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Original Article

To estimate the frequency of dermatoses in patients undergoing hemdialysis

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Abstract

Background The skin is an external reflection of many renal pathologies and hence serves as an important tool for the clinician. Mucocutaneous manifestations are commonly observed among patients with chronic kidney disease undergoing hemodialysis.

Objective To estimate the frequency of dermatoses in patients undergoing hemdialysis.

Study design Descriptive study.

Place and duration of study Dialysis Centre, Shaikh Zayed Hospital, Lahore from 01.06.18 to 30.11.18.

Materials and Methods One hundred and seventy seven patients of chronic kidney disease undergoing hemodialysis of both genders irrespective of dialysis duration were observed for various dermatoses.

Results There were 109 (61.6%) males and 68 (38.4%) females and male to female ratio was 1.6:1. The age of patients ranged from 11-75 years with the mean age being 45.80±14.30 years. One hundred and twenty patients were found to have skin problems. Xerosis was most common (37.9%) followed by pruritus (30.5%) while diffuse hyperpigmentation was seen in 20.3% of patients. Among the nail findings were onychomycosis (2.8%), Beau's lines (3.4%). Hair changes such as sparse scalp hair and dry lusterless hair were seen in 10.2% and 1.7% of cases respectively. Other cutaneous findings observed were pallor 5.1%, ichthyosis vulgaris 2.3%, cellulitis 0.6%, bullous eruption at site of AV fistula 0.6%, seborrheic dermatitis 0.6%, scabies 1.1%, Schambergs' disease 0.6%, calcinosis cutis 1.1%, paronychia 1.1%, angular cheilitis 0.6% and keratosis pilaris 0.6%.

Conclusion A broad range of dermatoses occur in patients with chronic kidney disease on hemodialysis. Many of them negatively impact on quality of life. Their early recognition and treatment are essential in reducing morbidity and mortality.

Key words
Dermatoses, chronic kidney disease.

Introduction

The skin and the kidney constitute two major organ systems of the human body, which perform many important functions and in turn share a number of diseases. The skin is an external reflection of many renal pathologies and hence serves as an important tool for the clinician.[1]

The number of patients with chronic kidney disease on regular haemodialysis has increased exponentially over the recent years.

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Mucocutaneous manifestations are commonly observed among patients with chronic kidney disease undergoing hemodialysis.[2]

Dermatoses are common and diverse in patients with chronic kidney disease, especially among those on hemodialysis. They could predate onset of dialysis or could be precipitated by it.[3]

Xerosis, pallor, dyspigmentation, and pruritus are the commonest dermatoses observed in patients of chronic kidney disease on hemodialysis. Various other dermatoses like calcinosis cutis, bullous dermatoses of hemodialysis, drug reactions, arteriovenous shunt dermatitis may be present. Hair changes commonly seen are sparse hair on scalp, dry lusterless hair, which is postulated to occur due to decreased secretion of sebum in chronic kidney disease patients.[4]

It is estimated that more than 70% of the patients on hemodialysis have nail alterations such as half-and-half nails, absence of a lunula, splinter hemorrhages, subungul hyperkeratosis, onychomycosis, beau's lines, paronychia, koilonychias and leukonychia.[5]

Chronic kidney disease is a progressive disease ultimately resulting in great disability. It has significant social, economical and psychological impact on patients and their families. There is ignorance among the local population and they usually seek treatment when they develop various systemic and dermatological complications. These changes have a considerable negative effect on the patient's quality of life. Early recognition of dermatoses and prompt initiation of treatment can dramatically alter their course and decrease morbidity. There are limited studies on this topic and very few published reliable studies in Pakistan of similar nature are there to supplement foreign data.

Objective The aim of this study is to observe the frequency of dermatoses in patients undergoing hemodialysis.

Study design Descriptive study

Place and duration of study Dialysis centre, Shaikh Zayed Hospital, Lahore from 01.06.18 to 30.11.18.

Materials & Methods One hundred and seventy seven patients of chronic kidney disease undergoing hemodialysis of both genders irrespective of dialysis duration were observed for dermatoses.

