

## CUTANEOUS MANIFESTATIONS IN PATIENTS UNDERGOING HAEMODIALYSIS FOR END STAGE RENAL DISEASE

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**ABSTRACT: OBJECTIVE:** To determine the frequency of cutaneous lesions in patients of chronic kidney disease (CKD) undergoing haemodialysis. **MATERIALS AND METHODS:** 100 patients of CKD undergoing haemodialysis in the renal dialysis unit of R. L. Jalappa Hospital, Kolar. An informed consent was taken. Detailed history was taken and examination were carried out, noted and entered in a structured proforma. **RESULTS:** Out of 100 patients evaluated, 94% had skin changes. 68% patients were males and 32% were females. The most prevalent finding was pallor in 84% followed by xerosis present in 72% patients. Platynychia was seen in 48% with other findings being pigmentation changes, sparse hair and various nail changes. **CONCLUSION:** Chronic kidney disease is associated with complex array of cutaneous manifestations caused either by disease or treatment. The commonest are pallor, xerosis and platynychia in our study.

**KEYWORDS:** Chronic kidney disease, haemodialysis, cutaneous manifestations, xerosis, pruritus, platynychia.

**INTRODUCTION:** Chronic kidney disease is a general term for heterogeneous disorders affecting kidney structure and function.<sup>1</sup> It encompasses a spectrum of different pathophysiologic processes associated with abnormal kidney function and a progressive decline in glomerular filtration rate (GFR).

Abnormalities of the skin are prevalent in progressive CKD. Pruritus is quite common and one of the most vexing manifestations of the uremic state. In advanced CKD, even on dialysis, patients may become more pigmented, and this is felt to reflect the deposition of retained pigmented metabolites, or urochromes.<sup>2</sup>

The overall magnitude and pattern of chronic kidney disease (CKD) in India has been studied sporadically.<sup>3</sup>

There are various cutaneous manifestations in patients of CRF. These skin and nail changes can occur before or even after initiation of dialysis. The spectrum of cutaneous manifestations is much higher in patients on haemodialysis. Some say that skin manifestations are due to underlying pathologic process that induced renal disease, while others say that skin changes are related to severity and duration of renal failure.<sup>4</sup>

**OBJECTIVE:** The objective of our study was to determine the nature and frequency of cutaneous manifestations in patients of CRF who were on haemodialysis.

**MATERIALS AND METHODS:** For this cross sectional survey, cases were collected during the month of February 2015) from nephrology and renal dialysis unit of Sri Devaraj Urs Medical College, Kolar.

Hundred patients of chronic renal failure were included through non-probability, purposive sampling. Patients of chronic renal failure ranging from 19-85 years of age regardless of gender and cause of renal failure, who were on haemodialysis for more than 6 months were included.

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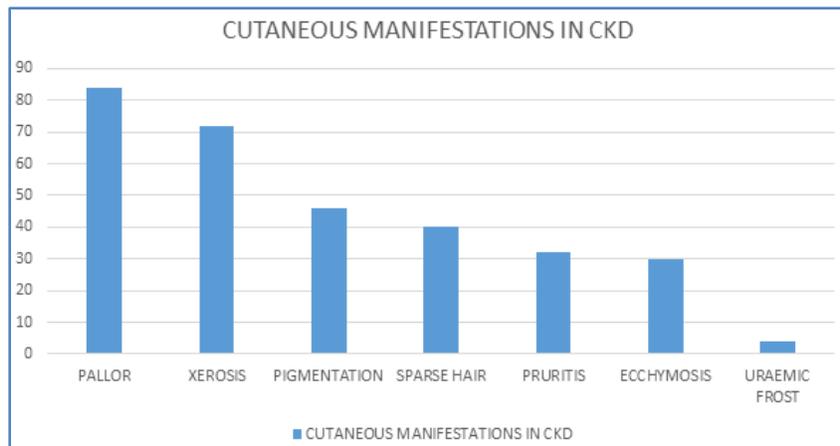
Renal transplant patients and patients on peritoneal dialysis were excluded.

After informed consent, detailed clinical history was taken and examination was performed for cutaneous changes in various grades of renal failure like xerosis, pigmentation, pruritus, pallor etc. Nail and hair changes were also noted.

