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ORIGINAL ARTICLE

# Screening for chronic obstructive pulmonary disease in elderly subjects with dyspnoea and/or reduced exercise tolerance – A hospital based cross sectional study



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## KEYWORDS

COPD;  
Elderly subjects;  
Dyspnoea;  
Exercise intolerance;  
Spirometry

**Abstract** *Background:* Chronic obstructive pulmonary disease (COPD) is a very common lung disease most often related to history of smoking. It becomes more prevalent with increasing age but remains under-diagnosed and under-treated in the elderly population. Under diagnosis of COPD is universal in elderly patients because of multiple pathology, difficulty with measurement of lung function, under-reporting of symptoms and reduced perception of dyspnoea. However the screening of the elderly (age > 60 years) is not performed routinely even when they are symptomatic.

*Objective:* The study was undertaken to screen elderly subjects with dyspnoea and/or reduced exercise tolerance for COPD.

*Study design:* A cross sectional hospital based study.

*Methods:* A total of 1000 elderly subjects were screened for COPD using standard spirometry as per GOLD guidelines. Diagnostic evaluation and classification of patients as “no COPD”, “new COPD” and “known COPD” were done by panel of experts which included a Pulmonologist, Cardiologist, General Physician and Physiotherapist. Subjects were categorized as mild, moderate, severe and very severe COPD based on FEV<sub>1</sub> (forced expiratory volume in 1st sec) values.

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**Results:** Of the total 1000 elderly participants screened, 596 (59.6%) were classified as having no COPD, 228 (22.8%) with new COPD and 176 (17.6%) with known COPD. Among the total 228 of new COPD patients 27 (11.8%), 176 (77.4%), 5 (2.1%) and 20 (8.7%) were having mild, moderate, severe and very severe COPD respectively as per GOLD guidelines. Similarly of the total 176 subjects with known COPD, 9 (5.1%), 136 (77.3%), 0 (0%) and 31 (17.6%) were having mild, moderate, severe and very severe COPD respectively.

**Conclusion:** An active screening for COPD in elderly subjects with dyspnoea or reduced exercise tolerance leads to diagnoses of substantially more new patients with COPD.

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## Introduction

Chronic obstructive pulmonary disease (COPD) is a very common lung disease most often related to history of smoking. It becomes more prevalent with increasing age but remains under-diagnosed and under-treated in the elderly population [1]. All the studies conducted agree in predicting that both morbidity and mortality burden of COPD are rising globally. COPD is a progressive, partially reversible airflow obstructive condition and is a growing public health problem. By 2020, COPD is projected to cause over 6 million deaths annually worldwide. In its advanced stage, the disease causes severe disabilities and poor quality of life [2–4]. It was predicted that COPD will be the third leading cause of death worldwide by 2020 with Asian countries having three times the number of patients than the rest of the world [5–8].

The diagnosis of COPD is based on evidence of pulmonary obstruction, in combination with signs and symptoms suggestive of COPD and with history of smoking [9]. Pathophysiologically, it is well established that COPD can be partly considered as accelerated ageing of the lungs and thus its prevalence increases with age [10]. There is also accelerated decline in forced vital capacity (FVC) and forced expiratory volume in 1 s (FEV<sub>1</sub>) with natural ageing [11]. Ageing is associated with a progressive degeneration of the tissues, which has a negative impact on the structure and functions of lung tissue. Since the proportion of the world's population aged > 60 years will double in the next four decades, this will be accompanied by an increased incidence of chronic age-related diseases like COPD that will place a huge burden on healthcare resources. Chronic pulmonary diseases represent an important component of the increasingly prevalent multiple chronic debilitating diseases, which are a major cause of morbidity and mortality, particularly in the elderly.

Screening subjects at risk, such as smokers, workers and populations exposed to environmental pollution, with serial measurements of FEV<sub>1</sub> have been shown to identify COPD at an early stage, with a diagnostic yield that is significant even in asymptomatic individuals [12]. Under diagnosis of COPD is universal in elderly patients because of multiple pathology, difficulty with measurement of lung function, under-reporting of symptoms and reduced perception of dyspnoea [13]. However the screening of the elderly is not performed routinely even when they are symptomatic. Hence we undertook the study of screening symptomatic (dyspnoea and/or reduced exercise tolerance) elderly population (Age > 60 years) for COPD using spirometry as per GOLD guidelines [2].

## Methodology

### Source of data

Inpatient and outpatient departments of Pulmonary medicine, Internal Medicine, Cardiology and Geriatric departments at a tertiary care hospital.

### Population

The study population included elderly subjects aged 60 years and above with dyspnoea and/or reduced exercise tolerance, registered in tertiary care hospital.

### Study design

A cross sectional hospital based study.

### Study period

Primary data were collected from Jan 2013 to August 2014.

### Sample size

Total of 1000 elderly subjects (> 60 years) were screened for COPD using spirometry.

### Inclusion criteria

- (1) Both male and female subjects with dyspnoea and/or reduced exercise tolerance
- (2) Age > 60 years.

### Exclusion Criteria

1. History of chronic lung disease other than COPD.
2. Any congenital cardiac disease.
3. Systemic diseases which can cause dyspnoea and/or reduced exercise tolerance.
4. Chronic thromboembolic diseases.
5. HIV infection.
6. Subjects who could not perform spirometry.
7. Severe anaemia.

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