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Research Article

Current Trends in the Incidence of Non-small Cell Lung Cancer in Turkey: Lung Cancer Aging

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Abstract

Objectives: Human life span has been increasing for the last centuries. By virtue of advances in cancer managements, cancer in elderly population has become more common. The aim of this study was to demonstrate age-specific incidence rates in patients with lung cancer.

Methods: Data was obtained from hospital-based records of patients admitted to our institute between 2011 and 2019 with the diagnosis of lung cancer. After determining the age of each cancer patient, the cancer cases were divided into eight age groups.

Results: A total of 4,424 patients during the 8-year periods between were evaluated. The median age was 61 years. Compared to the SEER data from 2011 to 2015, these values were found to be 9 years younger than American patients. Lung cancer was most commonly diagnosed in people aged 55-64 years (36.3%; the second most common 65-74 years 28.7%; Fig. 2). The frequency of cancer incidence, which is the median age of the patients, has increased over the years.

Conclusion: The incidence of lung cancer increases with age, and elderly lung cancer patients cause serious health problems. Primary and secondary prevention strategies should be considered in this respect and their impact on the elderly should be carefully evaluated.

Keywords: Cancer statistics, geriatrics, incidence, lung cancer, Turkey

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Today, non-communicable diseases (circulatory system diseases, diabetes, cancer and so on) have become common diseases in the world that kill and cause disability.[1] Both the incidence and mortality of cancer is rapidly increasing worldwide and in our country. If we examine this situation with numbers, 18.1 million new cancer cases and 9.6 million cancer-related death were seen worldwide in 2018, respectively.[2] It is ranked second among the causes of death in our country and in the world. Although the factors that can cause this situation are complex, it appears to be related with both aging and growth of the population and also changes in the distribution of socioeconomic development, which is one of the main risk factors for cancer.[3]

Lung cancer, which is one of the leading causes of cancer incidence and mortality, is estimated to cause 2.1 million new lung cancer cases and 1.8 million deaths (one out of every 5 cancer deaths) in 2018.[2] According to Turkish Cancer Statistics, among males, lung cancer is the commonest type of cancer and leading cause of death and fifth most common cause of cancer among females.

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Turkey is classified within the upper-middle-income group,[4] and had a population of 82 million inhabitants in 2019. Life expectancy is increasing similar to that of developed countries with the increase in welfare level. As a result, with the increasing incidence of cancer with age, more elderly cancer patients similar to the situation in developed countries are observed. This has also meant growing number of older lung cancer patients for Turkey.

In this study, we aimed to show the incidence rates of lung cancer in all age groups in Turkey, but especially in elderly patients.

Methods

The data used in our study, which is a single-center retrospective study, were obtained from hospital based records of patients who applied to our institute between January 1, 2011 and December 31, 2018. Patients with pathological diagnosis of lung cancer were included in the study. After determining the age of each cancer patient, cancer cases were divided into eight age groups; Under 20 years old, 20-34 years old, 35-44 years old, 45-54 years old, 55-64 years old, 65-74 years old, 75-84 years old and 85 years old and above. Pearson Chi-Square test was used for the analysis. All statistical analyses were calculated using SPSS v25.0 software. This study protocol was reviewed and approved by the Institutional Review Board of institute and conducted in accordance with the precepts established by the Helsinki Declaration.

Results

In this study, a total of 4,424 patients diagnosed with Lung Cancer in the 8-year period between 2011 and 2019 were evaluated. The median age at diagnosis was 61 years. These values were found to be 9 years younger than American patients when compared with SEER data from 2011 to 2015 (Fig. 1). Lung cancer was most commonly diagnosed in people aged 55-64 years (36.3%; the second most common 65-74 years 28.7%; Fig. 2). The distribution of age-specific incidence ratios over 8 years are shown in Fig. 3. There was a significant increase in the age groups of 65 and older, especially in patients over the age of 75, which supported the aging of lung cancer ($p<0.001$). Especially in recent years, the rate of cancer patients older than 75 years has increased significantly compared to other groups (Table 1).

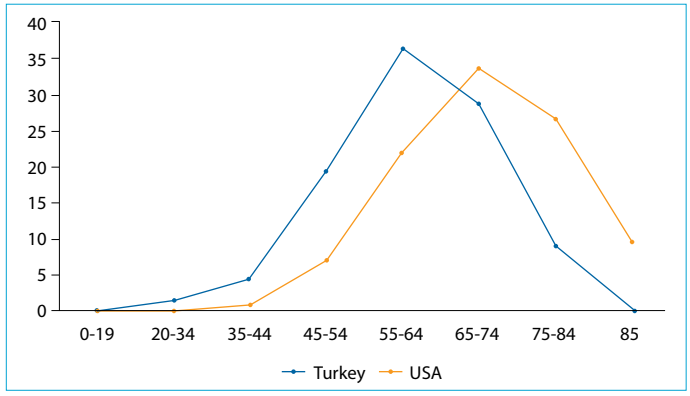

Figure 1. Age-specific rates of patients diagnosed with lung cancer between 2011 and 2018 according to SEER data.

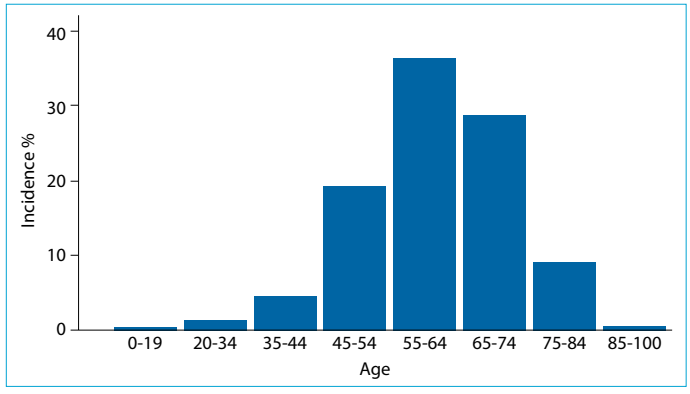

Figure 2. The distribution of age-specific rates of our patients diagnosed with lung cancer in the last 8 years.

