



## Role of PFT(Pulmonary Function Test) in Copd(A Study of 50 Cases)

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### ABSTRACT

50 cases of COPD were studied from August 2011 to October 2013. All patients were subjected to spirometry test in which the conclusion is 80% of patients showed moderate obstructive pattern on PFT and decreasing of FEV1 value was more in elder patients as compared to younger and in males as compared to females and as pack year smoking index increases, value of FEV1 decreases every year rapidly.

### KEYWORDS :

**INTRODUCTION:**COPD is the most common chronic pulmonary disease affecting 10-15 % of adults all over world. It is one of the biggest cause of unnatural death in India & its prevalence continues to increase. Worldwide COPD ranked as 6<sup>th</sup> leading cause of death in 1990. By 2020, COPD is expected to become 3<sup>rd</sup> major cause of death. Cigarette smoking is most significant factor in the development of COPD, other causes like air pollution, Passive smoking, Domestic exposure of pollutions, cooking fuels in the form of cow dung and wood in rural communities.

COPD is a disorder that is characterized by slow emptying of the lung during a forced expiration. This is measured as FEV1/FVC Ratio. Normal non-smoking adults lose FEV1 at a rate of 30 ml/yr. while persons who develop COPD show an annual decline in FEV1 of 45 to 60 ml/yr.

#### AIMS AND OBJECTIVES:The aim of the present study is to

- To study the clinical profile of patients with COPD.
- To measure pulmonary function parameters as a mirror to their respiratory status.
- To correlate clinical parameters and their PFT values.

**MATERIALS AND METHOD:**We have studied 50 cases of COPD from August 2011 to October 2013.All patients were evaluated regarding detailed history and through physical examination done.All the patients were investigated in a form of routine investigation and spirometry, ECG, Chest X-RAY,2D ECHO. All the details were than analysed after dividing the patients into three clinical patients: Predominant chronic bronchitis (CB), Predominant emphysema (E), mixed picture (CB+E).Results were analysed according to clinical parameters and PFT parameters.

#### RESULT: AGE DISTRIBUTION OF COPD PATIENTS IN STUDY

	CB (n=10)	CB+E (n=15)	E (n=25)	Total (n=50)
<40 yrs	1	4	0	5(10%)
40-59 yrs	5	8	17	30(60%)
>59 yrs	4	3	8	15(30%)
Mean age	55.6 (±10)	51.7 (± 10)	59.6 (±10)	54.44

Maximum number of patients 30(60%) were of middle age group (40 – 59 yrs). None of the patient of E group was less than 40 yrs age. The mean age of patients was 54.4 years. My Findings are similar to Rupwate et al and Pandey Study. In which 42(84%) patients were males and 8(16%) were females with male to female ratio of 5:1.

#### CLINICAL FEATURES IN COPD PATIENTS OF PRESENT STUDY

	CB (n=10)	CB+E (n=15)	E (n=25)	Total (n=50)
Dyspnea	10 (100%)	15 (100%)	25(100%)	50 (100%)
Cough	10 (100%)	15 (100%)	25(100%)	50 (100%)
Expectoration	10 (100%)	15 (100%)	6 (24%)	31 (62%)
Pedal edema	5 (50%)	2 (13%)	0 (0%)	7 (14%)
Erythrocytosis	3(30%)	7 (47%)	0 (0%)	10 (20%)
Pursed lip	0 (0%)	2 (13%)	11 (44%)	13 (26%)
Crepitations	10 (100%)	13 (87%)	23 (92%)	46 (92%)
Rhonchi	10 (100%)	7 (47%)	8 (32%)	25 (50%)
Decreased air entry	0 (0%)	7 (47%)	24 (96%)	31 (62%)

#### MEAN OF PFT PARAMETERS ACCORDING TO AGE OF PATIENTS INSTUDY

Age (year)	FEV <sub>1</sub> (%)	FVC (%)	FEV <sub>1</sub> /FVC (%)
< 40 years	63.8	81.5	55.8
40-59 years	61.5	80.6	54.8
>59 years	57.7	79.4	48.1

In present Study Older patients (>59 years) had lower value of FEV<sub>1</sub> as compared to younger patients (<40 years) Shilpey MJ also observed that persons with COPD show an annual decline in FEV<sub>1</sub> of 45-60ml per year.

#### DEGREE OF OBSTRUCTION IN SPIROMETRY OF COPD PATIENTS

	CB (n=10)	CB+E (n=15)	E (n=25)	TOTAL (n=50)
Mild	3 (30%)	2 (13.4%)	4 (16%)	9 (18%)
Moderate	7 (70%)	13 (86.6%)	20 (80%)	40 (80%)
Severe	0 (0%)	0 (0%)	1 (4%)	1 (2%)

## SUMMARY AND CONCLUSION

- In our study 50 patients of COPD were divided into 3 groups. Among these groups Emphysema was most common in COPD patients, 60% of COPD patients were of middle age group (40-59 years) and Male-Female ratio was 5:1.
- Smoking was the most common risk factor(80%) in all three groups, but in CB group it was 93.3%. Cough and dyspnea (100%) were most common clinical features in all patients. Cough with expectoration was more common in CB group(100%). Most common ECG findings in Emphysema were Low voltage complex(80%) and poor R wave progression (76%) and in chronic bronchitis was right axis deviation(80%). In chest x-ray hyperinflated lung fields were seen in all(100%)patients of emphysema and hyperemia was seen in 90% patients of chronic bronchitis. 80% of patients showed moderate obstructive pattern on PFT(FEV1 value between 50-79% of predicted). As pack year smoking index increases, value of FEV1 decreases every year rapidly.

## REFERENCES

1. American Thoracic Society chronic bronchial asthma and emphysema a statement by the committee on diagnostic standards for non-tuberculosis respiratory disease Am rev respire Dis. 1962; 85: 752-768. | 2. American Thoracic Society chronic bronchial asthma and emphysema a statement by the committee on diagnostic standards for non-tuberculosis respiratory disease Am rev respire Dis. 1962; 85: 752-768. | 3. Doll R, Peto R, Wheatly K, Gray R. Sutherland I. mortality in relation to smoking. 40 years observation on male British doctors, Br. Med J 1994;309-901 | 4. Harber et al interpretation of lung function tests current pulmonary vol 12: 261-289 | 5. Pandey A. correlation to clinical ECG and ABG findings in patients with copd and cor-p. | 6. Rupwate et al correction of ventilators test and article blood gases in chronic bronchitis lung. India 1989: Vol 23:25 | 7. S.K.Chhabra,S.Rajpal et al;pattern of smoking in Delhi and comparison of chronic respiratory morbidity among bidi and cigarette smokers,Indian. J.Chest Dis Allied Sci 2001;43,19-26 | 8. Rana as, York TP, Edmiston JS, Zedler BK. Et al. (2010). Proteomes biomarkers in plasma that differentiate rapid of slow decline in lung function in smokers with COPD and Bioanal chem. 397 (5) 1809-1819. | 9. Maria Teresa,Eiias Fernandez md study of spirometry parameters in COPD. |