CUTANEOUS MANIFESTATIONS OF CHRONIC RENAL FAILURE AND RENAL TRANSPLANTATION
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ABSTRACT

BACKGROUND
The kidney and the skin are the two large networks of the body with abundant blood supply associated with various cutaneous manifestations.

This study aims to detect the various cutaneous manifestations and its incidence in patients with chronic renal failure and renal transplantation.

MATERIALS AND METHODS
This study was done for a period of 1 year from January 2016 to December 2016 at Nephrology OPD ward and Medicine wards, Government KAPV Medical College Hospital, Trichy. During this period, 100 patients who had the presence of skin manifestations were selected and studied (80 renal failure patients and 20 renal transplantation patients).

RESULTS
Most of the specific cutaneous manifestations of chronic renal failure and renal transplantation were noted in this study. Pruritus and xerosis were the most common manifestations noted in chronic renal failure while infections was commonly noted in renal transplantation patients.

CONCLUSION
Pruritus and xerosis were the most common among the specific cutaneous manifestations in chronic renal failure followed by nail abnormalities and pigmentary changes. Cutaneous manifestations of renal transplantation were mostly due to infections of which fungal infection is the most common followed by viral infection.

KEYWORDS
Renal Transplantation, Renal Failure, Pruritus, Xerosis, Infections.

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BACKGROUND
Chronic Renal Failure (CRF) is defined as the irreversible substantial and usually longstanding loss of renal function causing ill-health usually referred to as uraemia. CRF may be caused by any condition, which destroys the normal structure and function of the kidney. Diabetes mellitus is considered responsible for close to 50% of new cases of End-Stage Renal Disease (ESRD), hypertension and cystic or hereditary kidney diseases were the next most common causes.

Reports indicate that 50-100% of patients with ESRD have at least one cutaneous disorder. The skin changes associated with CRF are pruritus, xerosis/ichthyosis, pigmentary alterations, uraemic frost, perforating disorders, metastatic calcification, purpura, gynaecomastia, vascular disorders, poor wound healing, restless leg syndrome, mucosal changes and hair and nail abnormalities. The specific cutaneous manifestations of renal transplantation are related to infections, premalignant and malignant skin lesions.

Objectives-

i) To study the various cutaneous manifestations and their incidence in patients with CRF.
ii) To study the age wise and sex wise incidence of the individual cutaneous manifestation.
iii) To study the incidence of cutaneous manifestations in Renal Transplant Recipients (RTR).

MATERIALS AND METHODS
This study was done for a period of 1 year from January 2016 to December 2016 at Nephrology OPD ward and medicine wards, Government KAPV Medical College Hospital, Trichy.

During this period, 100 patients who had the presence of skin manifestations were selected and studied. 80 patients were known cases of CRF and 20 patients were renal transplant recipients.
Inclusion Criteria
1. Age- All ages.
2. Sex- Both males and females.
3. Patients with CRF.
4. Renal transplant recipients.

Exclusion Criteria
1. Patients with HIV infection.
2. Patients with previous malignancies.
3. Drug-related cutaneous manifestations.
4. Patients on dialysis.

RESULTS

Age Incidence- The age of the patients ranged from 16-70 years with a mean of 46 years. The commonest age incidence among males and females in CRF patients is between 40-60 years and in RTR, it is 20-40 years.

<table>
<thead>
<tr>
<th>Category</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRF (total - 80)</td>
<td>47</td>
<td>33</td>
</tr>
<tr>
<td>RTR (total - 20)</td>
<td>15</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 1. Sex Incidence

Out of 80 CRF patients, 47 (58.7%) were males and 33 (41.2%) were females. Out of 20 RTR, 15 (75%) were males and 5 (25%) were females.

<table>
<thead>
<tr>
<th>Clinical Features</th>
<th>Male (n=47)</th>
<th>Percentage</th>
<th>Female (n=33)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pruritus</td>
<td>32</td>
<td>68.1%</td>
<td>15</td>
<td>45.5%</td>
</tr>
<tr>
<td>Xerosis/ichthyosis</td>
<td>26</td>
<td>55.3%</td>
<td>20</td>
<td>60.6%</td>
</tr>
<tr>
<td>Pigmentary alterations</td>
<td>27</td>
<td>57.4%</td>
<td>17</td>
<td>51.5%</td>
</tr>
<tr>
<td>Uraemic frost</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Perforating disorders</td>
<td>6</td>
<td>12.8%</td>
<td>4</td>
<td>12.1%</td>
</tr>
<tr>
<td>Metastatic calcification</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Purpura</td>
<td>3</td>
<td>6.4%</td>
<td>4</td>
<td>12.1%</td>
</tr>
<tr>
<td>Gynaecomastia</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Vascular disorders</td>
<td>1</td>
<td>2.1%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Poor wound healing</td>
<td>3</td>
<td>6.4%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Restless leg syndrome</td>
<td>2</td>
<td>4.3%</td>
<td>1</td>
<td>3.3%</td>
</tr>
<tr>
<td>Mucosal changes</td>
<td>12</td>
<td>25.5%</td>
<td>6</td>
<td>18.2%</td>
</tr>
<tr>
<td>Hair abnormalities</td>
<td>6</td>
<td>12.8%</td>
<td>10</td>
<td>30.3%</td>
</tr>
<tr>
<td>Nail abnormalities</td>
<td>25</td>
<td>53.2%</td>
<td>20</td>
<td>60.6%</td>
</tr>
</tbody>
</table>

