INTRODUCTION

Chronic kidney disease (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. Hemodialysis is one of the therapeutic modalities which can improve the survival in these patients. About 50-100% of patients with ESRD have at least one associated cutaneous change. All the patients with CRF had one or more manifestations in a tertiary hospital. 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**             |       |
| **Mucosal changes**          |       |

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-unagal 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.

**DISCUSSION**

Cutaneous signs of CKD on MHD Patients are extremely valuable to nephrologist. Pallor and pruritus 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%). 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%). 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.

**Hyperpigmentation**

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

**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.

**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. In the present study 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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Cite this article as: Vudayana K, Korla V, Chintadatta D, Shree JV. Study of cutaneous manifestations in chronic kidney disease patients on maintenance hemodialysis at a tertiary care centre. Int J Res Dermatol 2019;5:771-3.