



COPD Prevalence in Sırnak City Center

Şırnak İl Merkezinde KOAH Prevelansı

Sırnak City and Copd

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Özet

Kronik Obstrüktif Akciğer Hastalığı (KOAH), tüm dünya ülkelerinde önemli bir sağlık sorunu haline gelmiştir. Diğer hastalıkların mortalite oranlarının yıllar içinde düşmesine karşılık KOAH prevalansı ve mortalitesi giderek artış göstermektedir. Bu araştırma Şırnak il merkezinde KOAH prevalansını belirlemek amacıyla yapıldı. Şırnak il merkezinde oturan, hastaneye başvuran hastalardan rastgele yöntemle seçilen 30 yaş ve üstü 1000 kişiye solunum fonksiyon testi yapıldı. Çalışmaya katılan bireylerden 570'i (%57) erkek, 430'u (%43) kadın idi. Solunum fonksiyon testi Global Obstructive Lung Disease (GOLD) kriterleri ile birlikte değerlendirildiğinde KOAH prevalansı %10.1 (101 kişi) bulundu. KOAH tespit edilen hastaların % 1.98 i hafif evrede, %27.72 si orta, %43.56'sı ağır ve %26.74'ü çok ağır evrede idi. KOAH tespit edilen hastaların %95'inde sigara içme öyküsü vardı. Çalışmaya katılan erkeklerin %11.92'sinde (68 kişi), kadınların %7,67'sinde (33 kişi) KOAH saptandı. Sonuç olarak KOAH' ın Şırnak il merkezinde önemli bir halk sağlığı sorunu olduğu düşünüldü.

Anahtar Kelimeler

KOAH; Epidemiyoloji; Prevalans; Şırnak

Abstract

Chronic Obstructive Pulmonary Disease (COPD) is currently a major health problem worldwide. Although the rate of mortality due to other diseases has decreased in past years, the prevalence and mortality rate of COPD are continuously rising. The present study was carried out to estimate COPD prevalence in Sırnak city center, Turkey. A total of 1000 individuals aged 30 years and older were randomly selected among those living in Sırnak city center and referring to the hospital, and all selected individuals performed pulmonary function tests. Of all, 570 (57%) subjects were men and 430 (43%) were women. When pulmonary function test results were assessed according to Global Obstructive Lung Disease (GOLD) criteria, COPD prevalence was found to be 10.1% (101 subjects). Of all patients diagnosed with COPD, 1.98% had mild, 27.72% had moderate, 43.56% had severe, and 26.74% had very severe disease. Smoking history was reported by 95% of the patients diagnosed with COPD. In total, 11.92% (68 subjects) of men and 7.67% (33 subjects) of women participating in the study had COPD. In conclusion, COPD was found to represent a major public health issue in Sırnak city center.

Keywords

COPD; Epidemiology; Prevalence; Sırnak

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Introduction

Chronic Obstructive Pulmonary Disease (COPD) is a common, preventable, and treatable disorder characterized by permanent air flow limitation that is generally progressive and is associated with increased chronic inflammatory responses of the airways and the lungs against noxious gases and particles. Exacerbations and comorbidities contribute to disease severity (GOLD 2014) [1]. COPD prevalence may vary depending on country, geographical region, lifestyle, sociocultural structure, age, and gender [2].

It is estimated that there are 2.5-3 million patients with COPD in Turkey. The high smoking rate in Turkey, the limited use of spirometric tests which form the basis for COPD diagnosis in primary care institutions, and inadequacies observed in the diagnosis, prevention, treatment, and follow-up of the disease suggest that COPD has become a major public health problem in Turkey [3].

We believe that the present study may contribute significant data to studies planned to estimate COPD prevalence in Turkey. We also believe that determining the extent and causes of COPD in Sirnak may provide important benefits in terms of preventive medicine.

Materials and Method

Type and Location of Study, Data Collection

This was planned as a randomized study aiming to demonstrate the epidemiologic characteristics of COPD patients in Sirnak city center.

The study population consisted of 1000 subjects aged 30 years and older who were randomly selected among the patients who had referred to the hospital.

Study data were collected between May 2010 and May 2011. Data were collected during face-to face interviews by using standardized questionnaires. Standard measurements (pulmonary function tests, height, and weight) were also recorded.

All subjects underwent pulmonary function tests at least three times and the highest measurements were recorded. Subjects who had pulmonary function obstruction according to GOLD criteria were considered to have COPD [1,4,5,6].

