DATA ON THE EXAMINATION OF FUNCTIONS IN PULMONARY DISEASES

ANTONELLA CHEŞCĂ[1], TIM SANDLE[2]

[1]"Transilvania" University of Braşov, [2]Bio Products Laboratory, United Kingdom

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Abstract: *This study evaluates the respiratory parameters associated with pulmonary diseases. The study was centred on a comparative evaluation of the pulmonary function during the same two periods of two different years: January - February 2013 and January – February 2014. The data was analyzed and comparison was undertaken between the severity of the pulmonary diseases symptoms requiring spirometries, during the cold season in two succeeding years. The study applied to symptomatic patients suffering from COPD or asthma who were referred to the Specialty Outpatient Department of the Pneumophthisiology Hospital of Brasov. To determine the diagnosis and to apply the appropriate medication, the study examined the function tests by spirometry for each of the patients in the study group. As applicable, spirometry was carried out by tests using salbutamol, according to the orders of the specialty doctor. The analysis of the study data enabled the creation of the profile of the symptomatic patients.*

Cuvinte cheie: *explorare funcţională, spirometrie, interpretare, boli pulmonare, diagnostic, tratament*

Rezumat: *Studiul de faţă îşi propune evaluarea parametrilor respiratori în boli pulmonare. Din acest punct de vedere, în prezentul studiu s-a urmărit evaluarea comparativă a funcţiei pulmonare pe parcursul aceloraş două perioade de timp din doi ani diferiţi, ianuarie-februarie 2013 şi ianuarie-februarie 2014. În context, studiul a urmărit crearea unei comparaţii între gravitatea simptomelor bolilor pulmonare care necesită efectuarea spirometriilor, în sezonul rece, în doi ani succesivi. Studiul s-a aplicat la pacienţii simptomatici cu BPOC sau astm bronşic, care s-au prezentat în Ambulatoriul de Specialitate al Spitalului de Pneumoftiziologie Braşov. Pentru stabilirea diagnosticului şi în scopul aplicării medicaţiei adecvate s-a recurs în contextul investigaţiei, la explorarea funcţională prin spirometrie, la toţi pacienţii din lotul de studiu. După caz, s-a efectuat spirometria cu test folosind salbutamol, la indicaţia medicului de specialitate. Analiza datelor studiului a permis crearea profilului pacienţilor simptomatici din loturile studiate.*

INTRODUCTION

The significant incidence of the pulmonary pathology adversely impacts the apparent health of each citizen.(10,15,21,26) Thus it is necessary to monitor the pulmonary function of all individuals by implementing and applying screening methods.(2,4,6,22) Furthermore, we must take into consideration the impact of the pulmonary diseases on the change of the respiratory function which varies according to the severity of the symptomatology given by the pulmonary pathology.(8,11,17,18) From this perspective, the first place in the study is taken by chronic obstructive pulmonary disease (COPD); where stages related to pulmonary obstruction and type are observed by interpreting the spirometries and, together with it, asthma. (1,3,16,19) As such, the spirometry test is a method to investigate the parameters of the pulmonary function, according to the pathology, enabling the determination for the conduct of the medical actions and the appropriate therapy.(7,20,23,24) Spirometry is the most common of the lung function tests. Such tests consider how well the lungs of a patient work. Specifically, spirometry measures the amount (volume) and/or speed (flow) of air that can be inhaled and exhaled. The modern devices used for spirometries enable accurate tests of the pulmonary function and, at the same time, enable the graphic presentation of the types of respiratory functions changes and data interpretation.(12,14,25) Moreover, for diagnosis purposes, the specialty doctor mainly considers the investigation of the pulmonary function without a test; and with a salbutamol test for the patients whose symptomatology requires it. The spirometry with test is useful, as applicable, to determine the diagnosis and the appropriate medical conduct to administer suitable medication.(5,9,13)

PURPOSE

This study was retrospective and it was carried out in a comparative manner for two years in a row, during two winter months: January and February 2013 and January and February 2014. The study was designed to comparatively evaluate data after spirometries for the patients in the study lots. We took into consideration the residence environment, the sex, the spirometries with and without test to salbutamol (basedupon the orders of the specialty doctor). As such, the study enabled the analysis of the data resulting from spirometries for the two lots of symptomatic patients who were referred, at the above-mentioned times, to the Specialty Outpatient Department within the Pneumophthisiology Hospital of Braşov.

