

TRANSVERSAL EPIDEMIOLOGICAL STUDY ON RISK FACTORS IN COPD

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Keywords: COPD, risk factors, transversal study

Abstract: Chronic obstructive pulmonary disease (COPD) is an important public health issue, being the fourth leading cause of death in the world. This paper is a descriptive transversal, epidemiological study, over a period of four months, on a group consisting of 125 patients diagnosed with COPD, admitted at Pneumophthysiology Hospital from Braşov. The aim of this study was to identify the risk factors of COPD and their description according to certain characteristics (sex, age, smoking, exposure to pollutants, alcohol and associated diseases).

Cuvinte cheie: BPOC, factori de risc, studiu epidemiologic transversal

Rezumat: Bronhopneumopatia obstructivă cronică (BPOC) este o problemă importantă în cadrul sănătăţii publice, fiind a patra cauza de deces în lume. Această lucrare prezintă un studiu epidemiologic descriptiv transversal pe o perioadă de patru luni, pe un grup format din 125 de pacienţi diagnosticaţi cu BPOC, internaţi la Spitalul de Pneumoftiziologie din Braşov. Scopul acestui studiu a fost de a identifica factorii de risc de BPOC şi descrierea lor în funcţie de anumite caracteristici (sex, vârstă, fumat, expunere la poluanţi, alcool şi boli asociate).

INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is the fourth leading cause of death (3 million people die each year due to this disease, about 5% of deaths globally). Experts estimate that within the next 10 years, COPD will be the third cause of death, after heart disease and cancer.(1) In Romania, there are approximately 1 million patients diagnosed with COPD, according to the Romanian Society of Pneumology's data and our country ranks third in terms of mortality from this disease in men.(2)

One of ten adults aged over 40 years old has COPD, 80-90% of patients with COPD were smokers for a long time.(3) COPD is an expensive disease and an important public health issue, causing substantial direct costs that concern medical diagnosis and treatment and indirect costs that regard premature withdrawal from work, due to disability and premature mortality.(1)

PURPOSE

The aim of this study was to identify the risk factors that lead to the occurrence of COPD and to describe them according to certain characteristics like sex, age, smoking, exposure to pollutants, alcohol and associated diseases.

METHODS

Descriptive transversal, epidemiological study, over a period of four months, from January to April 2012, in a group consisting of 125 patients diagnosed with COPD, admitted at Pneumophthysiology Hospital from Braşov. In this research, the starting point is represented by the risk factors that are present in 100% of cases. The COPD was diagnosed using the European Respiratory Society criteria. Statistics: the existing data, obtained from the medical records of the 125 patients were processed using Microsoft Excel, also calculating the indicators of central tendency and dispersion.

RESULTS AND DISCUSSIONS

Analyzing the distribution of disease, by age group, it was found that all patients with COPD were older than 40 years. Most affected by the disease is the age group of 50-59 years old (42%), followed by the age groups between 60- 69 years old (29%) and 70-79 years old (23%). The result is an expected one, according to the literature data showing that the disease occurs in people aged over 40 years old.(2) Fewer cases were observed to the decade of 40-49 years old (5%) and in those aged over 80 years old (1%).

The average age of the study group was 64.8 years, the median age 63 years and the modal age group between 40-49 years old. The coefficient of variation of the groups is 8.93%, with a standard deviation of 9.65 ($p \pm 0.5$) and a variance of 0.74, which shows that the studied group was homogeneous.

Regarding the gender distribution, the studied group is characterized by male predominance (74%). Higher incidence of COPD in men compared to the literature data can be attributed to their origin mostly in urban areas with risk of exposure to air pollutants, but also to the fact that 58% of them are smokers and 10 worked in a toxic or powder environment.

The majority of patients came from urban areas (67%), with increased risk of exposure to atmospheric pollutants. In addition, 52 of them are smokers or former smokers, compared to those in rural areas where only 22 of them fit into this category. Higher incidence of COPD for those in urban areas can be explained by the fact that 26 of them are working in powder or toxic environment, compared to 14 that came from rural areas.

From the perspective of living conditions, the highest proportion of patients, 91%, have adequate life conditions in terms of habitable surface, lack of mildew or dampness.

Most of the patients (54%) have monthly income between 500 and 1,300 RON, a small number of 4 patients have

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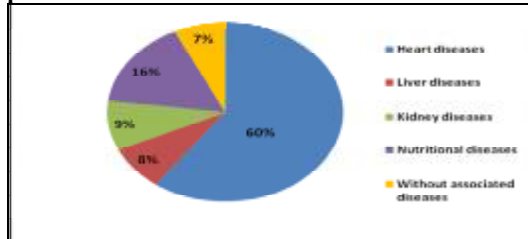
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monthly income over 1300 RON and 34% of them did not want to specify this.

