



SKIN MANIFESTATIONS IN END STAGE RENAL DISEASE PATIENTS ON HEMODIALYSIS.

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ABSTRACT: Chronic kidney disease (CKD) is a world public health problem that is related with high morbidity and mortality. CKD patients can present with different skin manifestations, often benign with much impact on quality of patients life. **Study Design:** Case-series study. **Setting:** Nephrology Unit Civil Hospital Larkana. **Period:** From 1st January 2018 to 30th June 2018. **Material and methods:** 141 patients of ESRD on regular HD for at least 1 month. Patients were chosen randomly for evaluation of cutaneous changes regardless of their gender, age, sex and etiology of ESRD. General and dermatological examination of the skin, hair, nails, and oral mucosa was performed by consultant dermatologist. Data were analyzed by using IBM SPSS version 23.0. Descriptive analyses performed using mean with standard deviation and median with inter quartile ranges of quantitative data set. Count and percentages were reported for categorical data set. **Results:** In the present study there were one hundred and forty one patients. Out of them skin manifestations of patients, 87.9% had Xerosis, 31.9% found with skin hyper pigmentation, 9.2% had Subungal Hyperkeratosis, 24.1% had Uremic Pruritis, 45.4% had Pallor, and 6.4% found with Bruises. There were 9.9% cases of Alopecia, 17.7% cases of half n half nail, 1.4% cases of half n half nail with alopecia, 9.2% cases of Koilonychia, 0.7% cases of Koilonychia with alopecia, 2.8% found with koilonychias and half n half nail, 2.1% with leuconychia and koilonychia, 15.5% with Leuconychia, 2.1% found with Leuconychia and alopecia, and 0.7% found with Leuconychia, koilonychia & alopecia in Hair and Nail changes. **Conclusion:** The range of skin manifestations vary in different studies. Although often benign with much impact on quality of patient's life and life can be threatening. Early treatment of skin disorders can improve the quality of life.

Key words: CKD (Chronic Kidney Disease), ESRD (End Stage Renal Disease), GFR (Glomerular Filtration Rate), HD (Hemodialysis).

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INTRODUCTION

Chronic kidney disease (CKD) is a global public health issue that is associated with high morbidity and mortality. In Pakistan CKD prevalence is higher than expected have been reported by population-based health survey of 1023 people by Kazmi et al.¹ CKD patients can presents with different skin manifestations. Chronic kidney disease has been classified into various stages. Stage 1, with Normal Glomerular Filtration Rate (GFR) but at risk of CKD. Stage 2, with a GFR of 60 to 90 ml/ minute. Stage 3 GFR of 30 to 60 ml/ minute. Stage 4 GFR of 15 to 30 ml/minute. Stage 5 is for ESRD patients with a GFR rate less than 15 ml/minute.²

Variety of cutaneous manifestation have been observed in patients of ESRD, from benign asymptomatic with much impact on patients quality of life and can be life-threatening.

An earlier study by Udaykumar et al³ reported all hemodialysis patients of renal failure having atleast one cutaneous finding. Common skins manifestations are xerosis, pallor, hyperpigmentation, pruritus and half-and-half nails.

Multiple factors are involved in the pathogenesis of the skin manifestations in patients of ESRD, the fact could be that the hemodialysis is not as fully

effective as a normal kidney can and this will not replace its endocrine function, resulting build-up of uremic substances & electrolyte imbalance.⁴

The aim of this research is to explore the frequency of skin manifestations and their early recognition and start the early treatment that can improve the patient's quality of life. This study has been conducted in Nephrology Unit Civil Hospital Larkana.

Methodology

This case-series study included 141 patients of ESRD on regular HD for atleast 1 month. After taking the approval of ethical committee, patients were chosen randomly for evaluation of cutaneous changes regardless of their gender, age, sex and etiology of ESRD.

They all were subjected to a full assessment of history, investigations including urea, creatinine and serum electrolytes was done. A general and dermatological examination of the skin, hair, nails, and oral mucosa was performed by consultant dermatologist.

