Journal Of Medical Science And Clinical Research
IGM Publication   An Official Publication Of IGM Publication

Evaluation of Risk Associated with COPD- A Prospective Study

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Abstract
Background: *Chronic obstructive pulmonary disease (COPD) is one of the major disease involving lungs and has got higher mortality and morbidity. This study was conducted to estimate the risk factors associate with COPD.*
Materials & Methods: *This study was conducted on4550 patients examined and 220 found positive of COPD. Risk factors leading to COPD were analyzed.*
Results: *Off 4550 patients and 220 found to be positive which included males (130) and females (90). Out of 220 patients, smokers were 160 and non- smokers were 60. The difference was significant (P- 0.05).50 were using bidi, 80 were using cigarette and 30 were using hookah. The difference was significant (P-0.01). Most of the patients were having middle status (60%) while 30% comprised of low status and only 10% consisted of high status.*
Conclusion: *Chronic obstructive pulmonary disease is a disease of high mortality and morbidity. Smoking is one of the major cause and other risk factors are LPG, kerosene usage.*
Keywords: *Chronic obstructive pulmonary disease, LPG, Smoker.*

Introduction

Chronic obstructive pulmonary disease (COPD) was previously known as chronic bronchitis and emphysema. Chronic bronchitis has been defined by (BMRC) as "daily productive cough for at least three consecutive months for more than two successive years.Emphysema has been defined as an "anatomic alteration of the lung characterized by an abnormal enlargement of the air spaces distal to the terminal, non-respiratory bronchiole, accompanied by destructive changes of the alveolar walls."[1]
The Global Initiative for Chronic Obstructive Lung Disease (GOLD) recently defined COPD as "a common preventable and treatable disease characterized by persistent airflow limitation that is usually progressive and associated with an enhanced chronic inflammatory response in the airways and the lung to noxious particles or gases. Exacerbations and comorbidities contribute to the overall severity in individual patient.[2]

Recent studies have reported 2.7% females and 5% males prevalence of COPD. Among various causative factors for COPD, smoking, consumption of biomass and environmental exposures play important role. Biomass combustion results in high levels of pollutants such as benzo(a) pyrene, carbon monoxide, formaldehyde, oxides of nitrogen and sulphur, and benzene that are a major source of respiratory irritants leading to COPD.[3]

Chronic obstructive pulmonary disease (COPD) has high mortality and morbidity and is the main reason for death. It is responsible for a huge social and economic burden for the health care infrastructure. The prevalence of COPD is approximately9% in men and 7% in women. There have been a few reports on COPD epidemiology in India in the past. But most of those reports were based on studies on limited population groups.[4]This study was conducted to estimate the prevalence of COPD among study population.

Materials & methods

This study was conducted in Department of Medicine Raj Bahadur Memorial Hospital, Bharatpur, Rajasthanon4550 patients and 220 found positive of COPD. All were informed regarding the study and written consent was obtained. Ethical clearance was obtained from institutional ethical committee. Information such as name, age, sex, history of smoking, type of cooking fuel combustion, was recorded.Results thus obtained were tabulated and subjected to statistical analysis using chi square test. P value less than 0.05 was considered significant.
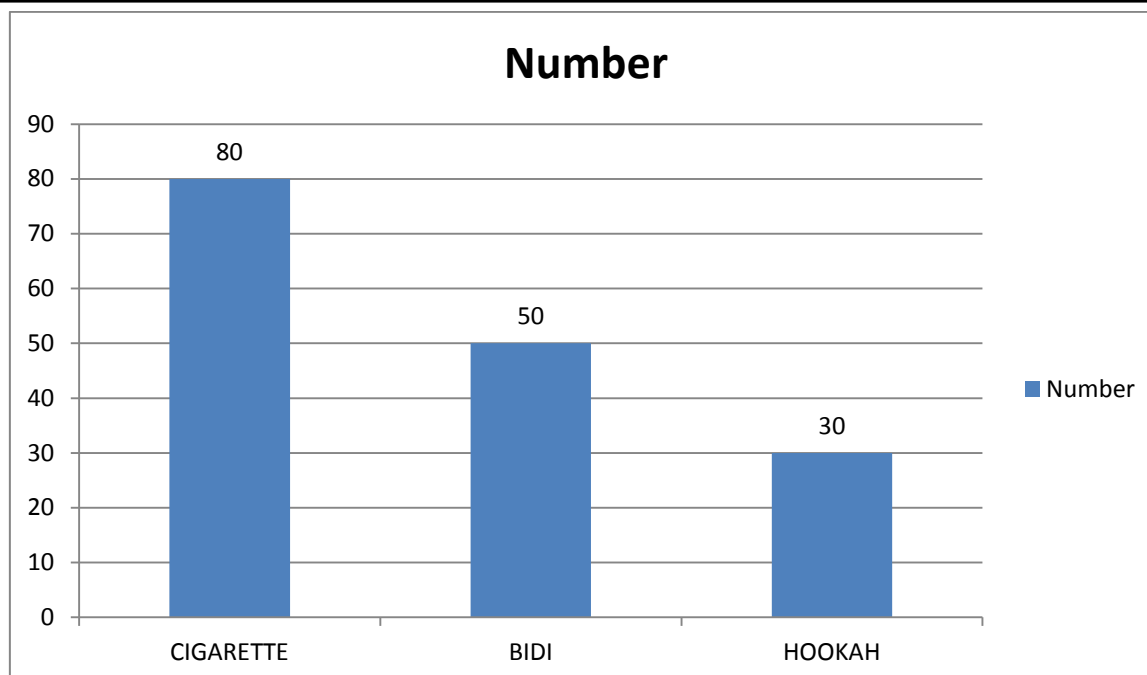
Results

