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Original research article

A STUDY ON EVALUATION OF RISK FACTORS FOR CHRONIC KIDNEY DISEASE IN PATIENTS WITH PSORIASIS

[1]Dr. Aradya Bheemathati, [2]Dr. Vijay Bhasker Reddy

[1]Assistant Professor, Department of Dermatology, Kamineni institute of medical sciences, Narketpally, Telangana, India

[2]Associate Professor, Department of Dermatology, Kamineni institute of medical sciences, Narketpally, Telangana, India

Corresponding Author:

Dr. Aradya Bheemathati

Abstract

Background: Psoriasis is a chronic inflammatory condition with multi-system involvement. There have been very few studies on presence of chronic kidney disease in patients with psoriasis. Hence, this study evaluets the risk factors and its correlation in development of CKD in patients with psoriasis.

Materials and Methods: A total of 100 patients with psoriasis who were attending the OPD of Department of Dermatology, Kamineni Institute of Medical Sciences, Narketpally over a period of 6 months (January 2020 to December 2020) were included in the study.

Results: 15% of the patients had CKD. 2 patients had IgA nephropathy, confirmed on renal biopsy. The duration of psoriasis, severity of the disease are both significantly related.

Conclusion: Renal involvement in psoriatic patients although is under reported, but are significant cause of morbidity and mortaility. Routine urine analysis and kidney function tests should be done in patients with psoriasis, especially with longer duration of disease, severe disease activity.

Keywords: Psoriasis, chronic kidney disease, severity, renal abnormalities

Introduction

Psoriasis is a chronic inflammatory condition characterized by erythematous plaques covered with silvery scales, usually occurring over the extensor surfaces and scalp [1, 2]. It is a multi-system condition involving predominantly the skin, joints and eyes.

It is an immune mediated pathological condition where the activated T -cells lead to release of cytokines and proliferation of keratinocytes leading to the formation of the classical silvery scales [3].

Owing to the disease process or the medications involved in treatment of this condition, psoriasis is associated with multiple co-morbidities such as diabetes, dyslipidemia, metabolic syndrome, cardiovascular diseases, cancers and mental conditions [4]. Some

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studies have shown psoriasis as an independent risk factor for development of renal abnormalities [5].

Occurance of CKD in patients with psoriasis is multi-causative. Kidney has always been a target organ for any cardiovascular disease or any autoimmune process. Some of the drugs used in treatment of psoriasis are nephrotoxic such as cyclosporine [6].

According to Kidney Disease Improving Global Outcomes (KDIGO) guidelines, chronic kidney disease is defined as permanent alteration in the structure and function of kidney which is determined by estimated glomerular filtration rate (eGFR) < 60 mL/min/1.73m^2 or presence of albuminuria for > 3months of duration. End stage renal disease is defined as when the eGFR is < 15 mL/min/1.73m^2 [7].

Few studies have also reported the occurrence of nephrotic syndrome or glomerulonephritis in patients with psoriasis [8].

This study has been done with an aim to evaluate the spectrum of renal diseases associated with psoriasis.

Materials and Methodology

This descriptive study was conducted in the Department of Dermatology, Kamineni Institute of Medical sciences, Narketpally over a period of 1 year, i.e. from January 2020 to December 2020. All patients attending the OPD who were diagnosed with psoriasis were included in the study. Patients who had kidney disease prior to acquiring psoriasis and those who did not give consent for the study were excluded from the study.

Demographic details of the patient such as age, sex, occupation were taken. A detailed history was taken regarding the age of onset of psoriasis, its duration, treatment taken, presence of any co-morbidities such as diabetes, hypertension, dyslipidemia, and renal disease. Anthropometric measurements such as height, weight and body mass index was calculated. A detailed systemic and dermatological examination was done.

The % of body surface area involvement (BSA) was calculated and depending upon the % of BSA involved, they were classified into mild disease - BSA <3% involved, moderate disease - BSA 3 - 10% involved and severe disease - BSA > 10% involved [9].

