Full Length Research Paper

Epidemiology and profile of COPD patients over 40 years old treated in a pulmonology hospital service: Building bases of COPD-epidemiological study of a defined population

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This retrospective descriptive study was conducted at the Hospital Cruz Azulbased on analysis of medical records. Phase comprised a literature review on the topic conducted by the team responsible for the bases of medical references. After, patients with a diagnosis: COPD (J44), Asthma (J45) and other respiratory diseases, were analyzed. Were prioritized all records with diagnoses of COPD (J44) and those well characterized were selected for analysis considering the inclusion criteria predefined. Broad objectives of the study:to determine the prevalence and to define the profile ofpatients with COPD enrolled in the Pneumology Service Cruz Azul (CRAZ) of São Paulo, during the period between 2008 and 2011. Specific objective: a) assess the distribution of cases of COPD diagnosed and followed at the Department of Pneumology CRAZ, stratifying by age, sex, diagnosis of COPD, b) identify the presence and recurrence of symptoms in these patients, c) identify the presence of co-morbidities in patients with COPD.34,478 analyzedwere medical records of patients seen at theHospital from Cruz Azul 2008 to 2011.The analysis of the data reveals to user population of Hospital Cruz Azul, which utilizes the health plan of this hospital a greater frequency of women with COPD, smoker, with constant crises, with presence of co morbidities in particular diseases of the circulatory system. Men are more frequent between the ages from 70 years, smokers in greater quantity, seeking PA due pulmonary and respiratory frames. The prevalence of smoking in 73 cases is relevant and consistent with other studies analyzed.This epidemiological profile can contribute to the characterization of this population, contributing to the therapeutic and preventive approach. Also contributes to a better management of the medical care plan.March 2012–October 2013.

Key words: Epidemiology of COPD, Building bases of COPD, Chronic obstructive pulmonary disease.

INTRODUCTION

Chronic Obstructive Pulmonary Disease (COPD) have a high prevalence worldwide, but is underestimated and under-diagnosed (Hill, 2010). According to the World Health Organization (WHO), COPD is among the five

leading causes of mortality worldwide. Primarily affects the adult population generating great impact on a region, community and country. In the United States, COPD is the fourth leading cause of death and the leading cause of morbidity, disability, approximately 715,000 hospitalizations for COPD occurred in the country in 2005. COPD is now a major public health; deaths attributed to COPD in Latin America increased 65.0% in the last decade. Yet according to the World Health Organization, worldwide there are about 210 million people affected by COPD.

In Latin America, according to a study called PLATINUM (Latin American Study Research Pulmonary Obstructive Pulmonary Disease) (PLATINUM, 2006), the prevalence of COPD ranged from 7.8% in Mexico and 19.8 % in Uruguay . The study identified PLATINUM in Sao Paulo prevalence of 15.8 % of COPD in people over 40 years of age, and 18 % in men and 14 % in women (Menezes, *et.al,* 2005). Despite the high prevalence of COPD, which is often underestimated and under-diagnosed in the PLATINUM Study, approximately 88 % of COPD patients had no previous diagnosis and 93 % had not received any treatment.

The COPD mortality in Brazil reached 38 000 people per year, ranked among the fifth and sixth leading cause of death in the country (excluding external causes The Service of Pulmonology Cruz Azul de São Paulo - CRAZ is reference in Pulmonology for a population of about 540,000 people in the state of São Paulo, performing hospital and outpatient specialty in Pulmonology (outpatient and inpatient), totaling about 14,400 patients per year. Has a new medical records system since 2007 and serves various medical plans, health being the main one's own Hospital Cruz Azul. This population served in CRAZ is very homogeneous and won at the institution, since the Hospital has existed since 1925 with the main objective to provide medical care to the families of members of the Military Police of São Paulo State. Beyond the Hospital Complex in the neighborhood of Cambuci, there are today 7 outpatients distributed by regions serving more than 720,000 people. This study is part of a larger project currently underway at the hospital blue cross, where the main objective is to study COPD and treatment alternatives, their economic and social impacts.

