

IDENTIFICATION OF SMALL AIRWAY OBSTRUCTION IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) BASED ON FORCE EXPIRATORY FLOW (FEF)

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BACKGROUND AND OBJECTIVES

Small airways, defined as non-cartilaginous airways with a diameter < 2 mm, extend from approximately the eighth generation to the terminal and respiratory bronchioles.^{1,3} In healthy lungs, they contribute minimally to total airway resistance, and obstruction of roughly 75% is required before abnormalities are detected on routine spirometry (e.g., FEV₁).^{2,4,5} The aim of study is to evaluate the prevalence of small airway obstruction in COPD group using variables FEF 50%, FEF 75%, and FEF 25-75%. Furthermore, the demographic and risk factors features will be analyzed.^{3,5}

METHODS

This study was a cross-sectional study. The subjects of the study were COPD outpatients who were controlled regularly at the Respiratory Clinic in West Nusa Tenggara Regional General Hospital. Data was collected from patient records, including demographic characteristics, smoking history, and pulmonary function tests (PFTs). Descriptive statistics were used to analyze the data.

RESULT

The number of subjects included in this study was 67. Based on demographic characteristics, the mean age of subjects was 60 years, dominated by male gender 88.1% (n=59), and 41.8% (n=28) patients are current smokers. Our study demonstrated that the prevalence of small airway obstruction was found at 92.5% (n=62), 88.1% (n=59), and 94% (n=63) based on FEF 50%, FEF 75%, and FEF 25-75% consecutively. The cut-off for the lung function study was 80%.

Table 1. Characteristics of Subjects

Characteristics	n	%	
Gender	Man	59	88%
	Woman	8	12%
Age	<60 yo	21	31%
	>60 yo	46	69%
BMI	Normal	39	58%
	Underweight	18	27%
	Overweight	10	15%
Smoking Status	Current	28	42%
	Non Smoker	14	21%
	Former	25	37%

Table 2. Small airway obstruction that found in FEF 50, FEF 75, FEF 25-75

Parameters	n	%	
FEF 50	<80%	62	93%
	>80%	5	7%
FEF 75	<80%	59	88%
	>80%	8	12%
FEF 25-75	<80%	63	94%
	>80%	4	6%

CONCLUSION

In COPD patients, the small airway obstruction can be detected by the FEF variable (FEF 50%, FEF 75%, and FEF 25-75%) that could be performed in lung function examination. Therefore, this finding may influence both the treatment and prognosis of the disease.

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