Routine investigations were done such as blood urea, serum creatinine, blood sugars, lipid profile and complete urine examination. eGFR was calculated using Modification of Diet in Renal Disease Study Group (MDRD) equation: eGFR=186×(Creatinine/88.4)$^{-1.154}$× (age)$^{-0.203}$ × (0.742 if female) × (1.210 if black) [10].

Ultrasonography of abdomen was done to assess the renal parenchyma. Renal biopsy was done, wherever it seemed necessary.

CKD was defined according to KDIGO guidelines. Patients with presence of micro-albuminuria or decrease in eGFR were followed up for 3 months and the tests were repeated after 3 months. If the abnormalities were persistent, diagnosis of CKD was done.

Data was analyzed using SPSS software. Chi-square test was done to find the significance of study parameters. Odds ratio and confidence intervals were calculated to find association between the presence of risk factors and CKD. The association was said to be significant if p value was < 0.05.

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Results

A total of 100 patients with psoriasis were included in this descriptive study. 15 of the patients had been diagnosed with CKD.

Table 1: Age distribution

Age in years	No of patients	No of patients with CKD	P value
≤ 20 years	3	0	0.07 (not significant)
21 - 30 years	10	0	
31-40 years	17	1	
41-50 years	30	2	
51- 60 years	28	4	
> 60 years	12	8	

Most of the patients belonged to middle age (58%). Majority of the study population were males (65%) and the rest 35% were females. Amongst them, 11 males and 4 females had developed CKD.

Among the 15 patients with CKD, 4 were obese, with BMI > 30. The association between BMI and CKD was not significant (p value > 0.05).

Table 2: Duration of psoriasis

Duration in years	No of patients	No of patients with CKD	P value
< 1 year	13	0	0.048 (significant)
1-5 years	33	2	
6-10 years	15	5	
>10 years	39	8	

Table 3: Severity of psoriasis

Severity	No of patients	No. of patients with CKD	P value
Mild disease	5	0	0.024 (significant)
Moderate disease	29	3	
Severe disease	66	12	

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Co-morbid conditions for CKD (diabetes, hypertension, intake of NSAID's/cyclosporine) were seen in 24 patients. Amongst these 24 patients, 10 patients had CKD. The Odd's ratio was 4.98 at 95% confidence interval, which is suggestive of increased risk of developing CKD in patients with co-morbidities.
Amongst the 100 patients, 30 patients were smokers (25 males and 5 females). Amongst these 30 patients, 10 patients had CKD.
2 cases of IgA nephropathy were seen in present study. These 2 patients had reported incidents of massive hematuria.

Discussion

This study was conducted including 100 patients with psoriasis. In present study 15% of the patients had CKD. This is in concordance with study done by Seena *et al*. [11] (13.46%). Presence of biomarkers of CKD in patients with psoriasis, makes them more susceptible for development and progression of chronic kidney disease. In present study, micro-albuminuria was seen in 4 patients. In a study conducted by Dervisoglu *et al*. [12], patients with psoriasis had increased albuminuria. According to Kaur et al, renal involvement in CKD had a strong positive correlation with highly sensitive CRP [13]. In a Taiwanese study [14], patients with psoriasis had increased risk of developing Glomerulonephritis.
In present study, a significant co-relation was found between severity and duration with presence of CKD. 12 patients with severe psoriasis had developed CKD. Similar finding was seen in study by Kaur *et al*. [13]. In study by Wan *et al*. [15], moderate to severe psoriasis was associated with increased risk for development of CKD.
Development of psoriasis is T-cell mediated pathological process. Hence, in present study, duration of psoriasis study was found to be significantly related to development of CKD. This is in concordance with study done by Kaur *et al*. [13].

Conclusion

The study concludes that duration, and severity of psoriasis is significantly correlated with development of CKD. However, this study needs to be done on a larger sample for it to be applied on to the general population

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Conflicts of interest: Nil.

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