Starting your development, we realized that we would need to know first our target population, characterizing it properly, to delve further in other studies.
Thus we defined four stages / projects to be carried out:
• Step / PROJECT 1 - Epidemiological Basis of COPD - Understanding Our Population
• Step / PROJECT 2 - COPD - Social and Economic Impacts.
• Step / PROJECT 3 - COPD - Best Alternative Treatment and Therapy
• STEP / PROJECT 4 - COPD - New Therapies Treatment

mortality). Between 1997 and 2007 the mortality from this disease grew 24.3 %. Data from the Brazilian Institute of Geography and Statistics and the National Health System (Ministry of Health / DATASUS), were analyzed in the study entitled "Analysis of Some Aspects of Epidemiology and Treatment of Stable Disease". The compiled results generated databases, such as the prevalence, number of hospitalizations in the Health System, and cost of COPD deaths in Brazil. According to them there are nearly 10 million patients with COPD in the country. COPD was the fifth leading cause of hospitalization in the public health system in Brazil, in a population of more than 40 years, and spent approximately £ 72 million, with 196,000 hospitalizations in the NHS only in 2004. Data from DATASUS also indicate that in 2004 there were 33,560 deaths from COPD among individuals over 40 years.

Exposure to inhaled particles or gases, primarily caused by smoking, is the leading cause of COPD. Recent reference established that the presence of smoking in adults over 40 years is the primary measure of suspected COPD. It is essential to know and determine the number of ill individuals who represent the true prevalence of the disease in the community and these data indicate the need for knowledge about the profile of the populations at risk of developing or already diagnosed with COPD (SORIANO, 2009).

Objectives of the Study

Broad objective: To determine the prevalence and to define the profile of patients with COPD enrolled in the Pneumology Service Cruz Azul (CRAZ) of São Paulo, during the period between 2008 and 2011.

Specific objective: a) assess the distribution of cases of COPD diagnosed and followed at the Department of Pneumology CRAZ, stratifying by age, sex, diagnosis of COPD, b) identify the presence and recurrence of symptoms in these patients, c) identify the presence of co-morbidities in patients with COPD.

METHODOLOGY

This retrospective descriptive study was conducted at the Hospital Cruz Azul based on analysis of medical records. Phase comprised a literature review on the topic conducted by the team responsible for the bases of medical references. Was later developed in three stages: The first phase involved the identification of patients enrolled in the Pneumology Service Cruz Azul with a diagnosis (according to International Classification of Diseases ICD - 10 version) COPD (J44) , asthma (J45) and other respiratory diseases , in order to analyze and stratify the prevalence of these pathologies, the information collected from the files were recorded on own system of information to facilitate further analysis. These analyses were performed using the system registry services

of the Hospital and were performed by three trainees guided and trained by the team responsible for the presence of the inclusion criteria. We used digital information systems that standardize the information that will be worked.Were prioritized all records with diagnoses of COPD (J44) and those well characterized were selected for analysis considering the inclusion criteria predefined. The second phase involved the analysis of the group of three thousand records. The characterizations of this profile and data analysis included: diagnoses found, gender, age, history of active or past smoking, co-morbidities. The third phase included analysisand final characterization data analyzed epidemiologically / statistically.

Data Collection

Data collection for this study was conducted in 2012, based on the construction of a delivery system for aggregating the data in excel spreadsheets. The collection and initial registrations were performed by technicians and analyzed by doctors.

The perspective was to evaluate 10,000 records, but at this stage, we analyzed 34,478 records of visits made by the team of Pneumology Service of Cruz Azul in the period until 02/03/2008-20/07/2012. Records with inconsistent information were uncharacterized and were then separated for analysis records 28,371 calls.

Then they were divided among 10,000 records and those well characterized, were selected for analysis considering the inclusion criteria predefined. Later analyses were performed to identify the profile of patients diagnosed with COPD (J44).

We used the following inclusion criteria:
o   Users Cruz Azul Cross Hospital
o   Diagnostics second ICD 10 J44
o   Age greater than 40 years
o   Both sexes
o   Smoker (current or former smoker) - independent of time (set packs / year in the second half)
o   No smoking
o

Study Population

We analyzed medical records of 34,478 patients over 40 years of age, of both sexes, attended at CRAZ diagnosed with COPD. These records analyzed comprised patients using the Blue Cross health plan, met during the period January 2008 to July 2011, with complaints, problems, respiratory disease. Later were best characterized and analyzed about 3,000 records of this universe, as inclusion / exclusion.

