The profile of Absolute blood eosinophil count as a predictor of in hospital lengthof stay in COPD Acute Exacerbation.

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Abstract
Introduction;*An exacerbation of COPD is defined as an acute worsening of respiratory symptoms that results in additional therapy. COPD has eosinophilic airway inflammation both in a stable state and during exacerbations Although the eosinophil threshold associated with clinical relevance in patients with COPD is currently subject to debate, eosinophil counts hold potential as biomarkers to guide therapy.*
Aims and objectives*; To estimateabsolute blood eosinophil countand its correlation with in hospital length of stay in COPD-AE.*
Materials and methods;*Pre-treatment laboratory complete blood count with differential, absolute eosinophil count weresent.Pre-treatment absolute blood eosinophil counts analyzed for its association with in hospital length of stay in COPD acute exacerbation.*
Results& Discussion;*Among 50 cases 80% cases are males and 20% cases are females. Maximum number of cases (18) fell between 61-70 years of age., patients with absolute eosinophil count less than 300 cells/μl stayed in the hospital for a longer period of time ascompared to patients exhibiting a higher eosinophil count at the time of admission.*
Conclusion; *The patients with low absolute blood eosinophil counts have longer length of stay compared to high absolute bloodeosinophil counts.*
Key word*; COPDAE; AEC; IN HOSPITAL LENGTH OF STAY; PREDICTOR*

I.   Introduction

COPD is a preventable,treatable,yet progressive inflammatory respiratory disease characterized by air flow limitation which is not completely reversible.viral infections appear to be the most cammoncause,such as influenza ,rhinovirus,adenovirus and respiratory syncytial virus.Activation of chemokines by viral pathogens may be the most prelavent mechanism cytokines like CCL11and CCL5 have the ability to recruit eosinophils ,further intensifying the inflammatory enivorment in lung.[1]

The ratio of tissue to blood eosinophils is estimated to be 100:1 or more.And under normal conditions,the major resident eosinophil population is in the lamina propria of GIT.In the absence of disease ,very few eosinophils are found in the lungs .on the other hand ,large number of eosinophils go to the lungs andother tissues in the setting of certain pathological states.[1]

An exacerbation of COPD is defined as an acute worsening of respiratory symptoms that results in additional therapy.[2] COPD has eosinophilic airway inflammation both in a stable state and during exacerbation.[3]

Although the eosinophil threshold associated with clinical relevance in patients with COPD is currently subject to debate, eosinophil counts hold potential as biomarkers to guide therapy. In particular, eosinophil counts may be useful in assessing which patients may benefit from inhaled corticosteroid therapy, particularly regarding prevention of acute exacerbation. [4]

Aims and objectives
To estimate absolute blood eosinophil countand its correlation with in hospital length of stay in COPDAE

II. Methodology

All patients admitted in the department of Pulmonary Medicine with COPD acute exacerbation fulfilling the inclusion and exclusion criteria were taken into the study.

In all these patients, detailed clinical history including age, sex, socio-economic status and presenting complaints like breathlessness, chest pain, cough with expectoration, fever, weight loss, loss of apetite were taken. Other symptoms of cardiac, renal failure like swelling of feet, abdominal distension, oliguria were enquired

Past history of pulmonary tuberculosis, any usage of anti-tuberculosis drugs, history of diabetes or any other significant illnesses, contact history with tuberculosis patients and history of smoking were obtained Detailed clinical examination was carried out and routine investigations were done for all patients. Pre-treatment laboratory tests like complete blood count with differential counts, absolute eosinophil count were done. Pre-treatment tests like absolute blood eosinophil count were analyzed for its association with in hospital length of stay in COPD acute exacerbation.

Inclusion Criteria
Patients older than 40 years of age.
Patients willing to participate in the study.
Patients with acute exacerbation of chronic obstructive pulmonary disease as per anthonisen criteria.

Exclusion criteria
Patient < 40 years of age
Patients with and diagnosed as bronchial asthma, bronchiectasis, bullous lung disorders.
Patients with active pulmonary tuberculosis