Graph I Distribution of patients
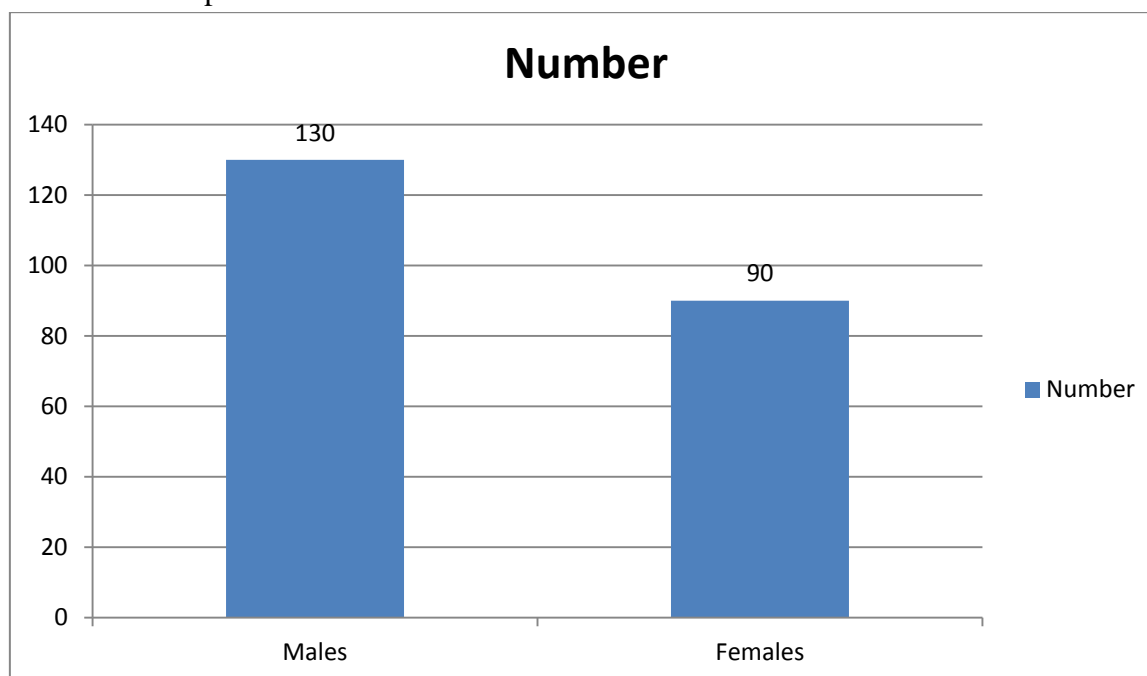
Graph I shows that off 4550 patients and 220 found to be positive which included males (130) and females (90).

Table I Smokers and non smokers

Total- 220		
Smoker	Non smoker	P value
160	60	0.05

Table I shows that out of 220 patients, smokers were 160 and non- smokers were 60. The difference was significant (P- 0.05).