Data Analysis

We selected the records with complete information of the visits, as Graph 1.
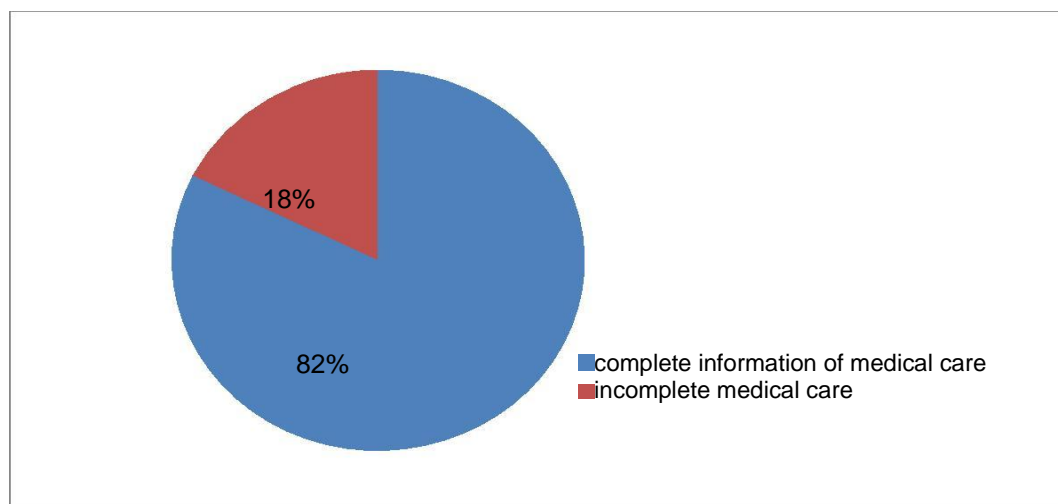
Graph 1: Information of Medical care

The sessions were conducted by doctors Team of Pulmonology Service of Cruz Azul. In this first analysis were collected records of attendance of all team physicians and other medical -4 and other possible.
Of these, 3264 records contained complete information as inclusion criteria. In this analysis includes only calls from 4 pulmonologists who make up the Team.

All patients were older than 40 years, COPD (ICD J44), as described in the medical records and possessed information about smokers and nonsmokers.
The analysis described refer to 3264 records analyzed, referring to calls in the years 2008-2011

Age group

All records analyzed at this stage had more than 40 years, shown in Table 1, below.

Importantly, approximately 60% of patients were between 40 and 60 years of age.It was also found that 66 people had over 90 years of age (one of them over 100 years). Such information is important considering the clinical management / medication.

Gender

When analyzing the age by gender, we found that most women are up to 70 years of age and men over this age group, according to Table 2 (Distribution by age and gender).

The data reveal that 78% of patients were women and 22% men, according to Table 3 (Distribution by gender of patients seen).

Note: as the population served is predominantly families of police officers and former police officers, there is a predominance of females, since the police officers still on active duty are necessarily treated at the military hospital, HM, and not in CRAZ.

Table 1: Distribution by age group on medical charts analyzed.

AGE	NUMBER	%
40-49	1240	38%
50-59	718	22
60-69	489	15
70-79	523	16
80-89	228	7
90 and more	66	2
Total	**3264**	**100%**

Source: Source: Medical records of CRAZ

Table 2: Distribution by age and gender

AGE	Men		Women	
	Number	(%)	Number	(%)
40-49	489	15	751	23
50-59	327	10	391	12
60-69	195	6	294	9
70-79	294	9	229	7
80-89	131	4	97	3
90 and more	33	1	33	1
Total	**1469**	**45%**	**1795**	**55%**

Source: Medical records of CRAZ

Table 3: Distribution by gender of the patients seen

Gender	Number	Percentage
Men	718	22%
Women	2245	78%
Total	3264	100

Source: Medical records of CRAZ

Smoking

The data indicate that 73% of patients were smokers (Table 4). Important information considering the diagnosis.Were not found descriptions of ex-smokers.

Gender and Tobacco

Analyzing data regarding smoking by gender, it is observed that the distribution was equal formen and women among smokers, the total: 3040 (Table 5).