Exclusion criteria Patients with:

- Acute renal failure
- Renal Transplantation
- Skin lesions present before dialysis

Statistical analysis

Data was entered and analyzed by using SPSS 20.0. Data for age and duration of disease was described by mean ± SD. Data for various skin manifestations was described by using frequency and percentages.

Results

One hundred and seventy seven patients of chronic kidney disease undergoing regular hemodialysis were enrolled in the study. There were 109 (61.6%) males and 68 (38.4%) females and male to female ratio was 1.6:1 **(Table 1)**.

The age of patients ranged from 11-75 years with the mean age being 45.80±14.30 years **(Table 2)**.

Table 1 Sex Distribution in Study Population (n=177)

Gender	No.	%
Male	109	61.6
Female	68	38.4

Table 2 Age Distribution in Study Population (n=177)

Age (years)	*No.*	*%*
11-18	2	1.1
19-35	52	29.4
36-55	76	42.9
56-75	47	26.6
Mean±SD	45.80±14.30	

Table 3 Etiology of chronic kidney disease.

Etiology	*No.*	*%*
Hypertension	100	56.4
Diabetes mellitus	51	28.8
Drug induced	5	2.8
Systemic lupus erythematosus	3	1.6
Obstructive nephropathy	3	1.6
Others	15	8.4

Table 4 Dermatoses and their incidence.

Dermatoses	*Yes*	
	No.	*%*
Pruritus	54	30.5
Dyspigmentation	36	20.3
Xerosis	67	37.9
Cellulitis	1	0.6
Bullous eruption at site of AV fistula	1	0.6
Scabies	2	1.1
Ichthyosis vulgaris	4	2.3
Angular cheilitis	1	0.6
Seborrheic dermatitis	1	0.6
Keratosis pylaris	1	0.6
Schamberg's disease	1	0.6
Calcinosis cutis	2	1.1
Hair loss	18	10.2
Dry hair	3	1.7
Beaus lines	6	3.4
Paronychia	2	1.1
Pallor	9	5.1
Onychomycosis	5	2.8

Majority of the patients belonged to the age group of 36-55 years. Mean age for females was 45.95±15.35 years and for males was 45.56±12.54 years. One hundred and twenty patients were found to have skin lesions. There were 48 (40%) males and 72 (60%) females and male to female ratio was 0.6:1. Hypertension (HTN) was the most common cause (56.4%) of renal dysfunction followed by diabetes mellitus (DM) in 28.8% cases and drug induced in 2.8% cases **(Table 3)**.

The mean duration of dialysis was 63.85± 53.31 months (range 1-288 months). The duration of hemodialysis session ranged from three to four hours, with a mean duration of three hours and 30 minutes. Arteriovenous fistula was the main access type used by hemodialysis patients. The observed dermatoses and their incidence are summarized below **(Table 4)**.

Xerosis was the most common dermatoses and was reported in 37.9 % of cases. Pruritus was found to be second most common manifestation observed in 30.5% of cases, while diffuse hyperpigmentation was seen in 20.3% of patients. Among nail findings were onychomycosis (2.8%) and Beau's lines (3.4%). Hair changes such as sparse scalp hair and dry lustre less hair were seen in 10.2% and 1.7% of cases respectively. Other dermatoses observed were pallor 5.1%, ichthyosis vulgaris 2.3%, cellulitis 0.6%, bullous eruption at site of AV fistula 0.6%, seborrheic dermatitis 6%, scabies 1.1%, Schamberg's disease 0.6%, calcinosis cutis 1.1%, paronychia 1.1%, angular cheilitis 0.6% and keratosis pilaris 0.6%.

