

Original Research Article

Study of cutaneous manifestations in chronic kidney disease patients on maintenance hemodialysis at a tertiary care centre

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ABSTRACT

Background: Chronic kidney disease (CKD) is a progressive loss of kidney function over a period of months or years through five stages, presents with various cutaneous manifestations regardless of its aetiology. Patients of CKD disease on hemodialysis treatment which prolong the life expectancy and can also produce skin lesions. Skin changes described in patients with chronic renal disease are also found in patients with renal failure undergoing treatment with either peritoneal dialysis or hemodialysis. High percentage of patients receiving dialysis complains of pruritus that may be severe, in some instances the pruritus worsens with dialysis. The aims of the present study were to study the pattern of cutaneous lesions in patients with chronic kidney disease and to determine the incidence of skin manifestations specific to and associated with CKD.

Methods: Hundred patients of CKD on MHD with cutaneous manifestations attending skin outpatient department, nephrology out-patient department, dialysis center and patients admitted in medical wards were included in the study.

Results: The common cutaneous manifestations were xerosis 91%, pallor 78% and pruritus 69%. Nail manifestations include onycholysis 37% and half and half nails 33%. Hair manifestations in 24% patients.

Conclusions: Most common cutaneous manifestation was xerosis, followed by pallor. Most common nail manifestation was onycholysis.

Keywords: CKD on MHD, Cutaneous manifestations, Pruritis, Xerosis, Pallor, Onycholysis, Half and half nail

INTRODUCTION

CKD affects individuals of all ages and in all socio-economic segments of the population. Patients with end-stage renal disease (ESRD) in India is increasing with an estimated annual incidence of about 100 per million populations.¹ Hemodialysis is one of the therapeutic modalities which can improve the survival in these patients.² About 50-100% of patients with ESRD have at least one associated cutaneous change.^{3,4} All the patients with CRF had one or more manifestations in a tertiary hospital.⁵ This study was designed to analyze the

prevalence and pattern of skin disorders among chronic kidney disease from north coastal region Srikakulam district of Andhra Pradesh, India.

METHODS

A non-random convenient observational study of 100 cases of chronic kidney disease on hemodialysis with cutaneous manifestations patients attending and admitted at skin outpatient department, nephrology outpatient department, dialysis center and patients admitted in medical wards of Great Eastern Medical School were

included in the study. This study was conducted for period of 6 months from December 2018 to May 2019.

In the selected patients, a detailed history with particular reference to demographic details, family history of similar complaints was taken. And of CKD, duration of CKD, treatment details and duration of various symptoms and evolution of lesions was taken. The patients were clinically examined in good light, for various cutaneous manifestations of CKD such as skin lesions, nail changes, mucous membrane involvement. Relevant microbiological and histopathological investigations to confirm the diagnosis were carried out. The

data was analyzed by using percentage with MS Excel 2007.

RESULTS

One hundred patients (83 males and 17 females) were examined. Most of them were aged between 40 and 55 years; the youngest patient was aged 28 years and the oldest was of 87 years. The duration of chronic renal failure varied from 1 month to several years (10 years). The various causes leading to renal failure are shown in Table 1.

Table 1: Etiological reasons for CKD.

Type of CKD	HTN	DM	CGN	CIN	SLE	Others
Number	33	45	11	5	1	5

HTN: hypertension; DM: diabetes mellitus; CGN: Chronic glomerulonephritis; CIN: Chronic interstitial nephritis; SLE: Systemic lupus erythematosus.

Table 2: Cutaneous manifestations among CKD on MHD patients (n=100).

Skin manifestations	N (%)
Xerosis	91 (91)
Pallor	78 (78)
Pruritis	69 (69)
Hyper pigmentation	34 (34)
Dermatitis	17 (17)
Purpura	6 (6)
Psoriasis	3 (3)
Drug reaction	2 (2)
Uremic frost	2 (2)
Bacterial infections	2 (2)
Fungal infections	2 (2)
Kyrles disease	2 (2)
Viral infections	1 (1)
Nail manifestations	
Onycholysis	37 (37)
Half and half nails	33 (33)
Sub ungal hyperkeratosis	26 (26)
Koilonychias	15 (15)
Muerchies lines	13 (13)
Splinter hemorrhages	3 (3)
Beaus line	4 (4)
Hair changes	24 (24)
Mucosal changes	19 (19)

All patients examined in the present study showed at least one or more than one cutaneous manifestations. In the present study most common manifestations were xerosis (91%), pallor (78%), pruritis (69%) and hyper pigmentation (34%). In the present study nail changes were onycholysis (37%), half and half nails (33%), and sub-ungal hyperkeratosis (26%). Hair changes seen in 24% patient's. Mucosal changes were seen in 19% patients. Skin manifestations in relation to causes of CKD are shown in Table 2.