Number

Graph II shows that 50 were using bidi, 80 were using cigarette and 30 were using hookah. The difference was significant (P-0.01).

Graph III Cooking fuel combustion usage in patients

Number
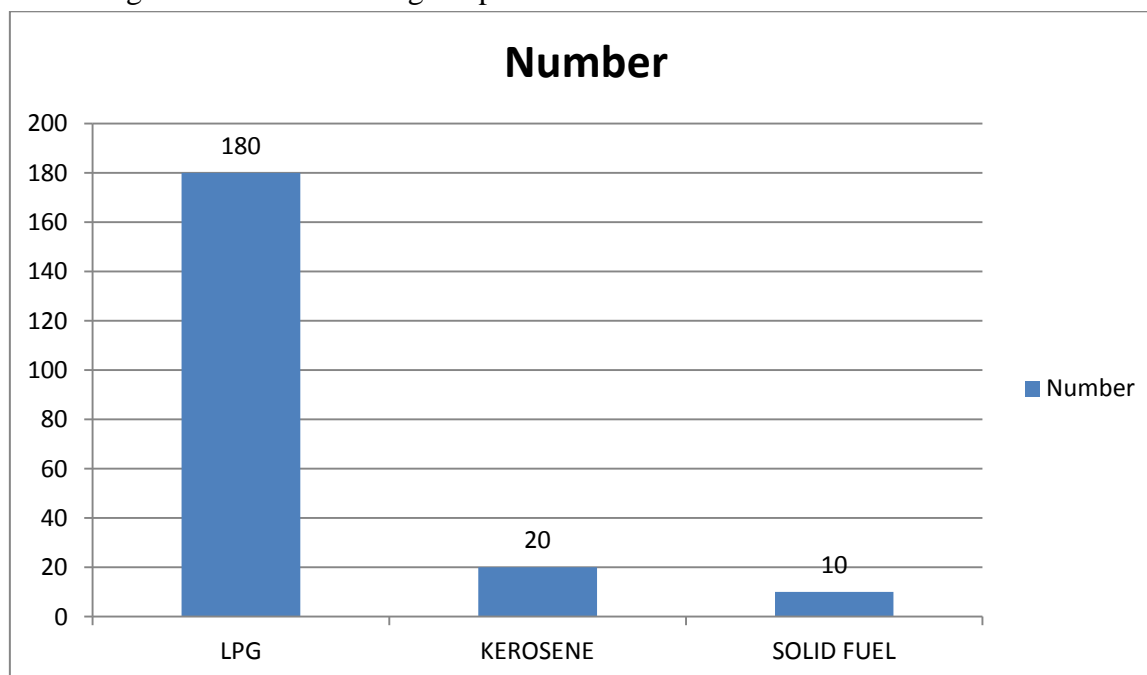
Graph III shows that 180 were using LPG as a fuel while 10 were using solid fuel and 20 were using kerosene. The difference was significnat (P-0.01).

