Introduction

Chronic obstructive pulmonary disease (COPD) is preventable and treatable disease with some significant extra pulmonary effects that may contribute to the severity in individual patients. Its pulmonary component is characterized by airflow limitation that is not fully reversible ***(Global Initiative for Chronic Obstructive Lung Disease, 2010).***

COPD occurs worldwide but it's a major health problem principally in societies where cigarette smoking is common ***(Senior and Atkinson, 2008).***

While active cigarette smoking is the most important preventable risk factor globally, outdoor and indoor air pollutants can cause or exacerbate COPD ***(Liu et al., 2008).***

It is generally agreed that the main proportion of COPD burden still depends on its high exacerbation rate, which frequently leads to patient hospitalization ***(Dal Negro, 2008).***

Comorbid disease potentiate the morbidity of COPD, leading to increased hospitalization, mortality and health care costs. Comorbidities complicate the management of COPD and need to be evaluated carefully ***(Barnes and Celli, 2009)***.

COPD affects about 10% of the general population, but its prevalence among heavy smokers can reach 50% ***(Cosio et al., 2009)***.

The epidemiology, demographic, clinical characteristic of the patients and prescription pattern vary significantly between studied Egyptian COPD patients and other studies in different countries; which highlight individuality of each country and necessity of national data on our health problems ***(Elsayed, 2007)***.

Prevalence, morbidity and mortality in Egypt are still lacking and have to be estimated; however COPD is arising significant health problem in Egypt ***(Egyptian Society of Chest Diseases and Tuberculosis, 2003).***

Aim of the Work

The aim of this work is to study COPD in El Mahalla chest hospital as regard:

- Demographic characteristic of the patients.
- Clinical characteristic of the patients.
- Available prescription pattern.

Chronic Obstructive Pulmonary Disease (COPD)

COPD occurs worldwide, but it's a major health problem principally in societies where cigarette smoking is common and the average lifespan extends into the sixth decade or beyond ***(Mannino, 2005).***

Definitions

In 1918 Laennec described "pulmonary catarrh" as an inflammation of the mucus membrane of the bronchi causing abundant secretions of mucous. He also describes emphysema as "an increase in the size of airspaces in the lungs" ***(Fletcher et al., 1976)***.

In 1965, British Medical Research Council's Committee distinguished simple from chronic mucopurulent bronchitis and used the term chronic obstructive bronchitis when recognized clinically because of dyspnea which was measured by ventilator function test ***(Medical Research Council's Committee on the etiology of Chronic Bronchitis, 1965).***

In 2003***, the Egyptian Society of Chest Diseases and Tuberculosis*** defined the condition as a disease state characterized by airflow limitation that is not fully reversible, the airflow limitation is usually both progressive and associated

with an abnormal inflammatory response of the lungs to noxious particles or gases and associated with systemic manifestation.

In 2004 the American Thoracic Society (ATS) and the European Respiratory Society (ERS) have defined COPD as: a preventable and treatable disease state characterized by airflow limitation that is not fully reversible. The airflow limitation is usually progressive and is associated with an abnormal inflammatory response of the lungs to noxious particles or gases, primarily caused by cigarette smoking.

In 2008 the Canadian Thoracic Society has defined COPD as a respiratory disorder largely caused by smoking, and is characterized by progressive, partially reversible airway obstruction and lung hyperinflation, systemic manifestations, and increasing frequency and severity of exacerbations.

Chronic obstructive pulmonary disease (COPD) includes a diverse group of progressive diseases characterized by airflow obstruction that impairs normal breathing and can include chronic bronchitis, emphysema, and in some cases asthma (***Centers for Disease Control and Prevention, 2008).***

The definition adopted by the British Thoracic Society (BTS) that was superseded by National Institute for Health and Clinical Excellence (NICE) COPD Guideline (2010) is that COPD is characterized by airflow obstruction that is not fully

reversible. The airflow obstruction does not change markedly over several months and is usually progressive in the long term.

Asthma and chronic obstructive pulmonary disease (COPD) are traditionally recognized as distinct diseases. However, the distinction between the two is not always clear. Patients with severe asthma may present with fixed airway obstruction, and patients with COPD may have hyperresponsiveness and eosinophilia. Recognizing and understanding these overlapping features may offer new insight into the mechanisms and treatment of chronic airway inflammatory diseases ***(Kim and Rhee, 2010).***

Now, chronic obstructive pulmonary disease (COPD), a common preventable and treatable disease is characterized by persistent airflow limitation that is usually progressive and associated with an enhanced chronic inflammatory response in the airways and the lungs to noxious particles or gases. Exacerbations and comorbidities contribute to the overall severity in individual patients***. (Global Initiative for Chronic Obstructive Lung Disease, 2013)***.

