



HOW FAR INFLAMMATION IS EXACERBATING COPD?!!

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ABSTRACT

Introduction: Eosinophilic inflammation is thought to be a characteristic feature of asthma rather than COPD. copd was considered to be mainly neutrophilic mediated inflammatory disease, however a degree of Eosinophilic association can be present .It is a matter of further research that whether smoking is responsible for this eosinophilic inflammation or not. **Methods:** 50 patients of age group 40- 75 years having documented COPD diagnosed by the diagnostic criteria defined in GOLD 2022, based on mmrc and CAT score were enrolled and levels of absolute eosinophil counts were estimated in exacerbation copd groups. Observation: 50 COPD patients enrolled in the study. 70% were active or former smokers.majority of patients were between 45-60yrs.6percent were females and rest of the patients were males. The absolute Eosinophil count was measured among the study group during exacerbation. **Results:** 67 percent of study group have Eosinophilic count less than 300. Exacerbations were associated with rapid symptomatic recovery and fewer treatment failures than non eosinophilic exacerbations. By contrast, a low eosinophil count during an exacerbation predicted the risk of worse outcomes. **Conclusion:** Most of the patient who presented with exacerbations are the ones with <300 and we can say low aec associated with less exacerbations there by good control. Raised level of blood eosinophils is associated with increased risk of copd exacerbation. eosinophilic inflammation has shown to be a emerging marker for defining the phenotypes of copd.

KEYWORDS :**INTRODUCTION**

A substantial number of COPD patients suffer from Exacerbations, among those severe exacerbations are knowingly related to worse survival outcomes. There are multiple factors which are responsible for exacerbations among COPD patients. Infections and smoking remains the most common among them. Recent focus is on peripheral eosinophilia as a potent trigger of severe exacerbations in COPD. Eosinophilic inflammation is thought to be a characteristic feature of asthma rather than COPD copd was considered to be mainly neutrophilic mediated inflammatory disease, however a degree of Eosinophilic association can be present. Inhaled corticosteroid (ICS) therapy has been reported to be associated with a reduction in the risk of moderate and severe exacerbations in a subgroup of patients with chronic obstructive pulmonary disease (COPD). Those COPD patients with predominantly eosinophilic airways inflammation may derive the most benefit from ICS use The blood eosinophil count is associated with an increased risk of moderate to severe exacerbations. According to previous studies that assessed the peripheral blood count >2% or 300cells /ul is the cutoff value for the prediction of exacerbation and is associated with a better outcome in hospital and intensive care.

AIMS AND OBJECTIVES

1. To correlate the relationship of blood eosinophils in COPD patients
2. To understand eosinophils associated airway inflammation
3. To modify disease progression, hospital admissions & prediction of COPD exacerbations

MATERIALS AND METHODS

This study is a prospective, observational study in tertiary care centre, kakinada from January 2022 to June 2022 in patients admitted in hospital with acute exacerbation of COPD ,analysed for various causes of exacerbation.

50 patients of age group 40-80 years having documented COPD diagnosed by the diagnostic criteria defined in GOLD 2021, based on mmrc and CAT score were enrolled and levels of absolute eosinophil counts were estimated in exacerbation copd groups.

Inclusion Criteria:

1. Symptoms –breathlessness, cough with expectoration, wheeze
2. Exposure to biomass and other inhalational injury
3. Occupational exposure to dust & fumes
4. Smokers and non-smokers

Exclusion Criteria:

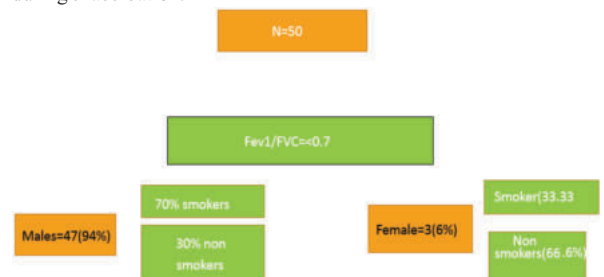
1. Bronchial asthma patients
2. Asthma COPD overlap syndrome

3. Allergic conditions which predispose to elevated blood eosinophils and serum IgE levels
4. Exposure to pets
5. malignancies
6. Family h/o bronchial asthma/atopic dermatitis
7. Regular drug intake other than bronchodilators.