Table 2. Specific Cutaneous Manifestations of CRF

<table>
<thead>
<tr>
<th>Cutaneous Manifestations</th>
<th>Male (n=15)</th>
<th>Percentage</th>
<th>Female (n=5)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bacterial infection</td>
<td>2</td>
<td>13.3%</td>
<td>2</td>
<td>40.0%</td>
</tr>
<tr>
<td>Viral infection</td>
<td>4</td>
<td>26.7%</td>
<td>3</td>
<td>60.0%</td>
</tr>
<tr>
<td>Fungal infection</td>
<td>7</td>
<td>46.7%</td>
<td>1</td>
<td>20.0%</td>
</tr>
<tr>
<td>Parasitic infection</td>
<td>1</td>
<td>6.7%</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Premalignant and malignant lesions</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 3. Specific Cutaneous Manifestations of RTR

DISCUSSION
In this study including 80 patients with CRF, the mean age was around 48, which is in par with the literature of 30-60 years. There was a male preponderance in this study, which goes in par with the literature.

Specific Cutaneous Manifestations of CRF-

A. Skin Changes-

1. Uraemic pruritus was seen in 58.8% and is between the reported ranges of 50-90% in one study and 40-70% in another study. It is the commonest cutaneous manifestation noted in my study.
2. The incidence of xerosis/ichthyosis was found to be 57.5%, which is in par with the literature of 50-75%.
3. The total incidence of patients with pigmentary changes was 55% pallor of skin was seen in 27.5%, which is the commonest pigmentary change noted in my study. Hypermelanotic macules of the palms and soles were seen in only 5 (6.2%) patients, whereas considerable cases had been reported in the literature.
4. Perforating dermatoses were seen in 10 patients. Kyrie’s disease was found in 2 patients, perforating folliculitis in 1 patient and features of nodular prurigo and prurigo simplex in 7 patients. The incidence of perforating disorder in this study was 3.7%, which lies near the range of 4-10% of patients in the literature.
5. Purpura was noted in 7 patients giving an incidence of 8.7%.
6. Interesting findings noted in my study were digital gangrene in 1 patient, poor wound healing following trauma in 3 patients and restless leg syndrome in 3 patients.

B. Mucosal Abnormalities

Oral mucosal lesions were seen in 18 patients with the incidence of 22.5%, which is far less than that found in one study. Uraemic stomatitis was the commonest mucosal...
changes seen in patients with severe ESRD. Oral ulcers were seen in 3 patients and leukokeratosis in 1 patient. Except for the haemorrhagic lesions, all the other oral mucosal changes were seen in this study.

C. Hair Abnormalities
About 7.5% of the patients reported diffuse loss of hair while brittle dry hair was seen in 10 patients. The incidence of hair abnormalities was 12.5%.

D. Nail Changes
Half and half nails reported to occur in 15-50% of uraemic patients were seen in 26.2% of patients in this study. Brown nail bed arc was seen in 8.7% as compared to 20-45% in one study. Other changes noted are shiny nails, melanonychia, onycholysis and onychodystrophy. Blue nails, Mees lines and Muehrcke's lines were not seen.

Skin Changes Attributed to Renal Transplantation-
1. Fungal infections (40%) was found to be the most common in this study, which is in par with the literature. Pityriasis versicolor (25%) and dermatophytosis (10%) were the two common superficial mycosis noted. Oral candidiasis was seen in 1 patient.

2. Viral infections were the next highest in incidence with verruca vulgaris (25%) found in significant number of patients, which is similar to one study of 20-40%. Herpes simplex labialis and Herpes zoster were seen in 5% of patients.

3. Bacterial infections (20%) were low in incidence. Classical scabies was seen in 1 patient.

4. The increased incidence of cutaneous infections could be due to an increased susceptibility to infections as a result of impaired immunity in these patients.

5. There were no cases of premalignant or malignant skin lesions in this study. The duration after renal transplantation was between 2-7 years in these patients. Though the onset of malignancies is 10-30% in 5 years of RTR, these were no cases reported in this study.

CONCLUSION
Pruritus and xerosis were the most common among the specific cutaneous manifestations of chronic renal failure, followed by nail abnormalities and pigmentary changes. Calciphylaxis and uraemic frost were not noted in any patient. The incidence of hair and nail abnormalities were more among females than males in this study.

Cutaneous manifestations of renal transplantation were mostly due to infections of which fungal infections were commonly observed followed by viral infections.

REFERENCES