Table 4: Distribution by tobacco use

Use Tobacco	Number	Percentage
Yes	3040	93%
No	224	7%
Total	3264	100

Source: Medical records of CRAZ

Table 5: Distribution by gender and tobacco

Gender	Number	Percentage
Men	1520	50%
Women	1520	50%
Total smokers	**3040**	**1005**

Source: Medical records of CRAZ

We analyzed the amount of cigarettes / day, where 70% reported smoking up to 1 pack per day (Table 6). When analyzing the amount of cigarettes / day mentioned, it is observed that men smoke at a higher rate than women (Table 7), which shows that smokers of over 20 cigarettes a day, 90% are men (Table 7).

Table 6: Distribution of the number of cigarettes / day

Number of cigarettes/day	Number	Percentage
Up to10/day	608	20%
11-20 /day	1520	50%
More than 20/day	912	30%
Total	**3040**	**100%**

Source: Medical records of CRAZ

Table 7: Number of cigarettes/day and gender

Number of cigarretes/day	Man		Women		Total
	Number	**%**	**Number**	**%**	
Up to 10	115	19	492	81	608
11-20	578	38	942	62	1520
More than 20	**827**	**91**	**86**	**9**	**912**

Source: Medical records of CRAZ

Aggravations, exacerbations and co-morbidities

Of 3264 records analyzed, 80% had reported looking to Emergency Care (PA), indicating a worsening of frames or presence of co morbidities that generated this demand. Of those who sought PA, 57% were women and 43% were men, as Table 8.

Search PA records refer to varied groups of diseases as described CID 10, related. Were not completely characterized in all 2611 records which were found, but were described in 40 of these diagnostic records that cite demand Emergency Care (PA) (1,044 records).The exacerbation of frames is on Graph 2.

Table 8: References of Ready Attendance second genre on the charts analyzed

Gender	Number	%
Men	1156	43
Women	1455	57
Total	**2611**	**100%**

Source: Medical records of CRAZ

Emergency Room

■ Described in medical records   ■ No described in medical records

20%

80%

Source: Medical records of CRAZ
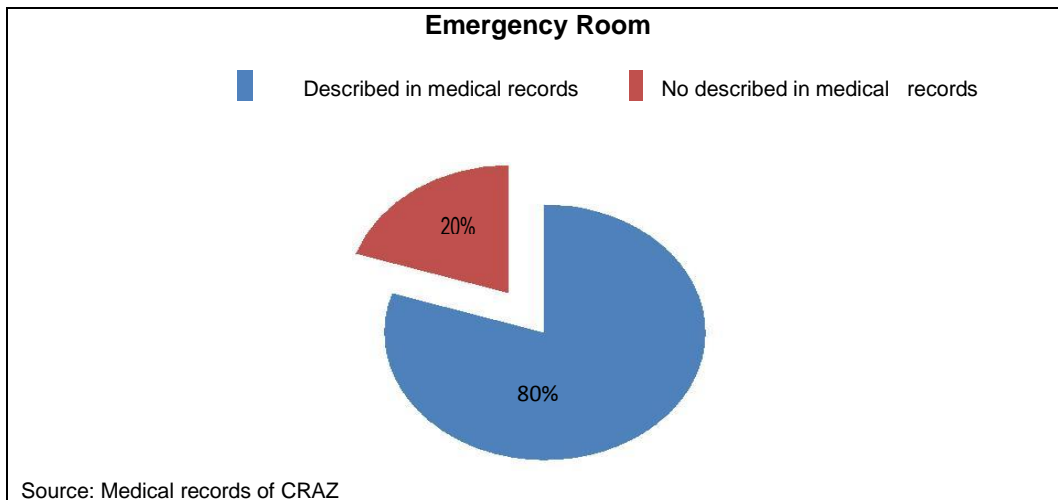
Graph 2: Searches for ER - Exacerbation of frames.

Table 9 : Charts with diagnostic description, among those where were cited trip toEmergency Care - (PA)

Description of Diagnosis	Number	%
Yes	1044	40%
No	1567	60%
Total	**2611**	**100%**

Source: Medical recordsof CRAZ

Respiratory diseases were responsible for 63% in demand of Emergency Care (PA), corresponding to 60 % of all cases in men and 65% of all cases in women seeking PA. Table 10.