METHODS

This retrospective study aimed to evaluate the

[1]Corresponding author: Antonella Cheşcă, Str. Brânduşelor, Nr. 39, Bl. 113, Ap. 39, Braşov, România, E-mail: anto_chesca@yahoo.com, Tel: +40723 57287

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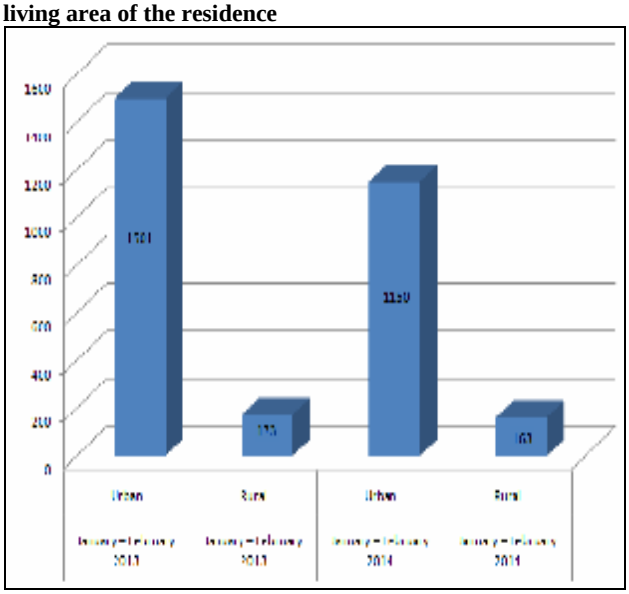
pulmonary function in January – February 2013 and January-February 2014. The study was carried out on all the patients who were referred as symptomatic to the Specialty Outpatient Department within the Pneumophthisiology Hospital of Brașov. To test the pulmonary function we appealed to the spirometry of the patients in the study lots, which requited the la salbutamol test for the patients who needed this type of investigation. The study was evaluated monitoring the residence environment of the patients, the sex of the patients who required spirometry, the incidence of the pulmonary function test by the salbutamol test. The analysis of the study data was expressed in percentages and it was graphically represented. For the investigation we used a Spirolab III model device.

RESULTS

Considering the importance that must be given to the studied pathology by carrying out the spirometry, the study data included information on the residence environment of the patients. From this perspective, we took into consideration the living conditions of the patients that would favour the occurrence or the worsening of the symptoms: COPD or asthma.

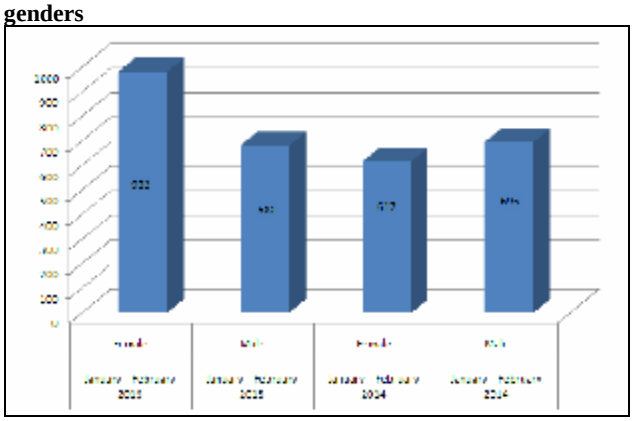
As such, the study data emphasized that during the period January – February 2013, more symptomatic patients from the urban environment visited the doctor compared to the symptomatic patients, who largely came during the same timeframe January – February 2014. Moreover, the study analysis outlined that, in 2014, a smaller number of symptomatic patients from the rural environment were referred to the doctor compared to the number of the patients from the rural environment during the same studied period of 2013. These data are highlighted in figure no. 1.