In terms of family history, 9% of admitted patients have a history of COPD.

Figure no. 1. The incidence of comorbidities in the study group

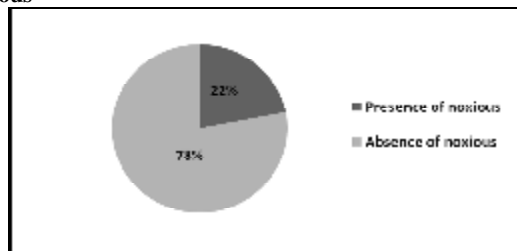


Regarding the comorbidities, heart diseases represent a majority percentage from the COPD associated diseases (figure no. 1). Cardiovascular disease is the second cause of death among COPD patients.(4) It is followed by the diabetes mellitus and obesity. According to the literature data hyperglycemia has mostly been associated with a modest restrictive defect due to diabetic microangiopathy. Pulmonary diffusing capacity in patients with diabetes mellitus is decreased.(4) In this paper, 10 of the patients with COPD have diabetes mellitus and all of them have associated at least one cardiovascular pathology.

According to the literature data, most patients with moderate to severe stage of COPD have at least one comorbidity.(5) In our study, 83 patients have associated at least 2 comorbidities. 58 of them are smokers or former smokers and 29 were working in a toxic or powder environment. The prognosis for those with comorbidities is more severe; it also influences the disease severity, the impact on quality of life and increases the costs of health systems.

In Romania, more than 60% of COPD patients have associated cardiovascular pathology (5), as shown in our study.

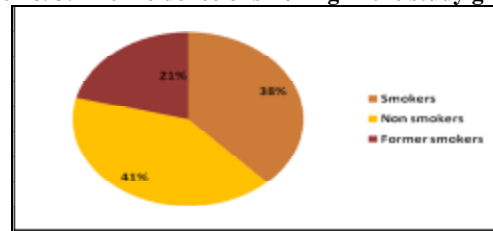
Figure no. 2. The incidence of professional exposure to noxious



According to the distribution of patients by exposure to professional noxious, 22% of them are working in a toxic or noxious environment or they are daily exposed to noxious (figure no. 2). In the other cases, the noxious appear to be absent or could not be specified. The harmful agents found at the working place are generated in the thermal processes (coal, coke or wood combustion, plastics pyrolysis), mechanical processes (steel, mechanical processing), chemical processes (organic and inorganic compound synthesis).

Among smoking patients (figure no. 3), women represent the highest percentage, 58%, they smoke between 10-40 cigarettes daily and males have a percentage of 42%, they smoke between 2-60 cigarettes daily. Among non-smokers, a total of 30 patients are represented by male and 21 of them belong to the female sex. According to the number of cigarettes smoked daily, of the 48 smoker patients, most of them state they smoke about 20-30 cigarettes per day.

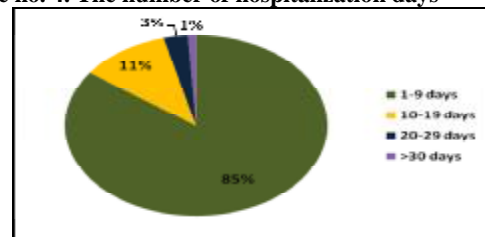
Figure no. 3. The incidence of smoking in the study group



It was noticed an equal distribution between patients who do not and those who consume alcohol. According to alcohol and tobacco consumption, it was observed that 71% of patients consume both of them, while 29% do not drink alcohol and do not smoke.

Regarding the clinical manifestations that occurred in patients with COPD, 30% of COPD patients presented dyspnoea at admission, cough and chest pain, on half of the patients having rest dyspnoea. The wheezing was present in 7% of patients. In 63% of cases symptoms of the associated disease were present. Analyzing the patients' dyspnoea type at admission, it is shown an almost equal proportion between dyspnoea that appears to effort and rest, in percentage of 52% and 48%. Using the GOLD scale in terms of the percentage of FEV1 (Forced Expiratory Volume in the first second), 56 of the patients had moderate COPD, 28 of the patients had severe COPD and 7 of them had very severe COPD.

Figure no. 4. The number of hospitalization days



CONCLUSIONS

- Higher incidence of COPD in men and in people that came from urban areas.
- Most of the patients have at least two associated comorbidities.
- Higher incidence of COPD family history.

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