



A STUDY OF CASES OF EOSINOPHILIA PRESENTING AT A TERTIARY CARE CENTRE

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ABSTRACT Eosinophilia is a commonly observed phenomenon in the hemogram of patients in Haematology laboratories. It is seen across all age groups and both sexes and the causes and associated disorders vary greatly from fairly benign conditions to more ominous lesions. Eosinophilia is diagnosed when the absolute eosinophil count is above 500 cell per cubic millimeter and is further classified into mild, moderate and severe based on the degree of elevation of counts. The present study was done on 100 cases of eosinophilia across all age groups who were found to have eosinophilia in their hemograms. It was found that there was a slight preponderance of males and eosinophilia was seen commonly from 11 to 50 years. The commonest disorder associated was chronic kidney disease and the least common was bleeding disorders. Severe eosinophilia was rare in this study.

KEYWORDS :

INTRODUCTION:

White blood cells are classified into granulocytes and agranulocytes. Among them, eosinophils are the largest of the granulocytes.¹ Eosinophils develop in the bone marrow in response to Interleukin-5 which is secreted by epithelial cells, mast cells, lymphocytes, airway smooth muscles. Eosinophil release from blood to tissue is also mediated by Interleukin 5(IL-5). They are found in tissues and internal organs such as lymph nodes, spleen, uterus, ovary, GIT, skin and lung. Under pathological conditions, eosinophils infiltrate the tissues and play multiple roles in defensive and inflammatory functions against parasites, bacteria, viral infections, hypersensitivity reactions and neoplasms.² The normal absolute eosinophil count is 1-6% and the differential count is 30 to 350 per cubic millimeter. Eosinophilia is defined as an eosinophil count of more than 500 per cubic millimeter. ($0.5 \times 10^9/\text{litre}$). It is further categorized into mild (less than 1500 eosinophils per cubic millimeter), moderate (1500 to 5000 per cubic millimeter), or severe (more than 5000 per cubic millimeter).³ Hypereosinophilia in blood is defined as an absolute eosinophil count (AEC) ≥ 1500 cells per cubic millimeter ($1.5 \times 10^9/L$).¹

Eosinophilia may be primary or secondary(reactive).The major conditions in which reactive(secondary) eosinophilia is seen are allergic reactions, infections like parasitic infestations, drugs, chronic obstructive pulmonary disease (COPD), anemia, fever, chronic kidney disease (CKD), nasal polyps, jaundice, autoimmune disease, rheumatic heart disease (RHD), cirrhosis, psoriasis, pancreatitis, and non-specific arthritis. Eosinophils are important cellular components of inflammation and eosinophilia is an important indicator of an underlying disease process². In this study the range of conditions in which eosinophilia was observed in a tertiary care centre is analyzed.

MATERIALS AND METHODS:

This was a retrospective, descriptive study conducted in a tertiary care centre in South India. The details of 100 cases of eosinophilia were obtained from the medical records division and hematology laboratory of the hospital. Demographic details, diagnosis and absolute eosinophil count (AEC) were noted and tabulated. The cases of eosinophilia were categorized according to severity and diagnosis.

RESULTS:

The total number of cases of eosinophilia studied was 100. Number of males was 59 and females were 41 (Table 1) the maximum number of cases were in the age group between 11 and 50 years.

Table-1: Distribution of eosinophilia cases on the basis of age, sex.

Age	Number of cases	Male	Female
< 10 years	7	3	4
11-30 years	35	20	15
31-50 years	33	20	13
>50 years	25	16	9

The cases were categorized into mild, moderate and severe eosinophilia (mild <1500 eosinophils per cubic millimeter, moderate- 1500 to 5000 per cubic millimeter, severe > 5000 per cubic millimeter).

Table 2: Categorisation of eosinophilia based on absolute eosinophil count.

Category	Absolute eosinophil count (cells per cubic millimetre)	Number of cases
Mild	500 to 1500	73
Moderate	1500 to 5000	26
Severe	More than 5000	1

The distribution of cases of eosinophilia according to diagnosis was compared in various age groups and gender wise. (Tables 3 & 4)

Table-3: Distribution of eosinophilia cases in various diseases according to age groups.

Diagnosis	<10 years	11-30	31-50 years	> 50years	Total
CKD	3	2	12	16	33
Ischemic heart disease	0	2	1	3	6
Utricaria	0	0	0	1	1
Fever	1	7	2	1	11
Anemia	1	5	3	2	11
COPD	0	3	2	1	6
Urinary tract infection	0	1	1	0	2
Incidental finding	0	10	5	1	16
Psoriasis	0	1	2	1	4
Cirrhosis	0	0	1	1	2
Acid peptic disease	0	2	2	0	4
Non specific arthritis	0	0	2	0	2
Hemophilia	0	1	0	0	1
RHD	0	0	1	0	1

Table-4: Distribution of eosinophilia cases gender wise in various diseases.

Diagnosis	No. Of males	No. of females	Total
CKD	25	8	33
Ischemic heart disease	3	3	6
Utricaria	0	1	1
Fever	10	1	11
Anemia	5	6	11
COPD	3	3	6
Urinary tract infection	1	1	2
Incidental finding	9	7	16
Psoriasis	2	2	4
Cirrhosis	2	0	2
Acid peptic disease	1	3	4
Non specific arthritis	1	1	2

Hemophilia	1	0	1
RHD	0	1	1

DISCUSSION:

The absolute eosinophil count is representative of the circulating eosinophils in peripheral blood and was the parameter used in this study. There was a slight preponderance of males. A study done in a rural population in Punjab had a similar male preponderance of cases³. However another report from North India had a higher number of females presenting with eosinophilia⁴.

Eosinophilia was found to be more common in the age group of 11-50 years in both sexes as in the study of Bansal R et al³. Mild eosinophilia was the most common finding(73%) followed by moderate eosinophilia(26%). There was only one case of severe eosinophilia. The two studies already mentioned have also reported that majority of eosinophilia cases have mild elevations of count^{3,4}.

In this study eosinophilia was seen more commonly in cases of chronic kidney disease (CKD) (33%) with the majority being males. Although several studies have enumerated the haematological changes in chronic kidney disease, there are hardly any reports or comments on the eosinophil counts in these cases. The finding of increased eosinophil counts in our study warrants further investigation into the pathophysiology of the same. The next most common disorders associated with eosinophilia were fever (11%) and anemia (11%), followed by chronic obstructive pulmonary disease(6%). It has been suggested that about 20 to 40% of COPD cases are classified as eosinophilic COPD with good response to steroids⁵. It has been suggested that eosinophils may play a role in the pathogenesis of Coronary artery disease⁶. In this study too there were 6 cases of ischemic heart disease. Eosinophilia was an incidental finding in a significant number of cases who had presented for a routine health check up(16%). There were surprisingly fewer cases of skin lesions associated with eosinophilia.

CONCLUSION

Eosinophilia is a common finding that is seen in hemograms. The reasons may vary from allergies and inflammatory conditions to lymphomas. As moderate and severe elevations of eosinophil count may be associated with a significant pathology, such cases should be extensively investigated further to prevent further morbidity and mortality.

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