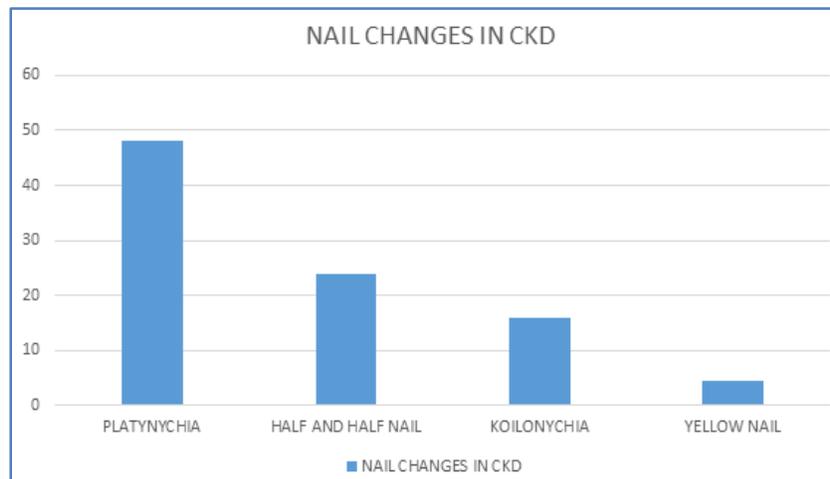
**RESULTS:** The study included 100 patients of chronic renal failure; 68 were males and 32 were females. The overall age ranged from 19-90 years with the mean age of 51.5 years. Maximum number of patients was in age groups between 41-60 years, followed by age group between 61-80 years and 21-40 years. 16% patients were on haemodialysis via Internal Jugular Vein Catheter whereas the rest 84% were on haemodialysis via arterio-venous fistula.

Out of 100 patients evaluated, 94% had skin changes.

The most prevalent finding was pallor in 84% of the cases. This was followed by xerosis present in 72% patients which was generalized and most prominent on the lower limbs and feet. Pigmentation changes in 46% and sparse hair in 40% patients were noticed. Generalised pruritus was seen in 32% of the cases. Ecchymosis was seen in 30% and Uraemic frost was seen in 4% of cases.



Among nail changes platynychia was seen in 48% and koilonychia in 16% patients. 'Half and half nails' (proximal portion white to pink and distal portion red or brown: Terry's nails) was seen in 32% patients. Yellow nail was observed in 6% patients.



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Skin infections were noticed in four patients in form of fungal infection like tinea corporis, tinea pedis in one case each.



Figure 1: Uremic Frost



Figure 2: Xerosis



Figure 3: Half and Half nails



Figure 4: Yellow nails

**DISCUSSION:** In the present study, 100 patients of CKD were studied for the presence of cutaneous manifestations. When compared with other similar studies, Amataya et al.<sup>5</sup> showed almost similar male to female ratio. However, another study carried out by Udayakumar et al.<sup>6</sup> showed a somewhat higher risk in male patients. In our study the incidence in males was higher compared to females.

Epidemiological studies have shown that CRF affects all age groups. Udayakumar et al.<sup>6</sup> showed that most of their patients were aged between 41 and 50 years. In the present study mean age of the patients was 51.5 years.

The frequency of cutaneous manifestations was found to be 94% in our patients of CRF. In a previous study by Udayakumar et al.<sup>6</sup> a frequency of (82%) was reported.

Among the cutaneous manifestations Pallor was the most common manifestation noted. The primary cause in patients with CKD is insufficient production of erythropoietin (EPO) by the diseased kidneys. Additional factors include iron deficiency, acute and chronic inflammation with impaired iron utilization ("anaemia of chronic disease"), severe hyperparathyroidism with consequent bone

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marrow fibrosis, and shortened red cell survival in the uremic environment. In addition, comorbid conditions such as haemoglobinopathy can worsen the anemia.<sup>2</sup>

Xerosis with a non-specific generalized involvement was the second most common finding. It can be a result of systemic and/or local factors like decreased sweat, sebum secretion and altered metabolism of vitamin A.<sup>7</sup> Pruritus can be due to uraemia-related abnormalities, particularly involving calcium, phosphorus and parathyroid hormone metabolism, accumulation of uremic toxins, systemic inflammation, cutaneous xerosis, and common co-morbidities such as diabetes mellitus and viral hepatitis.<sup>8</sup>

Amongst the nail changes platynychia (48%) was most commonly observed along with koilonychias (16%). The second most common finding was half and half nails in 32% of the patients.

They are considered to be characteristic of uraemia. It can involve all finger-and toenails. A study carried out by Sultan et al.<sup>9</sup> reported a frequency of 28% of half-and-half nails. Our findings are comparable to this.

**CONCLUSION:** Chronic renal failure is a significant cause of morbidity and mortality in our population. With the increasing incidence of Chronic diseases such as hypertension and diabetes, the incidence of chronic kidney disease are bound to increase. The knowledge of cutaneous manifestations of CKD will make the clinician aware at an early stage and conservative management started early in the course of illness will delay the requirement of haemodialysis.

The patient of CKD on haemodialysis with cutaneous signs such as pallor should make the clinician aware to further investigate the cause and initiate the necessary treatment.

Hence it is advised that a detailed cutaneous examination should be made in these patients on the first hospital contact and a cursory examination should be made on the follow up examinations.

**LIMITATIONS:** A sample size of 100 patients undergoing haemodialysis was taken for this study. A larger sample size would have improved the spectrum of findings and probably rarer cutaneous manifestations could have been observed if a larger sample size was taken.

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