Table 1. The incidence distribution of lung cancer by median age and age groups by years

Median age (year), n (%)	2011 60	2012 60	2013 61	2014 62	2015 61	2016 61	2017 62	2018 63
0-19	1 (0.1)	0	1 (0.2)	1 (0.2)	3 (0.6)	0	0	0
20-34	10 (1.5)	7 (1)	8 (1.4)	7 (1.3)	10 (2.1)	7 (1.5)	4 (0.8)	8 (1.6)
35-44	32 (4.7)	41 (6.1)	19 (3.3)	25 (4.7)	21 (4.3)	17 (3.6)	24 (4.7)	17 (3.5)
45-54	149 (22)	144 (21.5)	113 (19.4)	79 (14.7)	105 (21.7)	99 (21)	84 (16.4)	80 (16.3)
55-64	268 (39.6)	248 (37.1)	233 (40)	188 (35)	157 (32.4)	161 (34.1)	190 (37)	160 (32.7)
65-74	175 (25.9)	183 (27.4)	141 (24.2)	176 (32.8)	139 (28.7)	140 (29.7)	151 (29.4)	163 (33.3)
75-84	40 (5.9)	44 (6.6)	65 (11.1)	55 (10.2)	46 (9.5)	44 (9.3)	57 (11.1)	55 (11.2)
85+	1 (0.1)	2 (0.3)	3 (0.5)	6 (1.1)	3 (0.6)	4 (0.8)	3 (0.6)	7 (1.4)
Total	676	669	583	537	484	472	513	490

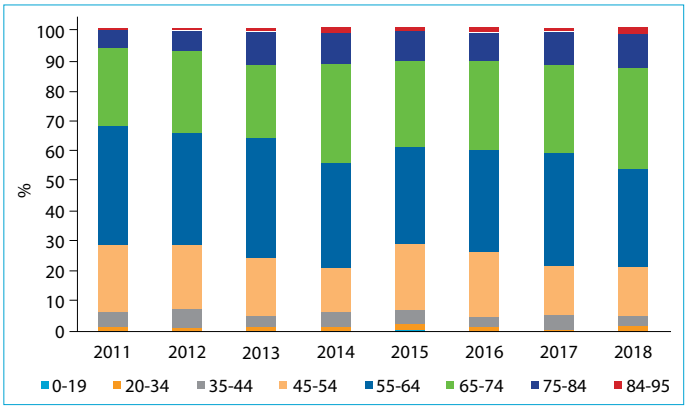

Figure 3. The distribution of age-specific ratios of the lung cancer patients during last 8 years.

Discussion

Both absolute and relative frequency of lung cancer have increased significantly over the past century, and lung cancer became the most common cause of cancer deaths in men in the 1950s, and in 1985 it became the leading cause of cancer deaths in women.[5] With the change in the smoking trends of societies over time, the incidence of lung cancer has been decreasing among men in developed countries since the 1980s, but this age-adjusted rate continues to increase among women in these countries, and especially between men and women in developing and under-developed countries.[6] In Turkey, cancer incidence is over the world incidence in men, while it is slightly lower in women. It is observed that it is at a lower rate in both women and men in terms of cancer than in countries with high level of development such as the European Union countries and America however increasing towards catching them.

In recent years, as people live longer, an increase has been observed in the incidence rates of all age groups in both men and women, but the greatest increase has been observed in the age group of 65 and older. Despite preventive interventions, the risk of life-long lung cancer is about 8% for men and 6% for women.[7] The incidence of many cancers increases with age, at least until the age of 85. As a result of a study conducted in the USA, more than half of all cancers are found in people aged 65 and over.[8] Approximately 54 percent of new cases and 70 percent of mortality from cancer occur in patients ≥65 years of age.[9] As a result, the care of older patients constitutes an important part of the everyday practice for the adult oncologist.

Although the number of this group has increased, it is not known enough about the cancer burden in this age group. Also, since this age group is not sufficiently represented in clinical studies, the needs and appropriate treatments of elderly patients with cancer are unfortunately not known.[10, 11] Due to comorbidities, cognitive impairment, functional losses and other factors frequently accompanying this age group, diagnosis and treatment of cancer in older ages are often difficult.

Today, lung cancer is one of the most common and serious health problem. It is the most common cause of cancer-related death in both men and women. As the geriatric population increases in the world and also in Turkey, lung cancer seems to be an important public health problem today and in the future. The best treatment management for elderly patients with advanced lung cancer is controversial. The incidence of co-morbid diseases increase with advanced age. Because older patients with lung cancer tend to have significant co-morbidities, most oncologists often hesitate to apply standard chemotherapy regimens to avoid toxicity.[12] However, many studies have shown that similar treatment results can be obtained in older but fit patients. Because chronologic age alone provides relatively little information regarding an individual's tolerance to cancer treatment.

Conclusion

As the life span expectancy in our country increases, the number of elderly cancer patients increases. For this reason, it is necessary to know the distribution of patients, to determine the policies to be applied, to evaluate the effectiveness of the interventions and to carry out the necessary improvement studies on time. Our findings show that the incidence of lung cancer increases with age. Lung cancer in the elderly causes serious health problems. Preventive strategies reduce the incidence of lung cancer, especially stopping smoking in the first place. The effectiveness of early diagnosis and cancer screening should be carefully evaluated in the elderly.

Disclosures

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