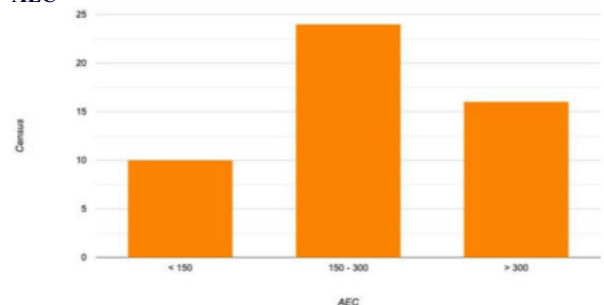
OBSERVATION

50 COPD patients enrolled in the study . 70% were active or former smokers. majority of patients were between 40-60yrs.6percent were females and rest of the patients were males.

The absolute Eosinophil count was measured among the study group during exacerbation.

**AGE GROUP**

Age	Number	Percentage
40-60	40	80%
60-80	10	20%

AEC

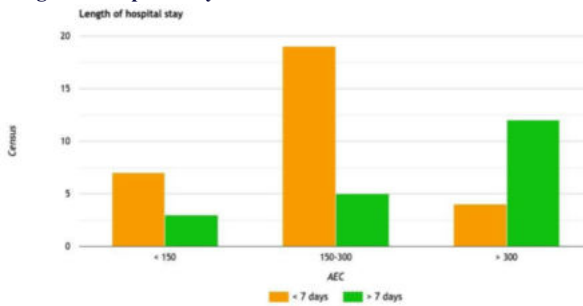
Exposure to smoke	Duration of illness	No of hospitalization	No of exacerbation	AEC
Smokers	3.9	2.6	1.35	746
Non smoker	2.5	1.5	1.0	660

Duration Of Illness, No Of Hospitalisation, Absolute Eosinophil Count Were Higher Among Smokers Compared To Non Smokers.

Pack years	Duration of illness	No of exacerbation	No of hospitalization	AEC
<10yrs	2.9	1.02	2.4	680
>10yrs	4.2	2	2.6	764

Duration Of Illness, No Of Exacerbations, Absolute Eosinophil Count Are Higher In >10 Pack Years

Length Of Hospital Stay



ON ADMINISTRATION OF ICS

- We found that ICS treatment reduced exacerbations compared with no ICS for patients with $\geq 2\%$ blood eosinophils.
- For patients with $< 2\%$ blood eosinophils we found no significant difference
- ≥ 300 cells/ μL blood eosinophil threshold, including those that did not isolate the independent effect of ICS,

RESULTS

- 68 percent of study group have Eosinophilic count less than 300. Exacerbations were associated with rapid symptomatic recovery and fewer treatment failures than non eosinophilic exacerbations.
- By contrast, a low eosinophil count during an exacerbation predicted the risk of worse outcomes.
- The positive association was present at $< 2\%$ and ≥ 150 cells/ μL eosinophil thresholds, but not at the ≥ 300 cells/ μL threshold
- A significant difference was also observed at ≥ 150 cells/ μL blood eosinophil threshold and at < 150 cells/ μL blood eosinophil threshold, but not at ≥ 300 cells/ μL blood eosinophil threshold
- Most of the patient who presented with exacerbations are the ones with < 300 and we can say low aec associated with less exacerbations there by good control.
- Raised level of blood eosinophils (> 300) is associated with increased risk of copd exacerbation and increased hospital stay.
- eosinophilic inflammation has shown to be a emerging marker for defining the phenotypes of copd.

CONCLUSION

1. Elevated blood eosinophils was higher in COPD exacerbation. Hence, exacerbation. blood eosinophils can be used as a prognostic biomarker in COPD
2. Biomarkers allow the identification of patients who are most likely to respond to ICS
3. Smoking is related with longer duration of illness, increased exacerbations, elevated blood eosinophils
4. Recurrent exacerbation of COPD is believed to accelerate disease progression and impairment of pulmonary function
5. Further, studies to be done to analyse biomarkers in COPD.
6. Larger study population would provide better outcome

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