Original Article

Psoriasis

The Correlation and Prognostic Significance of ESR and CRP Values with the Severity of Psoriasis with/without Psoriatic Arthropathy

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ABSTRACT

Objective: The aim of our study was to determine the levels of ESR and CRP in psoriasis with/without psoriatic arthritis and to find whether there is any correlation of their values with its severity and presence or absence of psoriatic arthropathy.

Study Design: Prospective study.

Place and Duration of Study: This study was conducted at Jinnah Postgraduate Medical Centre, Karachi from January 2014 to August 2014.

Materials and Methods: 60 patients, 35 males and 25 females were enrolled. After detailed history and severity assessment by PASI, blood was sent for ESR and CRP levels. All data was documented and analyzed.

Result: There were 60 patients (35 males and 25 females) with age ranging from 20-65 years and had a history of psoriasis from 1-38 years. 89% had chronic plaque psoriasis and 30% had psoriatic arthropathy. PASI score ranged from 4-26 (Mean 7.92±6.38). The means of ESR and CRP were 16.44 ± 12.66 mm/hr and 3.84±3.63 mg/L respectively. Neither ESR nor CRP levels directly correlated with PASI or with psoriatic arthropathy.

Conclusion: ESR and CRP doesn't seem to have prognostic significance in mild to moderate psoriasis and psoriatic arthropathy. However there might be any role of ESR or CRP. in patients with severe psoriatic arthropathy.

Key Words: Psoriasis, Psoriatic Arthropathy ESR, CRP

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INTRODUCTION

Psoriasis is a chronic systemic inflammatory dermatosis of skin with or without involvement of joints. It incidence varies among different races and geographical locations. Worldwide incidence is about 1 to 3% in general population.[1] Psoriasis has been found to be associated with many co-morbids. Those include hypertension, MI, DM and metabolic syndrome.[2,3,4,5,6,7,8] There is no common present laboratory abnormality in uncomplicated psoriasis however patients with severe psoriasis and/or psoriatic arthritis might have increased levels of C-reactive protein, I2 macroglobulin, ESR and decreased level of albumin, haemoglobin, and serum iron. Inflammatory markers such as ESR and CRP have been studied and found to be elevated in many inflammatory conditions[9,10,11] but according to some authors these are not reliable indicators for the severity of psoriasis.[12,13,14,15] However there importance cannot be undermined as a Inflammatory markers to detect acute inflammation and to observe response to treatment in psoriasis and are being used in many therapeutic trials.[16,17,18]

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However there is paucity of data on serum ESR and CRP levels in patient with psoriasis in our country, therefore this study was conducted on ESR and C-reactive protein to assess whether there was any correlation between these variables with the severity of psoriasis and/or psoriatic arthritis in our set up.

MATERIALS AND METHODS

This was an open prospective study. After ethical approval, 50 patients both male and female, ages 18 and above, suffering from psoriasis were randomly selected from the Dermatology Department of the Jinnah Postgraduate Medical Centre Karachi, Pakistan. All Patients were assessed on one occasion. Detailed history followed by detailed physical examination was conducted to note the extent of psoriasis and for the presence or absence of psoriatic arthropathy. Subjects were assessed for the severity and scoring was done by PASI (Psoriasis area Severity index) scoring method. Blood was taken by venous puncture and was examined for Erythrocyte sedimentation rate at one hour and C-reactive protein.

On completion of study data was tabled and statistically analysed. For comparison between two groups student t-test and Mann Whitney U test were used. Correlation analyses were done with the 2-tailed, Rank Spearman Correlation test.

RESULTS

60 patients, 35 males and 25 females were enrolled from outpatient and inpatient Department of Dermatology of Jinnah Postgraduate Medical Centre Karachi. Their ages range from 20-65 years (Mean 48.92± 16.65) and had a history of psoriasis ranging from 1-38 years (Mean 22.4± 16.75)

Most of the patients had chronic plaque psoriasis 89% followed by palmoplantar 4%, guttate 4% and erythrodermic in 3% of cases.

Psoriatic arthropathy was present in 30% of patients. 57.90% were males and 42.10% were females.

PASI score ranged from .4-26 (Mean 7.92±6.38). 78% of patients had PASI less than 10 (Table 1).

