christopher Columbus in 1492. Being a precious article in Europe in those days, tobacco had been used in palaces and among the wealthy, who presumed it as a desirable product believing that it was good for headache and relaxation. Jean Nicot, the Portuguese ambassador of France, presented the tobacco he brought from Portugal to the Queen of France, and got rewarded since the headache of the Queen was cured in this way. The name of nicotine, an alkaloid, which is one of the main substances of tobacco, comes from the name of the ambassador. Despite tobacco was used in a narrow circle previously, cigarette production and the consumption of tobacco in the form of cigarettes has become widespread after the development of tobacco rolling machine in 1881. Since the health problems due to tobacco consumption were not yet known, nobody was anxious about the promotion of its use.

PROGRESS IN KNOWLEDGE ON THE RELATIONSHIP BETWEEN TOBACCO AND CANCER

The knowledge on the health effects of tobacco has rapidly increased in the previous 50-60 years. Today, the adverse effects of tobacco on human health are revealed based on strong epidemiological proofs. However there were people in the past, who pointed out some health problems in those using tobacco. For example, King James I can be referred among those people. In his paper titles "Counterblaste to

Tobacco”, the King mentioned the harms caused by tobacco on eyes, nose, brain and lungs. Later, in 1761, an English doctor, Dr. John Hill mentioned the negative effects of tobacco use on lungs in his paper “Caution against Immoderate Use of Snuff”.

The relationship between cigarette and lung cancer was addressed for the first time in an article published in the Reader Digest magazine in 1924. In the article titled “Does Tobacco Injure Human Body” it was pointed out that the number of smokers among cancer patients was greater. The first epidemiological proof of the relationship between smoking and cancer was laid down in a case-control study done in 1947. In two separate studies carried out in England and the US, patients with cancer and persons in the control group were compared in terms of several aspects, and consequently it was found that within cancer patients the number of smokers was more and cancer patients had smoked more than the persons without cancer in the control group (Table 1). As shown in the table, more than half of the patients with lung cancer smoked more than one pack of cigarettes a day, whereas it was found that this ratio was less than 20% within the control group. Many other research were conducted in the following years, which gave similar results.

Table 1. Smoking habit in patients with lung cancer and the control group (USA, percent distribution)

Smoking Habit	Patients with lung cancer (n=684)	Control group (n=684)
Non-smoker	1,3	14,6
Smoking <10 a day	2,3	11,5
Smoking 11-20 a day	45,3	54,6
Smoking 21+ a day	51,2	19,2

The detection of the relationship between smoking and lung cancer with certainty could be done by means of studies based on cohorts. In a research conducted by Dr. Richard Doll by monitoring nearly 35 thousand male doctors in England, it was found that the probability of getting lung cancer and death due to lung cancer was 7 – 25 times greater among doctors who smoke (Table 2). The results of this research were published in decennial intervals; provided new information every time it was republished and have repercussions all around the world. Despite it was calculated previously that 25-30% of smokers died because of a disease due to smoking, in the final report issued as a result of 50-year monitoring of the group, at least half of the smokers were found to die because of a reason related to smoking. In the same period, in a study carried out in the United States by Hammond and Horn by monitoring for nearly 200 thousand persons of 50 to 69 years of age for 4 years, deaths

due to lung cancer within smokers was found to be 6 – 22 times greater than non-smokers.

Table 2. Probability of deaths because of lung cancer among smoking and non-smoking doctors (England)

	Death because of lung cancer (per one hundred thousand)	Relative risk
Non-smoker	7	1.0
Smoker		
-14 cigarettes/day	47	7
15-24 cigarettes/day	86	12
25+ cigarettes/day	166	25

Another crucial aspect of the relationship between tobacco use and cancer is, whether there is a change (decline) in cancer risk after quitting the use of tobacco. In order to perceive smokers to quit smoking, it is useful to tell them that cancer risk will be lower in case they quit. In the 50th year monitoring report of the study carried out by Richard Doll, this subject was also examined, and a considerable decline in lung cancer in the mean time among those who quit smoking was detected (Figure 1). The decline in cancer risk occurs starting from the initial years, and falls nearly to the level of risk for a non-smoker after 20-25 years.