Diseases of the circulatory system accounted for 29 % of the cases who sought PA. 8% were other diagnoses.
The main diagnoses in attendance in Emergency Care (PA) **for men:**
J- Respiratory system diseases, particularly infectious frames.
I- Circulatory system diseases, especially heart failure and pulmonary embolism.
For women the main diagnoses at the Emergency Care (PA) were:
J - Respiratory system diseases, particularly infectious frames.

I- Circulatory system diseases, particularly Arterial hypertension and heart failure
The complementary examinations were not considered as criteria for inclusion.
Some co morbidities are described in about 30 of the charts. The main descriptions correspond as ICD 10 listed below. In Table 11 are described the main diagnostic group, where the diseases of the circulatory system (53) and endocrine, nutritional and metabolic diseases (25) were the most characterized. Important to note that these charts analyzed the high incidence of descriptions of diseases of circulatory system frames correspond to hypertension and endocrine diseases to Diabetes Mellitus. No major characterizations.
Such tests are important considering the needs of the use of specific drugs.

Table 10: Main diagnoses that havegeneratedcalls in Emergency Care (PA) according to genre

ICD 10 diagnosis	Men		Women		Total
Diseases Of the respiratory system	269	60%	386	65%	653
Diseases Of the circulatory system	157	35%	149	25%	306
Other	23	5%	60	10%	83
Sub total	**449**	**100%**	**595**	**100%**	**1044**

Source: Medical records of CRAZ

Relationship by ICD -10 Groups of disorders described in the charts.

C00-D48	Neoplasm (tumors)
D50-D89	Diseases of the blood and blood-forming organs and certain immune disorders
E00-E90	Endocrine, nutritional and metabolic diseases
F00-F99	Mental and behavioral disorders
I00-I99	Diseases of the circulatory system
J00-J99	Diseases of the respiratory system
K00-K93	Diseases of the digestive system
M00-M99	Diseases of the musculoskeletal system and connective tissue diseases
N00-N99	Diseases of the genitourinary system

Table 11: Main groups of diseases that are described in the charts (co morbidities), second ICD 10

ICD 10 DIAGNOSIS			NUMBER	%
Diseases Of the Circulatory System			521	53%
Endocrine, nutritional And metabolic diseases			250	25%
Diseases the Respiratory System			140	14%
Other			68	8%
TOTAL			**979**	**100%**

Source: Medical records of CRAZ

CONCLUSION AND RECOMMENDATION

34,478 analyzed were medical records of patients seen at the Hospital Cruz Azul from 2008 to 2011, and of this total about 4800 attendances per year, with a total of 19200 patients in 4 years, were carried out by the service of Pulmonology, being the rest (15278) met in other services such as emergency room, emergency, etc.

The analysis of the data reveals to user population of Hospital Cruz Azul, which utilizes the health plan of this hospital a greater frequency of women with COPD, smoker, with constant crises, with presence of co morbidities in particular diseases of the circulatory system. Men are more frequent between the ages from 70 years, smokers in greater quantity, seeking PA due pulmonary and respiratory frames.

The prevalence of smoking in 73 cases is relevant and consistent with other studies analyzed.

This epidemiological profile can contribute to the characterization of this population, contributing to the therapeutic and preventive approach. Also contributes to a better management of the medical care plan.

FINAL RECOMMENDATIONS

It is important to note that the recommendations and future steps from the present study are as follow:
1. Year-by-year, follow-up of the study population.
2. To analyze the loss reaction lung function in this population, correlating with the treatment effected, with medication in use among other factors.

3. To conduct studies of COPD mortality in prospective studies
4. To conduct studies of COPD and Patients Quality of Life, in this population.
5. To analyze the abandonment of Labor Retirement COPD in this population.
6. The female prevalence in this population will allow selective studies of COPD GENERO feminine.

In conclusion, the proper characterization of the population with COPD is what will allow us in the near future the development of appropriate and most effective treatments to ensure a better future for this population..

Ethics

The study met the necessary requirements foreseen for Clinical Research. The study was submitted to the ethics committee, with approval in July 2012 and dismissed the term of Consent – Informed Consent because it is a retrospective study and review of medical records.

For this study, we considered that the data from the medical records are the property of the subject/patient. Thus, we followed the Brazilian ethical and legal provisions in force, as the institutional rules regarding access to medical records, ensuring that the secrecy and confidentiality.

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