Statistical Analysis

Data were inserted and analyzed using IBM SPSS version 23.0. Descriptive analyses performed using mean with standard deviation and median with inter quartile ranges of quantitative data set. Count and percentages were reported for categorical data set. Bar chart and pie chart also used to give graphical presentation of data.

RESULTS

Table-I reports the baseline characteristics of studied samples. In the present study there were one hundred and forty one patients. 23.4% having the age group between 36 – 45 years old, 29.8% were aged 40- 60 years old. The mean age of patients was 45.2 (S.D= ± 14.8) years. 65.2% samples were male. 22.7% patients had duration of HD between 3 – 6 months, 24.1% patients found with 13-34 month of duration, the median duration of HD was 12 (IQR= ± 20) months. 29.1% patients had diabetes, 23.4% had hypertension, 3.5% had renal stones, 3.5% were APH, 21.3% had Nephrolithiasis, 4.3% had Idiopathic, 5% had

Eclampsia and 5.7% patients had Diabetes & Hypertension as cause of ESRD. (Table-I)

Table-II reports the median and IQR of biochemistry of patients. The Median of Na⁺ was 135 (IQR = ± 8), median of K⁺ was 5.50 (IQR= ± 1.30), median of Urea was 85 (IQR= ± 48) and median of Creatinine was 5 (IQR= ± 1).

Table-III reports skin manifestations of patients. 87.9% had Xerosis, 31.9% found with skin hyperpigmentation, 9.2% had Subungual Hyperkeratosis, 24.1% had Uremic Pruritis, 45.4% had Pallor, and 6.4% found with Bruises.

There were 9.9% cases of Alopecia, 17.7% cases of half n half nail, 1.4% cases of half n half nail with alopecia, 9.2% cases of Koilonychia, 0.7% cases of Koilonychia with alopecia, 2.8% found with koilonychias and half n half nail, 2.1% with leuconychia and koilonychia, 15.5% with Leuconychia, 2.1% found with Leuconychia and alopecia, and 0.7% found with Leuconychia, koilonychia & alopecia in Hair and Nail changes.

Characteristics		n	%
Age Group	12 - 25 years	18	12.8
	26 - 35 years	30	21.3
	36 - 45 years	33	23.4
	46 - 60 years	42	29.8
	>60 years	18	12.8
	Mean (\pm S.D)	45.2(± 14.8)	
Gender	Male	92	65.2
	Female	49	34.8
Duration of HD	≤ 2 months	21	14.9
	3 - 6 months	32	22.7
	7 - 12 months	33	23.4
	13 - 24 months	34	24.1
	>24 months	21	14.9
	Median (\pm IQR)	12 (± 20)	
Cause of ESRD	Diabetes	41	29.1
	Hypertension	33	23.4
	Renal Stones	5	3.5
	APH	5	3.5
	Nephrolithiasis	30	21.3
	Idiopathic	6	4.3
	Eclampsia	7	5.0
	Diabetes & Hypertension	8	5.7
	Others	6	4.3

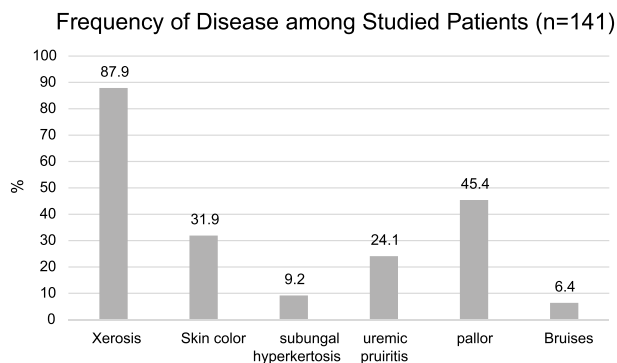
Table-I. Baseline characteristics of studied samples (n=141)

Parameters	Median	IQR
Na+	135	8
K+	5.50	1.30
Urea	85	48
Creatinine	5	1

Table-II. Electrolytes analysis of studied samples (n=141)