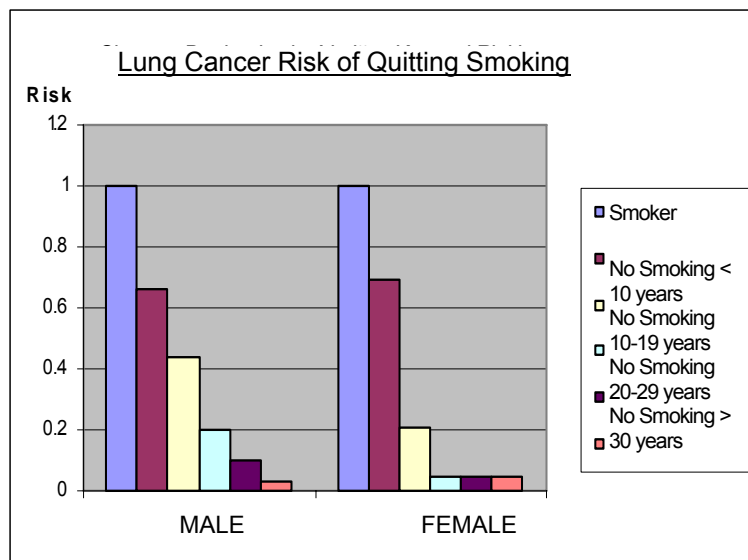


Figure 1. Decline in the lung cancer risk after quitting smoking

CANCERS RELATED WITH TOBACCO USE

The relationship between tobacco use and cancer was initially laid down as the relationship between the latter and lung cancer. Although the strongest relationship between tobacco and cancer is in regard to lung cancer, tobacco use leads to the occurrence of many other cancers apart from lung cancer. Some of these cancer types develop in the organs, with which smoke directly contacts such as the respiratory system, oral cavity, while others develop in organs which do not have contact with the smoke. The tar in the smoke of tobacco is the most important substance regarding cancer occurrence. Furthermore, among thousands of substances that appear when tobacco is burned, there are many other agents causing cancer. These substances are proliferated throughout the body by blood circulation and they cause cancer in various organs.

Thanks to the level of knowledge we have today, we know that tobacco use causes at least 10 different cancers. The main types of cancer related to tobacco use are the following:

(a) Lung cancer: This is the cancer type, which is most highly correlated with tobacco use. 85-90% of lung cancer occurrences are related to tobacco use. In other words, if there had been no tobacco use, the lung cancer appearance would have been one-tenth of its occurrence today. Since cigarettes were distributed freely to soldiers during the First World War, a considerable increase in smoking all around the world occurred in those years. The lung cancer appears usually after 20 years of smoking. Therefore, there was a notable increase in lung cancer during 1940s and 1950s due to the increase in smoking during 1920s. This increase was even called as the “modern epidemics” in epidemiological assessments. After the relationship between tobacco use and lung cancer had become evident, efforts to control tobacco use began. Smoking declined among doctors with the monitoring research conducted on doctors by Richard Doll et al. in England, which was followed by the observation of decline in lung cancer risk. After these findings were laid down, especially in developed countries, considerable reductions in smoking were achieved through various regulations. As smoking declined in these countries, the increase in the frequency of observed lung cancers had fallen from 1980s onwards, and lung cancer occurrences started to fall after 1990. For some cancer types, when the disease is detected in its early periods, fairly successful results can be achieved. However, since early diagnosis is impossible in lung cancer, avoiding the use of tobacco products is crucial for prevention from the disease.

(b) Larynx cancer: Although the correlation is not as strong as it is in the occurrence of lung cancer, tobacco use also plays a role in the development of larynx cancer.

(c) Oral cavity cancer: The most familiar form of tobacco use is in the form of cigarettes. Along with this, especially in Southeastern Asia chewing the tobacco is a common way of use. Cancer development in the oral cavity, pharynx and salivary glands as a result of such uses of tobacco is known.

(d) Lip cancer: It is known that lip cancers increase in those who use tobacco in cigar and pipe forms.

(e) Esophagus cancer: The relationship of both adeno cancer and squamous cell cancer of the esophagus with smoking was proved.

(f) Stomach cancer: A frequently observed type of cancer is the stomach cancer. Because of this fact, a great many number of studies have been done on the causes of stomach cancers, and consequently sufficient proof were laid down regarding the relationship between smoking and stomach cancer.