Data Evaluation - Statistics

Collected data and pulmonary function test results were coded and analyzed using SPSS for Windows version 11.0 (SPSS, Inc., Chicago, USA) software. Data were presented as mean and standard deviation (mean ± SD) for all groups. For between-group comparisons of quantitative data, two mean values of independent groups were compared by significance test (t test). Chi-square analysis was performed to analyze the differences in the distribution of categorical variables. Results of the analyses were evaluated within a 95% confidence interval. The level of significance was considered p<0.05. Pulmonary function test results were assessed based on GOLD criteria [1,4,5].

Results

The study population consisted of 1000 subjects, 570 men and 430 women. Table 1 shows the distribution of participants based on gender and their mean age, height, and body weight. The difference between genders was not found significant, as

Table 1. General characteristics of the study population.

| | Men: 570 (57%) | Women: 430 (43%) | Total: 1000 (100%) |
|-------------|-----------------------|-----------------------|-----------------------|
| | Mean(min-max) | Mean(min-max) | Mean(min-max) |
| Age (years) | 64.9±16.16 (30-89) | 51.36±14.35 (30-77) | 63.40±15.16 (30-89) |
| Height (cm) | 167.92±8.78 (163-189) | 155.34±7.24 (141-174) | 166.22±8.20 (141-189) |
| Weight (kg) | 75.4±14.05 (53-101) | 69.7±13.66 (40-104) | 71.9±14.69 (40-104) |

the p value was 0.067 for those with existing COPD, who were diagnosed before the start of the study period. Assessment of COPD prevalence, as demonstrated in Table 2 by a p value of 0.035, indicated a statistically significant difference among genders. COPD prevalence was higher among men.

Table 2. Diagnosis and obstruction parameters of patients diagnosed with COPD in the study population

| | Women n:33 | Men n:68 | Total n:101 | p |
|----------------------------|------------|------------|-------------|-------|
| COPD prevalence | 33(7.67%) | 68(11.92%) | 101(10.1%) | 0.035 |
| Previous diagnosis of COPD | 11(3.9%) | 19(3.3%) | 30(3%) | 0.067 |

The distribution of smoking and other risk factors based on gender among subjects diagnosed with COPD (n: 101) has been determined. COPD patients were analyzed in four groups according to risk factors, smoking history (current smokers or ever-smokers), passive smoker, occupational exposure (jobs with dust exposure or exposure to chemical gases or smoke), and biomass exposure. Non-smokers who lived with at least one smoker in the household and were exposed to tobacco smoke were considered as passive smokers (Table 3). Among those who had quit smoking, statistical data were compared between men and women. The comparisons gave a p value of 0.053, which did not indicate a significant difference. Since p values for the other parameters as shown in Table 3 were lower than 0.05, the differences between genders were found to be significant.

The majority of subjects with COPD had stage 3 disease (severe COPD) (Table 4).

Discussion

The present study indicated that COPD prevalence in the population aged 30 years and older is 10.1% in Sirnak city center. In total, 11.92% of the men and 7.67% of the women participating in this study had COPD.

Table 3. Distribution of risk factors according to gender among subjects with COPD.

| | Men (n:68) | Women (n:33) | Total (n:101) |
|-----------------------------|------------|--------------|---------------|
| | Number (%) | Number(%) | Number(%) |
| Smokers* | 57(83.8) | 24(72.7) | 81(80.2) |
| Previous smokers** | 11(16.2) | 4(12.1) | 15(14.9) |
| Non-smokers* | 0 | 2(6) | 2(2.0) |
| Smoking history* | 68(100) | 28(84.8) | 96(95) |
| Passive smoking* | 0 | 3(9.1) | 3(2.9) |
| Occupational dust exposure* | 28(41.2) | 6(18.2) | 34(33.7) |
| Biomass exposure* | 12(17.6) | 12(36.4) | 24(23.8) |

*p<0.05, **p>0.05

Table 4. Distribution of subjects with COPD based on the stage of COPD.

| | Number | Percentage (%) |
|----------------------------|--------|----------------|
| Stage 1 (Mild COPD) | 2 | 1.98 |
| Stage 2 (Moderate COPD) | 28 | 27.72 |
| Stage 3 (Severe COPD) | 44 | 43.56 |
| Stage 4 (Very severe COPD) | 27 | 26.74 |
| Total | 101 | 100 |