Burden of (COPD)

Natural History:

COPD has a variable natural history and not all individuals follow the same course. However, COPD is generally a progressive disease, especially if a patient's exposure to noxious agents continues. Stopping exposure to these agents, even when significant airflow limitation is present, may result in some improvement in lung function and however, because the process of aging does affect the lung volumes, the use of this fixed ratio may result in over diagnosis of COPD in the elderly, and under diagnosis in adults younger than 45 years especially of mild disease ***(Cerveri l et al., 2008).***

Epidemiology:

COPD is a leading cause of morbidity and mortality worldwide and results in an economic and social burden that's both substantial and increasing. The prevalence and burden of COPD are projected to increase in the coming decades due to continued exposure to COPD risk factors and the changing age structure of the world's population, with more people living longer, and thus reaching the age at which COPD normally develops ***(Mathers and Loncar, 2006).***

In the past, imprecise and variable definitions of COPD have made it difficult to quantify prevalence, morbidity and mortality. Furthermore, the under recognition and under diagnosis of COPD lead to significant underreporting. The extent of under reporting varies across countries and depends on the level of awareness and understanding of COPD among health professionals , the organization of health care services to cope with chronic diseases and the ability of medications for the treatment of COPD. ***(Tirimanna et al., 1996)***

Prevalence:

Existence COPD prevalence data show remarkable variation due to differences in survey methods, diagnostic criteria, and analytic approaches ***(Halbert et al., 2003).***

The lowest estimates of prevalence are usually those based on self-reporting of a doctor diagnosis of COPD or equivalent condition. For example, most national data show that less than 6% of the population has been told that they have COPD**.** These estimates may have value, however, since they may most accurately reflect the burden of clinically significant disease that is of sufficient severity to require health services, and therefore is likely to generate significant direct and indirect costs ***(Halbert et al., 2006).***

By contrast, data from prevalence surveys carried out in a number of countries, using standardized methods and including

spirometry, estimate that up to about one-quarter of adults aged 40 years and older may have airflow limitation classified as stage I: Mild COPD or higher ***(Menezes et al., 2005).***

Despite advances in management of COPD, the prevalence and associated disease burden are expected to increase in coming years due to continued exposure to contributory risk factors and the increasing age of the world's population. Existing prevalence data show that COPD and the associated morbidity and mortality vary across countries ***(Miravitlles et al., 2008b)***.

In 12Asia-Pacific countries and regions a study based on a prevalence rate for moderate to severe COPD among individuals 30 years and older of 6.3% for the region. The rates varied twofold across the 12 Asian countries and ranged from a minimum of 3.5% (Hong Kong and Singapore) to a maximum of 6.7% (Vietnam) ***(COPD prevalence in 12 Asia-Pacific countries and regions 2003).***

Morbidity:

Morbidity measures traditionally include physician visits, emergency department visits and hospitalizations. Although COPD databases for these outcome parameters are less readily available and usually less reliable than mortality databases, the limited data available indicate morbidity due to COPD increases with age and is greater in men than in women ***(National Heart, Lung and Blood Institute, 2002).***

Morbidity from COPD may be affected by other co morbid chronic conditions (e.g. musculoskeletal disease and DM) that are not directly related to COPD but nevertheless may have an impact on the patient's health status or may negatively interfere with COPD management ***(Schellevis et al., 1994).***

In most countries, consultations for COPD greatly outnumbered consultations for asthma, pneumonia, lung and tracheal cancer and tuberculosis. In the United States in 2000, there were 8 million physician office/hospital outpatient visits for COPD, 1.5 million emergency department visits and 673,000 hospitalizations ***(Centers for Disease Control and Preventions, 2002).***

Another way of estimating the morbidity burden of disease is to calculate years of living with disability (YLD). The Global Burden of Disease Study estimates that COPD results in 1.68 YLD per 1,000 populations, representing 1.8% of all YLDs, with a greater burden in men than in women (1.93% vs. 1.42%). ***(Lopez AD et al., 2006)***

COPD and Co morbidities:

Because COPD often develops in long-time smokers in middle age, patients often have a variety of other diseases related to either smoking or aging ***(Soriano et al., 2005).***

COPD itself also has significant extra-pulmonary (systemic) effects that lead to co morbid condition ***(Agusti AG et al., 2005).***

Weight loss, nutritional abnormalities and skeletal muscle dysfunction are well-recognized extra-pulmonary effects of COPD and patients are at increased risk for myocardial infarction, angina, osteoporosis, respiratory infection, bone fractures, depression ***(Fan et al., 2007),*** diabetes, sleep-disorders, anemia and glaucoma ***(Van Weel et al., 2006).***