Figure no. 1. Cases distribution according to the patients' living area of the residence



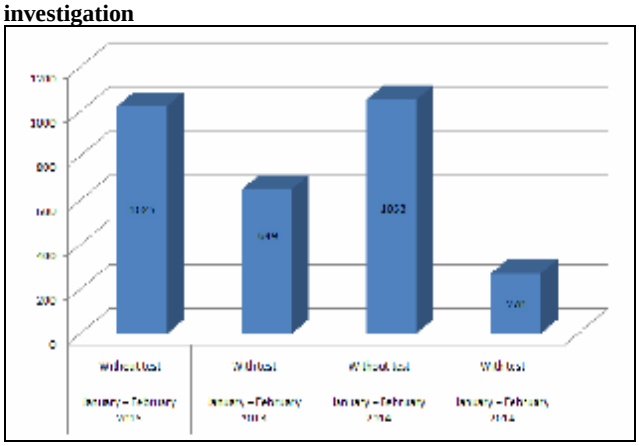
Considering that the pulmonary pathology requiring functional tests by spirometries affects both genders to the same extent, the study data reveal the different affectation of sexes in the investigated time periods for the patients in the study lots. With this in mind, graphic 2 emphasizes that in January – February 2013 more symptomatic female patients came to the doctor compared to the number of female patients of January – February 2014. In the context of the same investigated periods, the male patients were significantly more numerous between January – February 2014 compared to data from the equivalent period: January – February 2013; these are reflected in figure no. 2.

Figure no. 2. Cases distribution according to the patients' genders



The pulmonary pathology that requires function tests by spirometry, such as COPD or asthma, depending on the severity, implies test investigation using salbutamol in inhalers, at the preset dose, administered to patients according to the requirements of the specialty doctors. Accordingly, this study enables the comparison of spirometries with test compared to the spirometries that did not require the salbutamol test. Therefore, figure no. 3 presents data showing that both in January – February 2013 and in January – February 2014 a large number of spirometries without test were carried out compared to the spirometries with test. At the same time, graphic 3 presents data reflecting the significant increase of the spirometries without test carried out in January – February 2014 compared to the same time investigated in 2013. In 2014 there were less spirometries with test that in 2013.

Figure no. 3. Cases distribution according to the type of investigation



DISCUSSIONS

The comparative analysis of the data in this study enabled the creation of the profile of the patients who referred as symptomatic to the Specialty Outpatient Department within the Pneumophthisiology Hospital of Brașov for investigations, diagnosis and treatment. Therefore, we appealed to the test of the respiratory function by spirometry for the lots of patients in successive periods of different years, in the cold season, January – February 2013- 2014. The creation of the patients' profile was made possible by the data analysis that took into consideration the living conditions as favouring factor for the occurrence of the symptomatology, determining from the point of view of the diagnosis of the above-mentioned pulmonary diseases. Moreover, the study aimed at evaluating the incidence of the pulmonary pathology according to the sexes, as well as the need to carry out spirometries with test for certain patients, according

to the seriousness of the disease. Therefore, the analysis the study data accurately reflects the importance of the respiratory function test, both for diagnosis and to determine the correct treatment in order to improve the symptomatology or even the cure of the disease if investigated and diagnosed in early phases.

CONCLUSIONS

The test of the pulmonary function represents an auxiliary method for the specialty medical examination the patient to determine if there are signs and symptoms relevant to a pulmonary pathology. Accordingly, the spirometry considers the evaluation of the severity of certain pulmonary diseases, considering first of all COPD or asthma. Therefore, the evaluation of the respiratory function is a necessary and a useful method for diagnosis and for the application of the appropriate therapy to improve the symptoms and to cure the disease in its early phase.

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