(g) Colon-rectum cancer: There are many researches conducted on the etiology of colon and rectum cancers. According to the results of these researches, about 12% of colon and rectum cancers can be attributed to smoking.

(h) Pancreas cancer: According to a great many of case-control and cohort studies, it is shown that pancreas cancer is also related to smoking.

(i) Breast cancer: The relationship between breast cancer and smoking has been investigated since 1960s. Even though contradictory results could be achieved from the studies done so far, there are some evidences indicating an increase in breast cancer risk for smoking women.

(j) Urinary bladder and renal cancer: Urinary bladder cancer is a cancer type, the relation of which with tobacco use has been known for a long time. The relationship between smoking and urinary bladder cancer is valid for both men and women. The urinary bladder cancer risk increases twice for those who smoke 40 or more cigarettes a day. Along with urinary bladder cancers, the role of smoking is also known in the occurrence of renal cancers.

(k) Cervix cancer: The relationship between smoking and cervix cancer also has been known for a long time. In the occurrence of this cancer, apart from tobacco use factors related with sexual life also plays a significant role. Sexual life beginning in young ages, more than one sexual partner, and HPV infection are important factors for the etiology of cervix cancer. It was indicated in early 1980s for the first time that cervix cancer might be related to smoking, and laid down in the studies carried out in the following years that cigarette has an impact on its occurrence. Efforts of early diagnosis are very crucial in the cervix cancer. Yet, avoiding smoking is also very significant as well as the efforts of early diagnosis in the control of cervix cancer.

(l) Leukemia: Because the smoke of the cigarette consist benzene and Polonium-210 and Lead-210, which emits ionizing radiation, smoking may cause acute myeloid leukemia.

(m) Ovary cancer: Another cancer type, the relation with smoking has been showed recently is the ovary cancer. Smoking increases ovary cancer risk 2.9 times and the correlation is detected more evidently for the mucinous cancers of ovaries.

PREVENTIVE IMPLEMENTATIONS

Efforts to control tobacco use has started since the adverse effects of tobacco use on health, especially its relationship with cancer was laid down. These efforts are supported and strengthened by the evidence indicating that quitting tobacco use reduces disease and mortality risk due to smoking. Efforts to restrain tobacco use were made about 100 years ago, but could not achieve success. A law proposal in order to restrain tobacco use and prohibit sale of cigarettes to those younger than 18 was made by the Ministry of Health and the Ministry of Justice in Canada in 1903 for the first time, but was rejected by the parliament.

The first step for the control of tobacco use was taken in 1964 by the US Surgeon General by indicating that cigarettes are harmful for human health. Later on, in 1970 and 1980, the World Health Organization stated that cigarette is harmful on health and supported quitting smoking. During the years following these developments, cigarette commercials on television were constrained, scientific congresses on the health effects of cigarette were held, non-smoking compartments in airplanes were reserved for the first time in Canada in 1971, and legal regulations were made in many countries to restrain smoking. In order to expand the scope of such regulations, which were previously made in developed countries, to all nations, World Health Organization prepared a Tobacco Control

Framework Contract, which was enacted by the unanimous vote of the member states in 2003 following long lasting debates.

THE SITUATION IN TURKEY

As a result of the increase in smoking, health problems caused by smoking has increased in Turkey. The most typical evidence of this case is the increase in the frequency of lung cancers. According to the registries of the Ministry of Health, the number of hospitalized patients with lung cancer has increased 10 times between 1964 and 1994 (Figure 2). The increase in lung cancer cannot be explained with the increase in population, since the latter rate is lower for the same period. The impact of smoking in diseases and deaths was also observed for other disease cases. For instance, while 12% of all deaths were due to cardiologic diseases in 1935 in Turkey, it was observed in 2002 that almost half of the deaths (46.3%) were caused by these diseases.

