A Descriptive Cross Sectional Study to Determine Mucocutaneous Manifestations in Chronic Renal Failure on Hemodialysis

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Abstract

Background: Cutaneous involvement in chronic renal failure (CRF) is characterized by a diversity of manifestations. Hemodialysis in CRF improves the quality of life and prolongs the life expectancy of the patients, giving time for newer cutaneous manifestations to develop which are becoming more common.

Aim: The aim of this study is to describe prevalence of cutaneous manifestations in chronic renal failure patients on hemodialysis.

Methods: It was a cross sectional study conducted over a period of 1 year at tertiary hospital in south India. Seventy patients of CRF who were on regular hemodialysis for a period of at least 4 months were examined for cutaneous involvement.

Results: Among the Seventy cases examined, male to female ratio was found to be 2.7:1. Mean duration of hemodialysis was 28.0 ± 9.0 months. Average dermatological manifestation per patient was found to be 3.6. In our study, xerosis and pruritus were the most common dermatological manifestation followed by skin discoloration. Other manifestations noted were Infection 30(42.9), Pallor 20(28.6), Acquired Perforating Dermatoses 5(7.1), Contact dermatitis 2(2.9), Lichen planus 1(1.4), Half and half nail 32(45.7), Splinter hemorrhage 1(1.4), Hair loss-leg 8(11.4), Brittle and lusterless hair 2(2.9).

Conclusions: Cutaneous manifestation though mostly non-specific are fairly common in patients of CRF on hemodialysis.

Introduction

Chronic renal failure (CRF) is the slow loss of kidney function over time. Cutaneous involvement in chronic renal failure is characterized by a diversity of manifestations, which may be related to the process that causes kidney failure, the uremic state or the therapeutic measures used in their handling.[1] Therapeutic measures like hemodialysis, peritoneal dialyses and solid organ transplantation of patients with CRF improves the quality of life and prolongs the life expectancy of these patients, giving time for newer cutaneous manifestations to develop which are becoming more common.

Hemodialysis is a technique that allows removal of metabolic waste products from CRF patients. Although it is effective in prolonging the survival of these patients, persistent metabolic alterations and the risk of the dialysis procedure results in continued morbidity, skin changes associated with it and dialysis may cause discomfort to the patients.[2] Hence, this present study was undertaken to study the association of cutaneous manifestation in CRF patients on Hemodialysis.

Aims and objectives

To study the cutaneous manifestations in chronic renal failure patients on hemodialysis.

Materials and Methods

This cross sectional study was conducted over a period of 1 year at tertiary hospital in south India. Seventy patients of CRF who were on regular hemodialysis for a period of at least 4 months were included in the study after obtaining their informed consent. Patients with clinical manifestations prior to diagnosis of CRF were not included in the study. Patients who discontinued treatment within 3 months were excluded from the study. Patients were examined with detailed history, physical examination with a special emphasis on cutaneous, mucosal and nail involvement. Specific investigations like skin biopsy, culture and sensitivity for bacterial infections, Gram’s stain, potassium hydroxide mount and fungal culture were done for the confirmation of diagnosis in doubtful situation. Results were tabulated and analyzed using Chi-square test and other relevant statistical test.

Results

A total of seventy cases were included in this study which comprises of 51 males and 19 female and male
to female ratio was 2.7:1. Mean age was 47±13 years (youngest 18 years female and oldest 60 years male) and mean duration of hemodialysis was 28.0 ± 9.0 months. In most instances multiple dermatological manifestation were encountered in the same patient with an average of 3.6 manifestations per patient. The numbers of patients showing 3 or more manifestations were 40 patients (57.1%), 2 manifestations were seen in 21 patients (30%) and only 1 manifestation was seen in 9 patients (12.9%). Xerosis and pruritus were most frequently observed dermatoses accounting to one half of all the dermatoses observed in the study. Various cutaneous manifestations observed in our study are shown in Illustration 1.