Discussion

The prevalence of mucocutaneous manifestations is high among hemodialysis patients. This occurs because of numerous factors such as uremia, metabolic disorders, dialysis and side-effects of immunosuppressive drugs. Patients on hemodialysis are known to develop cutaneous manifestations ranging from infections to malignancies.[6]

Reports from different parts of Iran have described various cutaneous manifestations in patients on HD, which differ based on race, nutritional condition, geographic location, socio-economic status of the patients and accuracy of patients' examination.[7] In addition, new cutaneous lesions may develop with increasing

age. Sometimes, cutaneous changes may be the first important sign in patients with chronic renal failure.[8]

In the current study, the mean age of the patients was 45.80±14.30 years. As compared with the study of Supriya et al.[4] mean age of the patients was 48.77±13.39 years which is comparable. In another study conducted by Hajhedari et al.[9] the mean age of the patients was 50 years.

In the current study, there were 61.6% males and 38.4% females and male to female ratio was 1.6:1. As compared with the study of Asokan et al.[1] 64.17% were males and 35.83% were females which is comparable with our study. A male preponderance was also noted in the study by Udaykumar et al.[8] where, 70% were males and 30% were females.

The mean duration of dialysis was 63.85±53.31 months (range 1-288 months). This was in contrast to studies done by Charkhchian et at.[10] and Peres et al.[5] where the mean dialysis duration was 40.85±42.64 months (range 3-228 months) and 43.3± 42.3 months (2-192 months respectively**.** Patients with pre existing skin lesions were excluded from that study. Cutaneous manifestations in CKD patients were observed in 67.7% patients in this study, which is in contrast with the findings of studies of Luqman et at.[11] who reported a prevalence of 85% and Singh K et al.[12] who reported a prevalence of 86% among patients with chronic renal failure.

Xerosis was the most common observation, seen in 37.9% of patients on haemodialysis in the present study. This is in contrast with Baghel et al.[13] who reported xerosis in 66.2% patients and Sultan et al.[14] in 54% patients.

Pruritus was documented in 30.5% patients in the present study which is comparable to the study by Hajhedari et al.[9] who reported pruritus in 38.8% of patients in their study whereas the study conducted by Asokan et al.[1] pruritus was found in 46.7% of patients.

In the present study, 20.3% of patients had generalized hyperpigmentation. Baghel et al.[13] reported this finding in 13.7% of their patients which is closer to our figure. In contrast Udaykumar et al.[8] and Asokan et al.[1] reported hyperpigmentation in 43% and 37.5% of their patients respectively.

Hair changes such as sparse scalp hair and dry lusterless hair were seen in 11.9% of cases. The results of the present study were in agreement with Udayakumar et al.[8] who reported that hair changes were present in 16% of their patients while in contrast, Sultan et al.[14] and Mirza et al.[15] reported that hair changes were detected in 47% and 56.6% of their patients.

Onychomycosis was seen in 2.8% of hemodialysis patients. Charkhchian et al.[10] and Girisha et al.[2] reported this finding in 2.7% and 4% of their patients which is comparable to our study.

The frequency of onychomycosis in hemodialysis patients has been shown to be higher than healthy controls with a prevalence of 6.2–52%.[16,17] In addition, onychomycosis has been reported to be the second most frequent nail disorder in dialysis patients.[17]

Angular cheilitis[1], Beau's lines[2], pallor[18], calcinosis cutis[19], bullous eruption at site of AV fistula[20], ichthyosis vulgaris, scabies, cellulitis, paronychia, seborrheic dermatitis, Schamberg's disease and keratosis pilaris were other cutaneous features that were less commonly present in our patients.

Conclusion

A broad range of cutaneous changes occur in patients with chronic kidney disease on hemodialysis: from the benign and asymptomatic to the physically disabling and life-threatening. Many of them negatively impact on quality of life. The most prevalent finding in our study was xerosis followed by pruritus and pigmentary changes. With the advent of haemodialysis, the life expectancy of patients had increased giving time for more and newer cutaneous changes to manifest. Our observations necessitate a joint effort between dermatologists and nephrologists for early recognition and management of these comorbidities which may significantly improve the quality of life of patients. This is of greater importance in the present scenario where larger numbers of patients with chronic kidney disease survive for longer periods on maintenance haemodialysis.

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