Graph IV Socioeconomic status
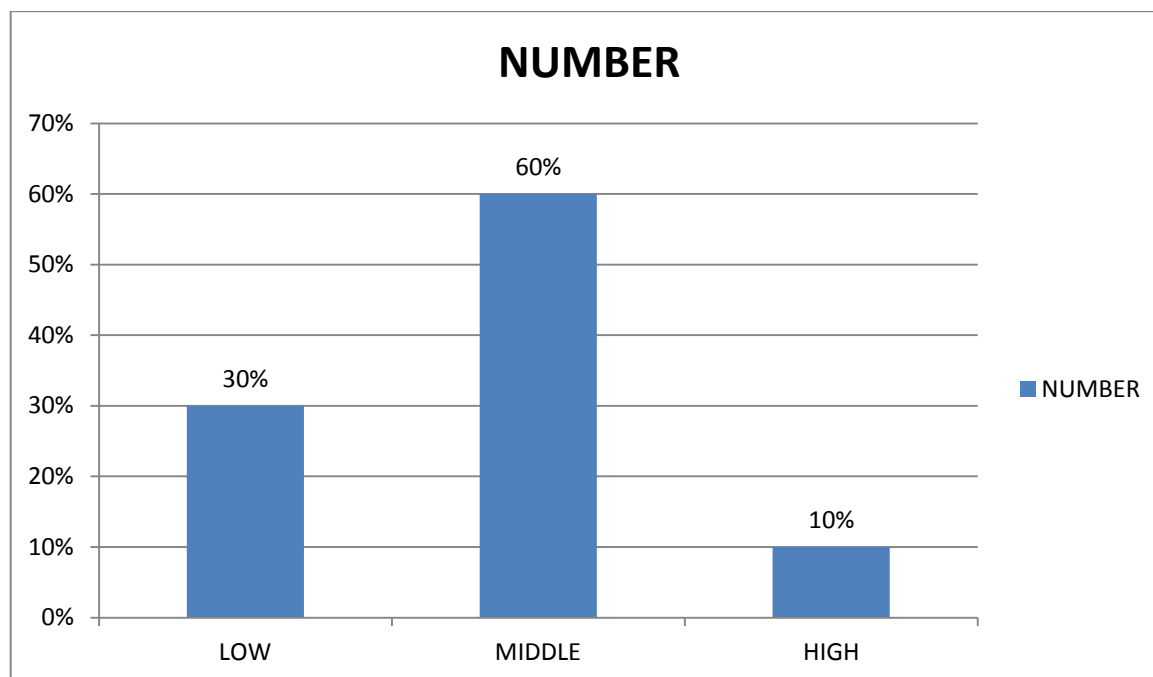
Graph IV shows that most of the patients were having middle status (60%) while 30% comprised of low status and only 10% consisted of high status. The difference was significant (P-0.01).

Discussion

COPD affects twice as many males asfemales, this difference will diminish, given the fact that more and more females throughout the world have takenup smoking in the past few years in developed countries,and non-smoking females are exposed to biomasscombustion products in developing countries.[5]

In this study, off 4550 patients and 220 found to be positive which included males (130) and females (90). This is similar to Soriano.[6]

A smoker was defined by the presence of regularsmoking of any type i.e. cigarettes, bidis or hookah, forone year or more. Passive smoking, i.e. the exposure toenvironmental tobacco smoke (ETS) was establishedfrom the history of presence of one or more smoker inthe family who used to smoke in the presence of theindividual. We found that Out of 220 patients, smokers were 160 and non- smokers were 60. This is in agreement with Cook.[7]

Exposure to cooking fuel combustion wasconsidered positive if the individual gave the history ofregularly cooking at home. The types of cooking fuelsused at home included liquefied petroleum gas (LPG),kerosene, or the solid fuels i.e. coal, dried wood, dungand other products of animal or plant origin (biomassfuels). We found that 180 were using LPG as a fuel while 10 were using solid fuel and 20 were using kerosene. This is similar to Aggarwal.[8]

COPD is associated with an abnormal inflammatory response of the lungs to noxious particles or gases, most commonly cigarette smoke. Patients with COPD have been reported to have increased numbers of neutrophils in sputum, lung tissue and bronchoalveolar lavage (BAL)and neutrophils are important cells in the pathogenesis of COPD.[9]Kraïm-Leleu M et al examined the occupational risk factors for Chronic Obstructive Pulmonary Diseases (COPD) in a range of occupations. Eleven occupations involving different types of exposure were observed in this multicenter case-control study. Controls and cases were matched for sex, age and smoking. Multiple logistic regression analyses were used to estimate odds ratios (ORs).A total of 1,519 participants were initially recruited between September 2004

and September 2012. After matching, 547 pairs were obtained. The mean age was 56.3 +/- 10.4 years. Smelter workers were the only ones with an increased risk of COPD in this study (OR = 7.6, p < 0.0001, 95% CI [4.5, 12.9]). Physical activity was protective (OR = 0.7), while living in the city was a risk (OR = 1.6). The main used metals were cast iron, aluminum and alloys. Molds and cores were mainly made from sand and synthetic resins. Machine maintenance (65.2%), molding (49.6%), finishing (41.1%) and casting (41.0%) were the most common activities. Almost all workers (95.1%) cleaned the floors and machines with a brush or compressed air. This study demonstrated the importance of occupational factors in the genesis of COPD, especially among smelter workers.[10]

Conclusion

Chronic obstructive pulmonary disease is a disease of high mortality and morbidity.Smoking is one of the major cause and other risk factors are LPG, kerosene usage.

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