III. Material and Methods

Study Design: Hospital based crossectional study
Study Location: Government hospital for chest and communicable diseases, Visakhapatnam, Andhra Pradesh
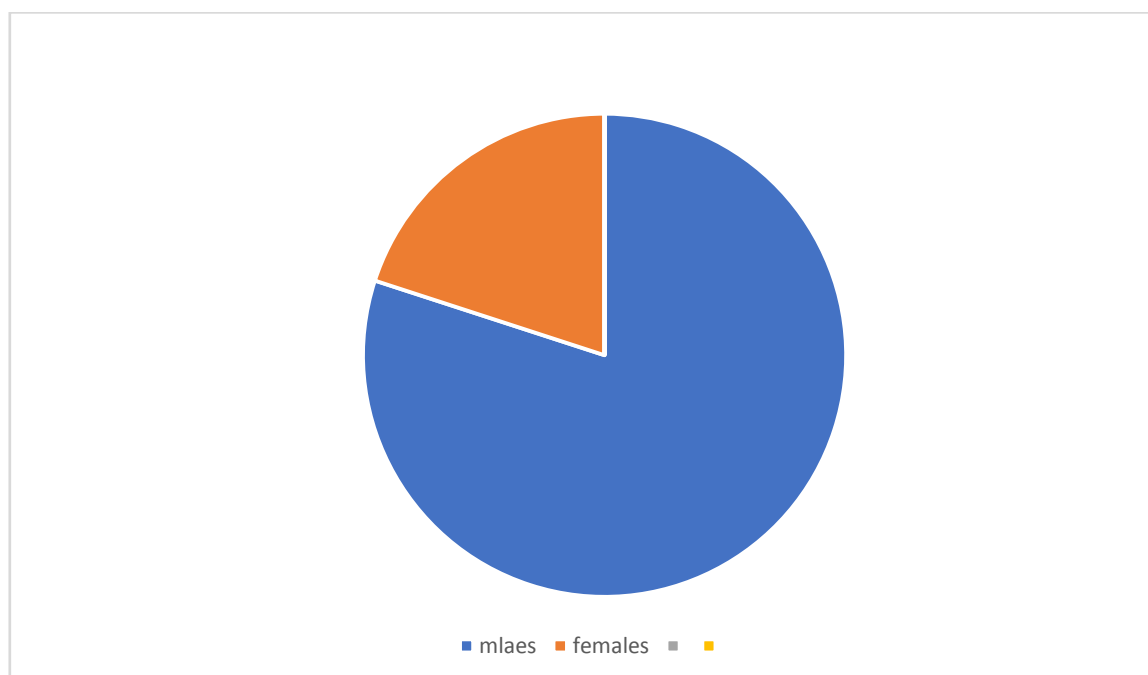**Study Duration**: September 2019 to September 2020
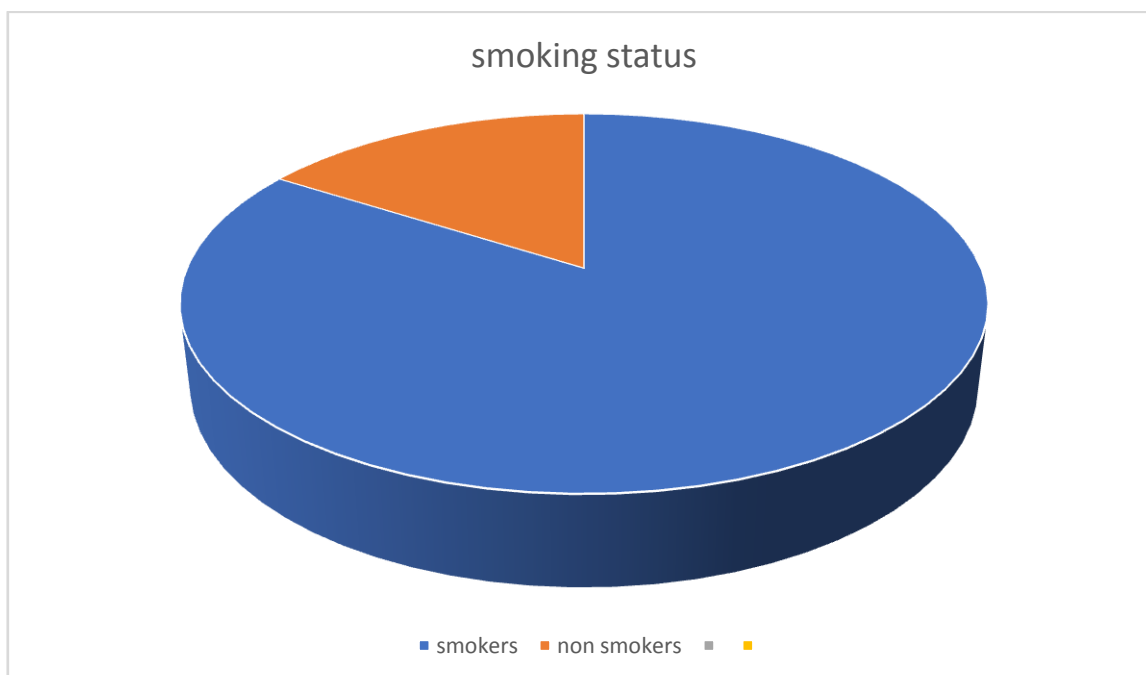**Sample size**: 50 patients

IV. Results

Sex distribution

Total	**50**
Males	**40**
Females	**10**

Age distribution

Age	Total
41 to 50	7
51 to 60	17
61 to 70	18
71 to 80	7
81 to 90	1
91 to 100	0

Smoking status

Total	50
Smokers	42
Non smokers	8

In hospital length of stay

In hospital length of stay	Total number of patients
Less than 5 days	10
5 to 10 days	25
More than 10 days	15

Absolute blood eosinophil count	Median length of stay in hospital
Less than 200	8
200 to 300	7
300 to 400	5

V.   Discussion

In our study, all the patients were above 40 years of age . Maximum number of cases (18) fell between 61-70 years. The findings of our study were similar to the established fact that   COPD is often a disease of the elderly.

In our study, 80% of patients were males and 20% were females. The higher prevalence in males is due to the cammonsmoking habit in them when compared to females.

In our study,84% of patients were smokers and 16% were non-smokers. All the non -smokers were females and the reason for these females developing COPD could be exposure to biomass fuel or passive smoking.

In our study, patients with absolute blood eosinophil count of less than 300 cells/µl stayed in the hospital for a longer period of time as compared to patients exhibiting a higher absolute blood eosinophil count at the time of admission.

VI.   Conclusion

The patients with low absolute blood eosinophil counts have longer length of stay compared to high absolute bloodeosinophilcounts.In other words,these patients might have high lung eosinophil counts resulting in prolonged hospitalization.

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