The existence of COPD may actually increase the risk for other diseases; this is particularly striking for COPD and lung cancer ***(Stavem et al., 2005).***

Mortality:

The Global Burden of Disease Study has projected that COPD, which ranked sixth as the cause of death in 1990, will become the third leading cause of death worldwide by 2020. This increasing mortality is driving by the expanding epidemic of smoking and the changing demographics in most countries with more of the population living longer ***(Murray et al., 1996).***

The mortality trends for COPD have been particularly striking for women. In the United States, COPD deaths among women have been rising steeply since the 1970s. In 2000, the number of deaths from COPD in the United States was greater

among women than men (59.936 vs. 59.118) although the mortality rates among women remain somewhat lower than among men ***(Mannino et al., 2002).***

Economic Burden:

COPD is a costly disease with both direct and indirect costs (monetary consequences of disability missed work, premature mortality, and caregivers or family costs resulting from the illness). In developed countries, exacerbation of COPD account for the greatest burden on the health care system. In the European Union, the total direct costs of respiratory disease are estimated to be about 6%of the total health care budget, with COPD accounting for 56% of this cost of respiratory disease ***(European Respiratory Society, 2003).*** Costs per patient will vary across countries since the costs depend on how health care is provided and paid ***(Chapman et al., 2006).***

Social Burden:

For patients, their families and carers, the burden of COPD is high, particularly in terms of health-related quality of life ***(Llor et al., 2008)***.

The authors of the Global Burden of Disease Study designed a method to estimate the fraction of mortality and disability attributable to major diseases and injuries using a

composite measure of the burden of each health problem, the Disability-Adjusted Life Year (DALY). The DALYs for a specific condition are the sum of years lost because of premature mortality and years of life lived with disability, adjusted for the severity of disability. In 1990; COPD was the twelfth leading cause of DALYs lost in the world, responsible for 2.1% of the total. According to the projections, COPD will be the fifth leading cause of DALYs lost worldwide in 2020 ***(Lopez et al., 2006).***

Epidemiology in Egypt

It was found that the prevalence of chronic obstructive lung disease was 23.1% in an elderly population living in a rural area in Minya Governorate ***(Shaaban et al., 1997).***

In 1 year study of COPD patients in Ain Shams Chest Section during period from July 2006 to June 2007, 108 patients fulfilled the diagnostic criteria of COPD, 38.9% of them from outpatient clinic, 35.2% admitted in general word and 25.9% admitted in Respiratory Intensive Care Unit ***(El sayed, 2007).***

In another 1 year study of COPD patients in Qena Chest Hospital during period from November 2009 to November 2010, 107 patients fulfilled the diagnostic criteria of COPD,

53% of them received service in outpatient clinic while 47% admitted to the hospital ***(Youssef, 2011).***

Smoking burden in Egypt:

An estimated 15.7 million Egyptians smoke cigarettes ***(WHO, 2003).***

The prevalence of smoking in Egyptian adult males was about 40% in 2000 ***(WHO, 2002).***

1- Tobacco use:
   - 19.4% (9.7 million adults) currently smoke; Men 37.7% (9.5 million); Women 0.5% (127 thousands).
   - 18.5% currently smoke daily (Men 35.8%; Women 0.5%).
   - 15.7% currently smoke cigarettes daily (Men 30.6%; Women 0.2%).
   - 3.3% currently smoke shisha (Men 6.2%; Women 0.3%).

2- Cessation:
   - 16.6% of ever daily smokers quit during the past year.
   - 17.9% of those who smoked in the past 12 months successfully quit.

3- Secondhand smoke:
   - 60.7% (6.5 million adult smokers) are exposed to tobacco smoke in enclosed areas at their workplace in the past month.

- 81.5% were exposed to smoke at home in the past month.

4- Media:

- 8.0% of adults noticed cigarette marketing in stores where cigarettes are sold.
- 89.7% of adults who watched TV shows, films or series saw scenes that contained cigarette smoking.
- 86.6% of adults who watched TV shows, films or series saw scenes that contained shisha smoking.
- 79.1% of adults noticed anti-cigarette information on any media.

5- Knowledge, Attitudes and Perception:

- 97.6% of adults believe smoking causes serious illness.

(Global Adult Tobacco Survey, 2009)

Risk Factors

The identification of risk factor is an important step toward developing strategies for prevention and treatment of any disease. However, although smoking is the best-studied COPD risk factor, it is not the only one and there is consistent evidence from epidemiologic studies that nonsmokers may develop chronic airflow obstruction. ***(Celli et al., 2005)***