

UREMIC ITCHING

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Summary

In chronic renal failure, the pathogenesis of pruritus, which is at times relieved and at times aggravated by dialysis therapy is not well understood. Various factors like subcutaneous uremic frost deposition, uremic toxins, calcium deposition in skin have been considered in the etiology of this symptom, but none of them stands well the test of reproducibility. Post-dialysis pruritus has been reasonably attributed to secondary hyperparathyroidism.

Among the various remedies intravenous heparin and intravenous lignocaine are worth trying, though the symptomatic relief obtained has been of a highly circumstantial nature. For postdialysis pruritus, a daring subtotal parathyroidectomy has been found to be successful. Surpassing all these, ultraviolet phototherapy in gradually increasing doses has been reported to be a safe, convenient and effective treatment.

Itching is a prominent dermatological complication of chronic renal failure that is frequently seen in the absence of associated skin diseases. Its behaviour is also quite peculiar. Some patients stop to itch once dialysis is started, while others continue to itch even after dialysis. There is still another group of patients whose itching becomes rather intense¹ with dialysis. Upto 30% or even more of uremics undergoing chronic hemodialysis at any given time complain of pruritus. This may be confined to the extremities or trunk but is usually generalised.

Pathogenesis:

Studies to find out any positive correlation between the variable factors

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observed in uremics namely blood urea nitrogen (BUN)^{2,3} levels, serum creatinine, serum electrolytes, age, sex, and specific type of kidney disease and itching have not been fruitful. Some relationship between pruritus and such factors as duration of chronic renal failure and frequency of hemodialysis has been suggested. To explain the mechanism of itching which still remains ill-understood in uremics, certain hypothesis have been put forward.

The view that uremic frost deposition in subcutaneous tissue causes itching may appear true in untreated uremics but is not tenable in adequately dialysed uremics. Similarly, the view that uremic toxins like guanidino-succinic acid, methylguanidine, methyl-urca and phenols may be responsible for itching is also not tenable. These toxins, as they are of relatively low molecular weight, should be dialysable and so patients adequately dialysed should not develop itching. Kleeman et al (1967)⁴ suggested

that deposition of calcium in the skin may be responsible for itching. Though the idea gained some acceptance, its experimental reproduction is still lacking.

The more commonly accepted view especially about uremic itching unresponsive to dialysis is that of abnormal parathyroid function (Secondary hyperparathyroidism), and deranged calcium and phosphorus metabolism in uremic patients as the itching in these cases has been observed to disappear following subtotal parathyroidectomy^{1,5}. However no definite relation between intensity of itching and type of bone disease present, height of serum calcium or size of parathyroid glands has been established.

Treatment :

This has been a frustrating experience. While antihistamines and non-steroid anti-inflammatory agents such as aspirin have unpredictable effect^{6,7} local application of topical steroids, diluted acetic acid and coal tar has also been unsuccessful.

Yatzidis et al (1972)⁸ were able to abolish itching in 75% of patients by giving intravenous heparin sodium (75-100 mgm) every 12 hour for 2-3 weeks and the benefit lasted for some days or weeks. However the beneficial action of heparin may have been circumstantial. Recently Watson (1973)⁹ abolished the itching within two minutes by giving 200 mgm lignocaine (Xylocaine) slowly by intravenous route and the effect lasted for about 40 minutes. Xylocaine is felt to exert its beneficial effect via its anaesthetic properties. Merrill⁶ has pointed out that pain and itch are transmitted by the same type of nerve fibres. Xylocaine anaesthetises and consequently, interferes with electrical impulse propagation along such nerves. However no antipruritic effect was obtained when Xylocaine was locally applied to skin.

When uremic pruritus which is unresponsive to dialysis, occurs in association with overt signs of hyperparathyroidism, subtotal parathyroidectomy is indicated⁶. But how long the freedom from pruritus will last after partial removal of parathyroid tissue is unknown.

Saltzer¹⁰ relieved uremic itching with ultraviolet phototherapy in 7 of 8 patients. Following this observation, Gilcrest et al¹¹ further evaluated ultraviolet phototherapy in gradually increasing doses and found it to be markedly effective in 9 out of 10 patients within 2-3 weeks with trivial side effect of mild sun burn only. The exact mechanism of action is not known but the response is unaffected by the presence of secondary hyperparathyroidism.

At present it appears that ultraviolet phototherapy is a safe, convenient, inexpensive and more effective treatment of uremic itching than subtotal parathyroidectomy.

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