Discussion

Xerosis was the most common dermatoses, seen in 58 patients (82.9%) and the comment site being lower limbs and flanks. Prevalence of xerosis in patients of CRF on hemodialysis ranged from 46-90%.[3,4,5] and also in Indian study by Udayakumar et al it was 79% which is well comparable with our study. 12% of these patients had severe xerosis and 80% of them complained of associated moderate to severe itching. Pruritus, the most annoying and commonest symptoms present in 56(80%) of patients. Different reports indicate the prevalence of pruritus in the hemodialysis patients to be 19% to 90%.[2,6-11] also, severe itching was present in 60% of patients, moderate in 12% and mild in 28%. There was no correlation in severity of itching and hemodialysis. Skin discoloration was seen in 55 (78.6%) patients. Hyperpigmentation of palms and soles (30%) was common than the diffuse pigmentation (20%) and pallor of the skin was noted in 20(28.6%). Frequency of skin discoloration reported in various studies were 20- 80% [2,3,6-8] which is similar to our study. Hyperpigmented macules on the palms and soles have been reported by Pico et al. and are also attributed to increased circulating b-MSH[6] and increase in melanin in the basal layer and superficial dermis due to failure of the kidneys to excrete beta-melanocyte-stimulating hormone (b-MSH).[6,12] Pallor is due to the associated anaemia due to renal failure.

Pico et al [6] reported infections in 70% of the patients and in Indian study by Udayakumar et al it was 40%.[2] In present study it was 42.9% which is similar to other Indian study. Most common infection was fungal infection noted in 20 (28.6%), mainly tinea cruris (8,11.4%) followed candidal intertrigo(6,8.6%). Acquired Perforating Dermatosis has been reported to occur in 4.5-17% of patients on hemodialysis.[4,6,13] In present study it was 7.1%. Other dermatosis noted were contact dermatitis (2, 2.9) and lichen planus (1, 1.4)

Common nail changes described in CRF are Lindsay's nails (half and half nails), subungual hyperkeratosis, onycholysis, Mee's lines (7%), Muehrcke's lines, splinter haemorrhages, Beau's lines and brown nail bed arcs.[2] Frequency of nail changes, excluding onychomycosis, was around 66% to 79% in various studies.[6-8,14] In our study we noted Half and half nail in 32(45.7%) and Splinter hemorrhage in 1 (1.4%).

Common hair changes described in CRF are sparse body hair and diffuse alopecia with dry, lustreless hair in various studies. Brittle and lustreless hair was seen in 47% in study by Sultan MM et al [15] and 16% in Udayakumar et al. Sparse body hair was seen in 27% in study by Sultan MM et al and 30% in Udayakumar et al. In contrast to the above study, in our study brittle and lustreless hair and sparse body hair was seen in 2(2.9%) and 8(11.4%) respectively.

Conclusion

Careful examination of the skin, hair nails and mucous membrane provides important clues to the diagnosis of complications in chronic renal failure patients on hemodialysis. Cutaneous manifestation though mostly non specific are fairly common in patients of CRF on hemodialysis. Further studies high lighting the etiopathogenesis of cutaneous markers of CRF are needed.

References


Illustrations

Illustration 1

Dermatoses in Chronic renal failure on hemodialysis

Illustration 1: Dermatoses in Chronic renal failure on hemodialysis

<table>
<thead>
<tr>
<th>Dermatoses</th>
<th>No. of patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xerosis</td>
<td>58</td>
<td>82.9</td>
</tr>
<tr>
<td>pruritis</td>
<td>56</td>
<td>80.0</td>
</tr>
<tr>
<td>Hyperpigmentation</td>
<td>35</td>
<td>50.0</td>
</tr>
<tr>
<td>Infection</td>
<td>30</td>
<td>42.9</td>
</tr>
<tr>
<td>Pallor</td>
<td>20</td>
<td>28.6</td>
</tr>
<tr>
<td>Acquired Perforating Dermatoses</td>
<td>05</td>
<td>7.1</td>
</tr>
<tr>
<td>Contact dermatitis</td>
<td>02</td>
<td>2.9</td>
</tr>
<tr>
<td>Lichen planus</td>
<td>01</td>
<td>1.4</td>
</tr>
<tr>
<td>Half and half nail</td>
<td>32</td>
<td>45.7</td>
</tr>
<tr>
<td>Splinter hemorrhage</td>
<td>01</td>
<td>1.4</td>
</tr>
<tr>
<td>Hair loss - leg</td>
<td>08</td>
<td>11.4</td>
</tr>
<tr>
<td>Brittle and lusterless hair</td>
<td>02</td>
<td>2.9</td>
</tr>
</tbody>
</table>
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