



Patient and physician delay in the diagnosis and treatment of non-small cell lung cancer in Turkey



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ABSTRACT

Aim: The early diagnosis and treatment of lung cancer are important for the prognosis of patients with lung cancer. This study was undertaken to investigate patient and doctor delays in the diagnosis and treatment of NSCLC and the factors affecting these delays.

Materials and methods: A total of 1016 patients, including 926 (91.1%) males and 90 (8.9%) females with a mean age of 61.5 ± 10.1 years, were enrolled prospectively in this study between May 2010 and May 2011 from 17 sites in various Turkish provinces.

Results: The patient delay was found to be 49.9 ± 96.9 days, doctor delay was found to be 87.7 ± 99.6 days, and total delay was found to be 131.3 ± 135.2 days. The referral delay was found to be 61.6 ± 127.2 days, diagnostic delay was found to be 20.4 ± 44.5 days, and treatment delay was found to be 24.4 ± 54.9 days. When the major factors responsible for these delays were examined, patient delay was found to be more frequent in workers, while referral delay was found to be more frequent in patients living in villages ($p < 0.05$). We determined that referral delay, doctor delay, and total delay increased as the number of doctors who were consulted by patients increased ($p < 0.05$). Additionally, we determined that diagnostic and treatment delays were more frequent at the early tumour stages in NSCLC patients ($p < 0.05$).

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Discussion: The extended length of patient delay underscores the necessity of educating people about lung cancer. To decrease doctor delay, education is a crucial first step. Additionally, to further reduce the diagnostic and treatment delays of chest specialists, multidisciplinary management and algorithms must be used regularly.

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1. Introduction

As smoking rates have increased, lung cancer has become the most frequently observed cancer in both men and women, and it has the highest rate of mortality. It is also the most fatal cancer—lung cancer is responsible for 1.3 million deaths annually across the world and continues to be a major health problem [1]. The age-standardized incidence of lung cancer in Turkey was found to be 75.8/100,000 population in men and 9.6/100,000 population in women [2]. Lung cancer incidence is 30–35/100,000 in the world, 48/100,000 in EU region among men and 13–14/100,000 in both EU region and world among women. The incidence is 7–10/100,000 in our country [3]. In Turkey, smoking rates was 27% in Turkish people, it was 46% in men and 13% in women [3].

Tumour stage is the leading factor affecting prognosis in lung cancer. Approximately 49% of cases with lung cancer have a distant metastasis at onset. Mediastinal lymphatic involvement is found in 26% of these patients [4]. During consultation, 80% of cases with lung cancer were found to be inoperable, leaving only 20% as candidates for surgical treatment [5]. NSCLC cases involving a distant metastasis demonstrated a median survival time of 4–5 months with no treatment, and only 10% of such cases lived for 1 year [6]. A five-year survival rate of 67% was reported at stage IA, 57% was reported at stage IB, 55% was reported at stage IIA, 39% was reported at stage IIB, and 23% was reported stage at IIIA. Cancer survival is a key measure of the effectiveness of health-care systems. Verdecchia et al. analysed survival data for patients diagnosed with cancer, collected from 47 of the European cancer registries participating in the EURO-CARE-4 study and found that age-adjusted 5-year period survival was 10.9% in lung cancer [7]. Five year survival was low at 9–11% in the UK and Denmark versus 15–20% in Australia, Canada, Sweden and Norway [8].

Because patient and doctor delays will alter the tumour stage in lung cancer, many patients lose their chance for surgery due to diagnostic delays, although they would have been resectable when their initial symptoms appeared. Although a 30-day period has been considered to be an important criterion in patient delay in previous studies, no definite period has been specified for doctor delay and its subdomains. The British Thoracic Society (BTS) has made various recommendations concerning the onset of diagnosis and treatment times for patients with lung cancer [9]. Very few studies have been reported in the literature regarding diagnostic and treatment delays in lung cancer.

In the present study, we investigated patient and doctor delays at diagnosis and treatment stages in patients with NSCLC and the factors affecting such delays.

2. Materials and methods

Seventeen sites participated in the present study from various provinces of Turkey (five different sites in Ankara, two different sites in Istanbul, three different sites in Izmir, and one site each in Diyarbakir, Denizli, Tekirdağ, Antalya, Manisa, Mersin, and Isparta). This study was conducted prospectively with patients capable of giving their anamnesis, who consulted between May 2010 and May 2011, and who had a new diagnosis of NSCLC at one of the seventeen institutions. A questionnaire was completed

through personal interviews with the patients. The patients' clinical files were also reviewed. Cases without a diagnosis of primary lung cancer, cases with a history other than NSCLC, patients who were not willing to complete the questionnaire, and cases from whom insufficient survey information was obtained were initially excluded from the study. A total of 1016 patients from 17 different sites who were diagnosed with NSCLC were included in the present study.

The age, sex, occupation, education, smoking status, socioeconomic status, social security status, and place of residence of each patient were recorded. Their first symptoms, the health institution first visited, the specialisation of the physician first visited, the number of non-pulmonary disease specialist physicians visited, the method of final diagnosis, historical diagnoses, the stage of their disease, the date at which the first symptoms appeared, the time passed between the first appearance of a symptom and the first presentation to a non-pulmonary disease specialist physician, and the reasons for any delay were also recorded. The time passed from the first visit to a non-pulmonary disease specialist physician until writing a referral to a pulmonary disease specialist, the time passed from seeing a pulmonary disease specialist until the diagnosis, and the time passed from being diagnosed with lung cancer to subsequent treatment were recorded. Relevant periods and delays were calculated based on these dates. The possible reasons for diagnostic and treatment delays were assessed in cases where delays were discovered.

The time between the onset of the first complaint and presentation to a non-pulmonary disease specialist physician was defined as the **Patient Presentation Time**; if this period exceeded 30 days, it was accepted as being a **Patient Delay** [10–12]. **Doctor Delay** was defined as the time passed from the first visit of a patient until treatment. Doctor delay was examined in the following three subdomains. The time passed between the first appointment of the patient with a non-pulmonary disease specialist physician until seeing a pulmonary disease specialist was defined as the **Patient Referral Time**, the time passed between seeing a pulmonary disease specialist and the pathological diagnosis was defined as the **Diagnosis Time**, and the time passed from the pathological diagnosis until treatment was defined as the **Treatment Time** [11,13,14].

Based on the periods defined by the BTS and Simunovic et al. [15], a patient referral time exceeding 2 weeks was accepted as a criterion for **Referral Delay**, a diagnosis time exceeding 2 weeks was accepted as a criterion for **Diagnostic Delay**, a treatment time exceeding 2 weeks was accepted as a criterion for **Treatment Delay**, and the time between the first presentation to a physician and treatment that exceeded 6 weeks was accepted as a criterion for **Doctor Delay**. The time passed from the first complaint of a patient until treatment was defined as **Total Delay**. Considering the times we defined for patient delay and doctor delay, a total period in excess of 72 days (6 weeks + 30 days) was taken as a criterion for **Total Delay** [10].

In Turkey, all health care and related social welfare activities are coordinated by the Ministry of Health. The Ministry is responsible to provide health care for the people and organise preventive health services, build and operate state hospitals, private hospitals, train medical personnel, regulate the price of medical drugs nationwide, control drug production and all pharmacies.

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