CUTANEOUS MANIFESTATIONS OF CHRONIC RENAL FAILURE

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Cutaneous manifestations of chronic renal failure (CRF) were studied in 20 cases. Generalised pruritus was observed in 8 patients, ichthyotic skin changes of varying degree in 18 patients and hyperpigmentation of sun-exposed skin in 7 patients. Scaling, pallor and hair loss correlated strongly with the severity of CRF. Skin biopsy performed in 5 cases revealed mild hyperkeratosis, reduction of prickle cell layer and flattening of rete ridges. No significant dermal changes were detected.

Key words : Chronic renal failure, Cutaneous manifestations.

Chronic renal failure, a syndrome which results from progressive and irreversible destruction of nephrons is associated with various clinical and histopathological cutaneous changes, regardless of its aetiology. Very few studies are available on the prevalence of cutaneous signs and symptoms in renal insufficiency.[1,2] We have studied 20 cases with chronic renal failure (CRF) to assess the cutaneous manifestations.

Materials and Methods

Twenty cases of CRF admitted during the period March 1986 to May 1987 constituted the material for this study. A detailed history was taken and complete clinical examination was carried out in all the cases with special emphasis on cutaneous signs and symptoms. Relevant haematological investigations were carried out in all the cases and skin biopsy was performed in five cases from apparently normal-looking skin on the back. None of the cases had started haemodialysis therapy. For males, the creatinine clearance in ml/minute was calculated by the formula

$$\frac{(140 - \text{age in years}) \times \text{body weight in Kg.}}{72 \times \text{serum creatinine mg/100 ml}}$$

For females the value was reduced by 15%.[3] Severity of CRF was graded as follows :

Severe CRF=Creatinine clearance less that 10 ml/minute.

Moderate CRF=Creatinine clearance 10-30 ml/minute.

Mild CRF=Creatinine clearance more than 30 ml/minute.

Results

There were 9 males and 11 females in the age range 14-67 years. Duration of CRF after the diagnosis varied from 3 months to 1 year. Hypertension and diabetes mellitus accounted for the underlying pathology in 9 and 4 patients respectively. Glomerulo-nephritis was seen in 3 patients. Chronic interstitial nephritis, cystic disease and obstructive uropathy were responsible for the remaining cases.

The commonest symptom was generalised pruritus reported by 8 patients. Numbness/tingling and poor wound healing was recorded in 6 patients, majority of them having diabetes mellitus as underlying pathology. Two patients complained of easy bruising and recurrent bacterial infections. Ichthyotic skin changes of varying degree were observed in 18 patients. Hyperpigmentation of skin more marked on the sun-exposed parts of the body was seen in 7 patients. Sparse body/scalp hair and purpuric skin lesions were noticed in 6 and 2 patients respectively. Cheilitis and stomatitis were seen in 2 cases. Uremic frost and calcinosis cutis was not seen in any case. Some degree of pallor was evident in most of the cases. Half

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and half nails were seen in 2 cases. Dystrophy of nails was seen in 3 cases, while clubbing and Beau's lines were observed in 2 patients each.

Histopathological examination of normal-looking skin revealed mild hyperkeratosis, reduction of prickle cell layer and increased pigment in the basal layer in all the biopsy specimens. No significant dermal changes were detected. Calcium staining could not be carried out.

Comments

Scaling, pallor and hair loss were seen predominantly in moderate to severe cases of CRF. No such correlation was found for other cutaneous signs and symptoms (Table I).

Table I. Correlation of cutaneous manifestations with the severity of CRF.

	Severity of CRF			Total
	Mild (n—4)	Moderate (n—8)	Severe (n—8)	(n—20)
Pruritus	2	3	3	8
Pallor	2	6	7	15
Hyperpigmentation	2	3	2	7
Scaling	2	8	8	18
Purpura	—	2	—	2
Half and half nails	—	1	1	2
Hair loss	—	2	4	6

Generalised pruritus was seen in 40% of cases, which is consistent with the findings of Gilcherest et al.[1] Various factors like xerosis, drugs and secondary hyperparathyroidism have been implicated in the pathogenesis of pruritus in uremia. Dryness and scaling of skin which was seen in 18 patients and correlated well with the severity of renal failure is attributed to reduction in the size of eccrine glands in uremia.[4]

Discoloration of the skin in uremia is attributed to the retention of chromogens and excess melanin due to the failure of the kidneys to excrete MSH.[5] Increased vascular fragility and platelet dysfunction account for purpuric skin lesions in renal insufficiency.[6] Half and half nail which consists of a proximal white band and a distal red brown band is considered to be a marker of uremia.[7] The pathophysiology of half and half nails in CRF is not known.

Uremic frost, a distinctive terminal finding in uremia,[8] and cutaneous calcification, an uncommon manifestation of CRF mostly seen in patients with secondary hyperparathyroidism,[9] were not seen in our patients. Recently Kyrle's disease has also been reported in patients with chronic renal failure.[10]

Various histopathological changes in the skin have been documented which vary with the duration and severity of CRF.[11] Epidermal changes include thickening of the stratum corneum, reduction of prickle cell layer and flattening of the dermo-epidermal junction, which is consistent with our findings. Dermal findings consist of dilatation of blood vessels in mild cases, progressing to dermal atrophy with the loss of blood vessels and appendages in advanced cases of CRF. No significant dermal changes were detected in the present study.

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