Disease	n	%
Xerosis	124	87.9
Skin color (hyperpigmentation)	45	31.9
Subungal Hyperkeratosis	13	9.2
Uremic Pruritis	34	24.1
Pallor	64	45.4
Bruises	9	6.4
Alopecia	14	9.9
Half n Half nail	25	17.7
half n half nail, alopecia	2	1.4
Koilonychia	22	15.5
Koilonychia, alopecia	1	0.7
Koilonychia, half n half nail	4	2.8
Leuconychia & Koilonychia	3	2.1
Leuconychia	22	15.5
leuconychia, alopecia	3	2.1
Leuco, Koilo, alopecia	1	0.7

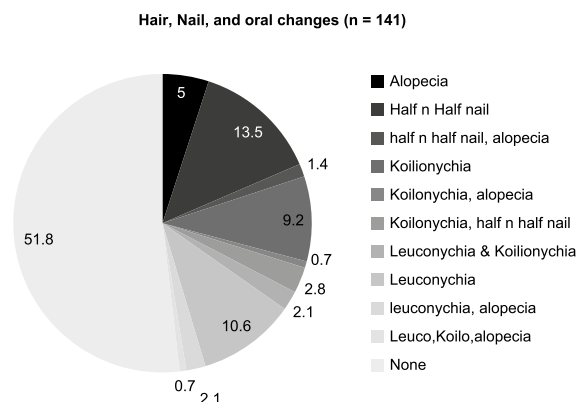
Table-III. Frequency of skin manifestations among studied patients (n=141)



Bar Chart-1

DISCUSSION

ESRD refer to irreversible loss of endogenous renal function and skin alterations in the ESRD patients on hemodialysis are frequently found. Xerosis is most common finding observed in our study (87.9%) and that causing increases the susceptibility to infections. Reported incidence ranged from 46- 90%.³⁻⁵



Pie Chart-1

Skin Pallor because of anemia was seen in 45.4% of patients. This was low incidence with the findings of Girisha et al were reported it in 65% of patients.⁶

The anemia is due to anorexia and low level of erythropoietin secretion by the kidney.⁷

Skin hyperpigmentation is also common manifestation in patients with ESRD. In our study 31.9% of cases had hyperpigmentation. Similar incidence 32.3% was observed by Tawade and Gokhale.⁸ This occurs due to the accumulation of Melanocyte Stimulating Hormone as kidneys cannot excrete it.

Uremic pruritus is one of the most disturbing cutaneous problems seen in patients of ESRD. It was observed in 24.1% of cases. Quality of sleep and daily activities in most of our patient is affected due to this disorder. In a study done by Tawade and Gokhale⁸ they have reported 34% cases, but in local study done by Muhammad anees et al reported 69% cases.⁹ Studies show a reduced the incidence of pruritus is may be due to better technique of dialysis.

Among nail changes, half and half nails (17.5%) were the most commonly seen nail findings in ESRD. This was comparable to the results of other study abderrahmen et al is 13.5% of patients.¹⁰ Koilonychias reported 15.5 in our study. Subungal Hyperkeratosis were reported 9.2% comparing to our local study by Muhammad anees et al reported 23.5.5%.⁹ Leuchonychia reported 15.5%,

same incidence with the findings of Girisha et al who reported it in 15% of patients.⁶

Diffuse alopecia was reported 9.9% in this study and compare to Girisha et al who reported it 7% of patients.⁶

CONCLUSION





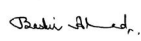
The range of skin manifestations vary in different studies. This study is a joint effort between dermatologists and nephrologists for early detection of skin disorders in ESRD patients. Although often benign with much impact on patient's quality of life and can be life-threatening. Early treatment of skin disorders can improve the quality of life. Prophylactic measures should be taken by patients to prevent skin disorders, such as emollients use for pruritus and xerosis, avoidance of sun and exposure sun screens for hyperpigmentation.

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