Figure 1: Xerosis.



Figure 2: Onycholysis.



Figure 3: Kyrle's disease.

DISCUSSION

Cutaneous signs of CKD on MHD Patients are extremely valuable to nephrologist. Pallor and pruritis is valuable

tool to nephrologist for initiation of hemodialysis in CKD patients.

Xerosis

In the present study xerosis was the most common skin manifestation (91%) which was similar to Gupta et al (40-90%).⁶ Xerosis develops due to reduction of sweat gland size and increased usage of diuretics. Xerosis is most common in patients with diabetes mellitus, which in turn is the most common cause of CKD.

Pallor

Pallor was the 2nd most common manifestation in present study 78% which was similar to Kumar et al (60%).⁷ Main reasons for pallor is due to decreased erythropoietin from compromised kidney.

Pruritus

Uremic pruritus was the 3rd most common manifestation (69%), which was similar to Kumar et al (72%) and Pico et al (19-90%). Main reason for pruritus is due to accumulation of beta two macroglobulin and advanced glycation end products.^{5,7}

Hyperpigmentation

In the present study hyperpigmentation was noted in 34%, which was similar to (22%) in Mortan et al due to increased melanin synthesis.⁸

Acquired perforating disorders

Among the apds kyrle's disease is most common in present study 2% which was at lower end when compare to other studies (4.5-16%), Pico et al and Tawade et al.^{5,9}

Nail changes

Most of the patients in present study had more than one nail manifestation. In the present study 87% had nail changes present, when compare to 66-79% in Pico et al, Yaghubi et al and Naderi n et al.^{5,10,11} In the present study most common nail manifestation was onycholysis followed by half and half nails.

Hair changes

In present study hair changes were seen in 23% patients. Similar results were seen in Deshmukh et al.¹² Most common manifestation is scarce brittle hair.

CONCLUSION

The most common skin manifestation in the present study was xerosis, pallor followed by pruritus. The most common

nail manifestation was onycholysis followed by half and half nail. As the duration of CKD on MHD progresses the number of manifestations also increases. Moisturisers, avoiding sunlight, iron therapy and anti-pruritic therapy are noteworthy for these patients for their better quality of life.

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REFERENCES

1. Kher V. End-stage renal disease in developing countries. *Kidney Int.* 2002;62(1):350-62.
2. Pastan S, Bailey J. Medical progress: dialysis therapy. *New England J Med.* 1998;338(20):1428-37.
3. Hajheydari Z, Makhloogh A. Cutaneous and mucosal manifestations in patients on maintenance hemodialysis: a study of 101 patients in Sari, Iran. *Iran J Kidney Dis.* 2008;2(2):86-90.
4. Nunley JR. Dermatologic manifestations of renal disease. *eMed.* 2002: 550.
5. Pico MR, Lugo-Somolinos A. Cutaneous alterations in patients with chronic renal failure. *Int J Dermatol.* 1992;31:860-3.
6. Guptha AK, Guptha MA, Cardella CJ, Haberman HF. Cutaneous associations of chronic renal failure and dialysis. *Int J Dermatol.* 1986;25:498-504.
7. Udayakumar P, Balasubramanian S, Ramalingam KS, Lakshmi C, Srinivas CR, Mathew AC. Cutaneous manifestations in patients with chronic renal failure on hemodialysis. *Indian J Dermatol Venereol Lep-rol.* 2006;72(2):119-25.
8. Morton CA, Lafferty M, Hau C, Henderson I, Jones M, Lowe JG. Pruritus and skin hydration during dialysis. *Nephron Dial Transplant.* 1996;11:2031-6.
9. Tawade N, Gokhale BB. Dermatologic manifestation of chronic renal failure. *Indian J Dermatol Venereol Lep-rol.* 1996;62:155-6.
10. Yaghubi R, Niloufer S, Latifee SM. Cutaneous manifestations of end stage renal diseases under hemodialysis. *Iran J Dermatol.* 2002;5:29-34.
11. Naderi N, Mahadevi-Mazdeh M, Firouz A, Seraj MH. Cutaneous manifestations of end stage renal diseases under hemodialysis in hemodialysis ward at Imam Khomeini hospital in Tehran in 2003. *Iran J Dermatol.* 2005;6:489-95.
12. Deshmukh SP, Sharma YK, Dash K, Chaudhari NC, Deo KS. Clinico-epidemiological study of manifestations in patients of chronic renal failure on hemodialysis. *Indian Dermatol Online J.* 2013;4(1):18-21.

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