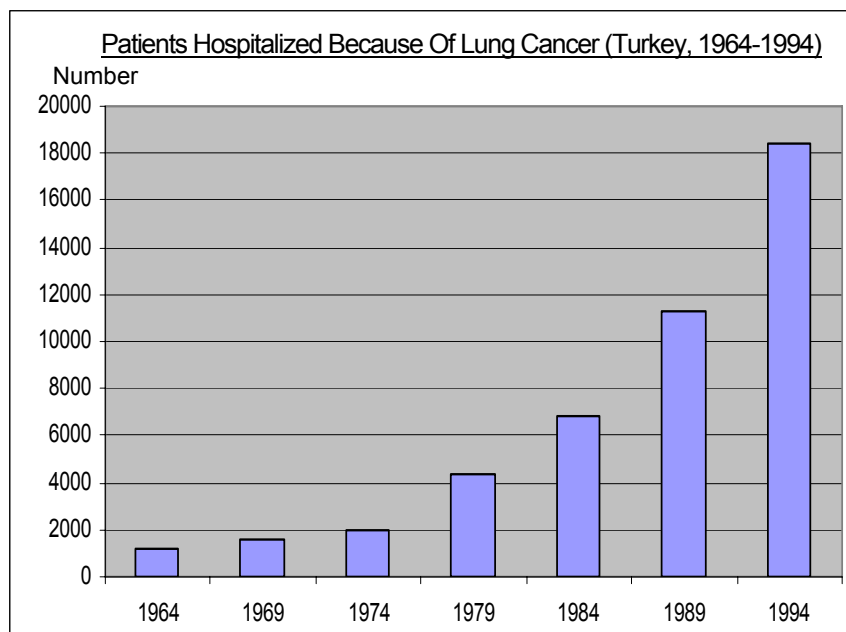


Figure 2. The number of patients hospitalized because of lung cancer between 1964 and 1994 in Turkey

In parallel with the developments in the world, efforts were made also in Turkey for tobacco control and restraining tobacco use. These efforts were initially in the form of scientific meetings among doctors and health personnel, but legal regulations were made afterwards. The law on

tobacco control is the “Law No. 4207 on the Prevention of Harms of Tobacco Products”, which was enacted in 1996. The major articles of this law are as follows:

- It is forbidden to smoke in educational and health institutions, sports facilities and all types of means of public transport,
- All kinds of commercials and publicities of tobacco products are forbidden,
- It is forbidden to sell tobacco products to those younger than 18 years of age,
- It is forbidden to smoke in public institutions, where 5 or more people are employed,
- Every television channel shall broadcast educational programs on the harms of tobacco, which would not be less than 90 minutes per month,
- Punitive action will be taken against those who do not obey the above mentioned prohibitions.

After the enactment of Law No. 4207, the “National Committee of Cigarette and Health” has assumed significant functions in Turkey. The national committee, which was established 1995 as a result of gathering various associations, foundations and other institutions working on tobacco control carried out lobbying activities on tobacco control at national and international levels and provided support in drawing up Law No. 4207 and the discussions concerning the law in the commissions of the TBMM (Grand National Assembly of Turkey).

During the 10 years passed after the enactment of the law, smoking has been prevented in the means of public transport, gradually increasing number of health and education facilities and some public workplaces. Furthermore programs on the harms of cigarette have been broadcasted in many television channels, even though the broadcast hours are not very appropriate. Cigarettes and other tobacco products are not advertised. Nevertheless, it could not be possible to prevent cigarette sale to children. Moreover the implementation of the mentioned punitive article in the law has remained very limited. Thus a law proposal was drawn up in 2006 on the “Amendment of Law No. 4207”, which was discussed and finalized at the relevant commission of the TBMM and decided to be submitted to the general assembly. However the proposal has not been put on the agenda at the TBMM General Assembly and could not become law although almost 1 year has passed since its proposal.

An important development regarding tobacco control in Turkey is the establishment of “The Tobacco and Alcoholic Beverages Market Regulatory Authority” (TAPDK) in 2002. This authority carries out trainings, contributes to the preparation of legal regulations, and issues

various bylaws and communiqués in order to reduce tobacco use. For instance, writing warning signs with large fonts on cigarette packages, prohibition of cigarette sale via electronic means such as internet, etc., and certification of retailers of Tekel (the State Cigarette Monopoly of Turkey) products are some of the regulations carried out by this authority. The tobacco industry struggled to prevent the enactment of Law No. 4207 and made effort for the annulment of some articles of the law after it was enacted, but could not be successful. Though certain important successes could be achieved in Turkey in terms of tobacco control, greater efforts should be made to this end.

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