



STUDY OF NEUTROPHIL-LYMPHOCYTE RATIO , PLATELET-LYMPHOCYTE RATIO AND MEAN PLATELET VOLUME IN CRP POSITIVE AND CRP NEGATIVE PATIENTS OF RHEUMATOID ARTHRITIS.

Dr Mukhveer Singh Junior Resident, Department of Medicine, MLN Medical College, Prayagraj
Prof Ajeet Kumar Chaurasia* MD, Professor, Department of Medicine, MLN Medical College, Prayagraj*Corresponding Author
Prof Poonam Gupta MD, Professor, Department of Medicine, MLN Medical College, Prayagraj
Prof Manoj Mathur MD, Professor, Department of Medicine, MLN Medical College, Prayagraj

ABSTRACT

Aim – To study the Comparison of neutrophil-lymphocyte ratio, platelet-lymphocyte ratio and mean platelet volume in C-Reactive Protein positive and C-Reactive Protein negative patients of Rheumatoid arthritis. **Material And Methods** –A cross-sectional, prospective and observational study was conducted at MLN Medical College, Prayagraj. A total of 60 patients of rheumatoid arthritis were enrolled in the study with appropriate inclusion and exclusion criterias. **Result** – Out of 60 rheumatoid arthritis patient 50 had positive CRP and 10 patients had negative CRP. The mean NLR of CRP positive patients were 3.07 and for CRP negative patients were 2.74. The mean PLR of CRP positive and negative patients were 2.61 and 2.74 respectively and mean MPV of CRP positive patients were 8.43 and for CRP negative were 8.76. **Conclusion**– Inflammatory markers such as the CRP was positive in majority of patients. NLR showed positive while PLR and MPV showed negative correlation with CRP positivity. All of these relationship were statistically not significant with CRP.

KEYWORDS : neutrophil -to-lymphocyte ratio,platelet-to-lymphocyte ratio , mean platelet volume, disease activity

INTRODUCTION.

Rheumatoid arthritis (RA) is a chronic inflammatory disease of unknown etiology characterized by a symmetric polyarthritis, the most common form of chronic inflammatory arthritis¹.

The most commonly used markers of inflammation in clinical practice are C-reactive protein (CRP) and erythrocyte sedimentation rate (ESR) to estimate the presence and activity of inflammatory diseases. However, these markers have some limitations such as reflection of short-term inflammatory activity and low discrimination ability. ESR is affected by Age, sex, anemia, fibrinogen levels, hypergammaglobulinemia, and plasma viscosity, and reflects disease activity in the past few weeks, while CRP is less confounded by these factors, and reflects more short-term changes in disease activity². Neutrophils, lymphocytes and platelets play a role in the control of inflammation, and systemic inflammation. Neutrophil-to-lymphocyte ratio (NLR), platelet-to-lymphocyte ratio (PLR), and mean platelet volume (MPV) have recently been investigated as new inflammatory markers for the assessment of inflammation in many inflammatory, cardiovascular, and malignant diseases.

MATERIAL AND METHODS:

Study design: Cross-sectional, prospective, and observational study.

Study duration & place: 21st July 2021 to 20th July 2022, at SRN Hospital, Prayagraj.

Inclusion Criteria: All adults (age>18 years), male and female patients, would be recruited after informed consent.

Exclusion Criteria:

- Patients with evidence of sepsis, SIRS, haematological disorder., acute inflammatory conditions other than RA.
- Patients with malignancy, chronic liver disease, chronic kidney disease and congestive cardiac failure excluded.

RESULTS:

In this study out of 60 patient 50(83.3%) had positive CRP and 10(16.7%) patients had negative CRP.

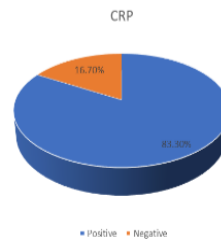
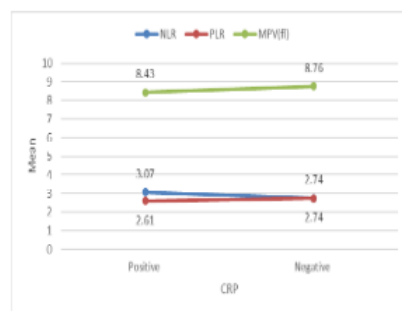


Figure1: Pie chart showing Distribution of CRP value in patient.

TABLE 1: Comparison of mean NLR, PLR and MPV in CRP positive and CRP negative patients.

CRP	NLR		PLR		MPV (fl)	
	Mean	SD	Mean	SD	Mean	SD
Positive	3.07	1.08	2.61	1.20	8.43	1.10
Negative	2.74	.79	2.74	.93	8.76	1.65
Z value	-0.966		-0.928		-0.564	
p-value	0.334		0.354		0.573	

Figure2:Line diagram showing Comparison of mean NLR, PLR and MPV in CRP positive and CRP negative patients.



Under this study, we had found that there was no significant difference found.

The mean NLR of CRP positive patients were 3.07 and for CRP negative patients were 2.74.

The mean PLR of CRP positive and negative patients were 2.61 and 2.74 respectively and mean MPV of CRP positive patients were 8.43 and for CRP negative were 8.76.

DISCUSSION:

C-reactive protein (CRP) is routinely assessed as a marker of systemic inflammation in RA. Inflammatory markers such as the CRP are positive in about 83.3%.

NLR showed positive correlation but statistically not significant with CRP in patients with RA.

In our study, PLR showed positive correlation but statistically not significant with morning stiffness, joint deformity, RA factor, anti CCP and DAS-28 and negative correlation with CRP. Fu et al., (2015)³ which showed PLR can be used as important indicators in assessing RA disease activity.

In this study MPV showed positive correlation with morning stiffness, RA factor and showed negative correlation with joint deformity, anti CCP CRP and DAS-28. In contrast MPV value was reported to be higher in patients with RA, compared to a control group, and positively correlated with DAS28 and inflammatory parameters (CRP)⁴

CONCLUSIONS:

Inflammatory markers such as the CRP positive in majority of patients. NLR showed positive while PLR and MPV showed negative correlation. All of these relationship statistically not significant with CRP.

NLR is a cheap and readily available marker of inflammation that is well correlated with other inflammatory markers and disease activity indices in RA.

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