Table No.1: Distribution of range and mean of PASI

	PASI	
	Range	Mean
All patients	.4-26	7.92±6.38
Male	1.2-26	8.55±6.52
Female	.4-24.2	7.47±6.36
Significance at p<0.05	Not significant	

The ESR value ranged from 2-54 mm/hr in the study and the mean was found as follows, 16.44 ± 12.66 mm/hr for all patients, 14.76± 11.79 for males and 17.66± 13.32 for females.

Table No.2: Distribution of range and mean ESR values according to the presence or absence of psoriatic arthropathy.

	ESR			
	Range	Mean	P-value	Significance at p<0.05
No psoriatic arthropathy	2-44	14.36± 11.53	.1067	Not significance
Psoriatic arthropathy	4-54	20.47± 14.08		

Table No.3: Distribution of range and mean CRP values according to presence or absence of arthropathy

	CRP			
	Range	**Mean**	**p-value (student t-test)**	**Significance**
No psoriatic arthropathy	1-10	3.55± 3.51	0.446972	NS
Psoriatic arthropathy	1-10	4.41± 3.89		

Most of the patients in this study had CRP within the normal range. The range was from 1-10 (Mean 3.84±3.63).

Patients who had psoriatic arthritis had a slightly higher mean ESR (20.47± 14.08) as compared to those who did not have any arthropathy (14.36±11.53) (Table 2).

There was no significant difference in CRP values in patients having arthropathy and those without it (Table 3)

There was no direct correlation of ESR values with PASI (Table-4).

CRP values did not correlate with PASI (Table-4).

Table No.4 A summary of correlation analysis

Variables	Correlation (R value)	Degrees of freedom (n)	P-value	Significance
ESR Vs PASI	0.103492	50	p > 0.05	Not significant
CRP Vs PASI	0.030296	50	p > 0.05	Not significant
ESR Vs CRP	- .319422	50	<0.05	Significant

DISCUSSION

Psoriasis is a very complex disorder of unknown origin. Its behaviour cannot be predicted in any individual however it is said that psoriasis with early onset has more prolonged and protracted course. Though exact pathogenesis is not known but psoriasis is thought to be T-1 mediated disease and there is role of different cytokines and adhesion molecules in causing and propagating the inflammation associated with this disease. Different cytokines involved are IL1, IL6, IL8, TNF-I released by keratinocytes and IL-2, IFN-K, TNF-I (Type I cytokine profile). There is also aberrant expression of ELAM-1, VCAM-1 and ICAM-1 adhesion molecules. This inflammatory response is not limited only to cutaneous tissue but involvement of internal system also occur making psoriasis a systemic disease.[19,20,21,22] Therefore there is always a need of a biological marker to assess disease severity and any associated co-morbids and to monitor response to therapy objectively and to find new targets therapies in patients with psoriasis.[6]

ESR and CRP both are important inflammatory markers and are being used to assess the severity, prognosis and therapeutic response for different inflammatory conditions. Their level can predict any associated severe complication like cardiovascular event or any other comorbid,[23] CRP is being considered as a good biologic marker because it rises rapidly in acute inflammation and quickly declines with successful treatment.[24]

In our study ESR and CRP values did not correlate with PASI scoring. There was no significant difference in the ESR and CRP values between patients having arthropathy and those without arthropathy. This finding supports those of previous studies in which no significant higher values of ESR and CRP were

found[12,13,17].However many other studies have demonstrated significantly higher values of ESR and CRP in patients with severe disease than those with milder form of psoriasis.[16,18,25]. Most of the patients in our study had mild arthropathy and PASI of less than 10, this might have resulted in lower values of these two parameters. Other reason could be small sample size of our patients. On the basis of the findings of this study one may conclude that ESR and CRP values though important for the assessment of psoriasis in severe form but probably do not have any prognostic significance in mild to moderate disease and also in mild to moderate psoriatic arthropathy. However in patients with severe psoriatic arthropathy, there might be any role of ESR or CRP.

CONCLUSION

ESR and CRP doesn't seem to have prognostic significance in mild to moderate psoriasis and psoriatic arthropathy. However there might be any role of ESR or CRP. in patients with severe psoriatic arthropathy.

Conflict of Interest: The study has no conflict of interest to declare by any author.

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