There are two critical problems encountered in studies investigating the epidemiological characteristics of COPD. The first problem arises from the selection of the population to be investigated and the second is sampling errors [7]. This makes it difficult to compare the studies investigating this subject, and it also presents a challenge for the assessment of disease course over time. Spirometric measurements, which form the basis for COPD diagnosis, are the commonly accepted GOLD criteria. The most frequently observed symptoms of the disease include shortness of breath, chronic cough, and chronic sputum production. Spirometry must be performed to establish the diagnosis. Demonstration of permanent airflow obstruction (post-bronchodilator FEV1/FVC < 70%) by spirometric examination in middle-to-older aged adults with chronic symptoms and a history of exposure to risk factors confirms the diagnosis [1]. In their study including a population of 14,223 subjects, Prescott et al. reported that the ratio of patients diagnosed with COPD was three times higher among individuals of low socio-economic class [8].

In 2004, Ozlu et al. investigated COPD prevalence in the population aged 30 years and older in Trabzon city center and its districts. That was one of the first prevalence studies based on the criteria suggested by GOLD and ATS COPD guidelines. A total of 613 subjects aged 30 years and older were questioned through face-to-face interviews and underwent pulmonary function tests. Based on GOLD criteria, COPD prevalence was estimated as 0.98% [9]. The prevalence rate was 1.7% and 0.3% among men and women, respectively. On the other hand, COPD prevalence was 4% in men, 1.6% in women, and 2.8% in the overall population based on ATS criteria. COPD prevalence as reported by Ozlu et al. was much lower compared both to the prevalence rate found in this study and the rate expected in our country.

In a study performed by Ekici et al., non-smoking females over 40 years of age were compared based on the presence or absence of biomass exposure. While the prevalence of airway obstruction (FEV1/FVC < 70%) was found to be 13.6% among women without a history of biomass exposure, it was 28.5% among those previously exposed to biomass [10]. In the present study, among the patients diagnosed with COPD, 36.4% of women and 17.64% of men had a history of biomass exposure. In a study performed in Izmir province, COPD prevalence was assessed in the population aged between 40-69 years and living in the territory of the Konak Surgeon's General office. A total of 1,404 individuals underwent pulmonary function tests and completed a questionnaire between February and May 2003. Based on GOLD criteria, COPD prevalence was estimated as 10.2% in the overall population, 13.3% among men and 7.3% among women [9].

Several risk factors such as smoking, occupational dust ex-

posure, air pollution, and biomass exposure contribute to the development of COPD [3,7]. In this study, the high COPD prevalence for the Sirnak city center study sample may be explained by the high rate of smoking history (as much as 95%), occupational exposure, and biomass exposure due to the frequent use of biomass in this region.

Smoking is the most significant risk factor for the development of COPD [11]. In developed countries, smoking is responsible for 90% of COPD risk [3].

The fact that the highest percentage of patients diagnosed with COPD in the present study had severe disease based on GOLD criteria and a majority of these patients were active smokers provides an insight about the inadequacy of follow-up and treatment of COPD in our region.

Considering that 90% of COPD cases are caused by smoking, there is still much to be done to create smoke-free societies [12].

Although COPD is more common among men than women, recent studies indicate that COPD prevalence among women is rapidly increasing and is about to reach the rate observed among men [13]. The most important reason underlying this finding is that the rate of smoking among women is approaching that of men; in other words, more women are now smokers [3,14]. Smoking and occupational exposure, which are the two most important risk factors for the development of COPD, are almost as common among women as in men living in Sirnak city center, which explains the increased COPD prevalence among women.

COPD-related mortality is on the rise in several countries. COPD-related mortality rates vary from country to country [15,16]. These variations can be explained by differences in smoking habits, environmental factors, genetic depression factors, and infections [17]. The high smoking rate in Turkey, the limitations in primary care institutions' use of spirometric tests which form the basis for COPD diagnosis, and the significant inadequacies observed in the diagnosis and treatment of the disease suggest that COPD has become a major public health problem in Turkey.

COPD is a preventable disease but one that may result in serious social and economic problems. Epidemiological data can play a significant role in COPD control. Data we have collected regarding COPD prevalence in Sirnak city center is significant in terms of COPD prevalence statistics in Turkey. Moreover, there has been a very limited amount of health data collected so far in Sirnak province, adding still more value to our findings.

Competing interests

The authors declare that they have no competing interests

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