

Immunoglobulins in the Urine of Leprosy Patients

TO THE EDITOR:

Renal lesions have been noted often in leprosy patients. Most frequently amyloidosis and nephritis of all types, such as chronic pyelonephritis, interstitial nephritis, and chronic diffuse glomerulonephritis, have been reported by various workers (2, 3, 4, 5, 6, 7, 9, 10, 12) in varying frequencies. Although specific leprosy granuloma formation has not been observed in the kidney, it is quite possible that leprosy patients, due to their frequent involvement of renal parenchyma, excrete different components of serum in their urine which directly indicate the extent of renal damage (8). However, the excretion of the type of proteins will depend upon the extent of kidney damage in the leprosy patient. Chakraborty and Saha (1) have noted the presence of IgG and λ chains in the urine of lepromatous leprosy (LL) patients. These authors did not find any serum proteinuria in the tuberculoid type (TT) of leprosy patients.

We tried to demonstrate IgG, IgA, IgM, and C3 in the urine of leprosy patients across the spectrum of the disease. Urine from 26 healthy controls was also taken for comparison for this study. The early morning samples of urine were collected and concentrated ten times before the samples were tested by double diffusion against the specific antisera (anti-immunoglobulins and

anti-C3 were obtained commercially from Kallestad Laboratories, Chaska, Minnesota 55318, U.S.A.). The results are summarized in The Table. Unlike Chakraborty and Saha's (1) findings, 12 healthy control subjects out of 26 showed positivity for κ and 1 out of 26 was also positive for λ chains. However, these samples were negative for the presence of immunoglobulins. Both light chains, κ and λ , are found to be present in varying proportions in all types of leprosy, with 100% κ chain positivity when the patients were in reaction. IgG was present in the urine of all types of leprosy. LL cases with erythema nodosum leprosum (ENL) showed maximum positivity for IgG (75%). IgA was also noted in the urine of all types of leprosy, although in a smaller number of cases. None of the borderline tuberculoid (BT) cases in reaction was positive for IgA. C3 was determined in the urine of nine cases in reaction of BT and ENL types of leprosy. None of these patients showed positivity for C3, although Shwe (11) demonstrated the presence of C3 in renal biopsies of such patients.

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THE TABLE. *Data showing the presence of light chains, immunoglobulins, and C3 in urine of leprosy patients.*

Source of urine	No.	Light chains positive		Positivity for			
		κ	λ	IgG	IgA	IgM	C3
Healthy controls	26	12 ^a	1	0	0	0	0
TT/BT ^b	9	7	3	4	1	0	ND ^c
LL ^d	20	15	16	9	3	0	ND
BT(R) ^e	9	9	5	5	0	0	0
ENL ^f	16	16	13	12	1	0	0

^a Number of positive cases.

^b TT = tuberculoid, BT = borderline tuberculoid.

^c ND = not done.

^d LL = lepromatous.

^e R = reaction.

^f ENL = erythema nodosum leprosum.

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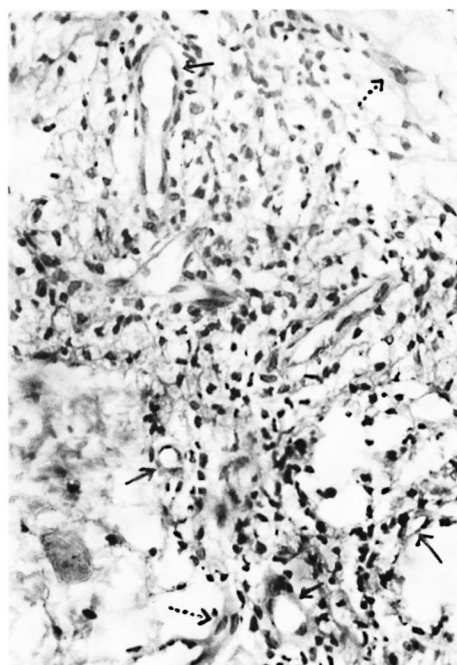
Oral Zinc in the Trophic Ulcers of Leprosy

TO THE EDITOR:

We would like to draw attention to oral zinc sulfate in the healing of uncomplicated trophic ulcers in leprosy. Zinc sulfate has been tried locally as well as orally and has been found effective in healing in cases of chronic venous leg ulcerations^(3, 5), incised wounds⁽⁶⁾, sickle cell ulcers⁽⁷⁾, skin breakdown in kwashiorkor⁽²⁾, bed sores⁽¹⁾, and experimentally induced burn wounds in rats⁽⁴⁾. Recently Söderberg, *et al.*⁽⁸⁾ have shown faster healing of uncomplicated ulcers of leprosy with local zinc tape application. Until now there have been no reports on the effect of oral zinc sulfate on granulation tissue or on trophic ulcers of leprosy. The present communication deals with the effect of oral zinc sulfate in uncomplicated trophic ulcers of leprosy.

Twenty-five patients (13 LL, 8 BL, 4 BT) were selected randomly at the leprosy clinic of the S.M.S. Medical Hospital, Jaipur, India. Twenty were males and five were females. Their ages ranged from 20-60 years. Trophic ulcers were present on the plantar surfaces of their feet, particularly on the soles and the heads of the metatarsal bones. These were about 2 cm-4 cm in diameter, round or oval in shape, and were about 1 cm-2 cm deep. There was no involvement of bones. Secondary infection was present in ten patients. The duration of the ulcers ranged from 2-6 months. Serum zinc levels were estimated in 18 cases before starting zinc therapy and were found to be low (mean \pm S.D. = $75 \pm 8.5 \mu\text{g}/100 \text{ ml}$, range 70-90 $\mu\text{g}/100 \text{ ml}$).

All patients were given 220 mg zinc sulfate/day orally in addition to specific anti-leprosy drugs. In 13 cases, zinc was given for three months and in 12 cases, for 18 months since they were taking zinc for immunostimulation also. Cotrimoxazole was given to patients with secondary infection. Locally the wounds were cleaned with saline solution twice a day and dressed with dry gauze. The patients were not provided with



THE FIGURE. Dermal neovascularization (↑) and endothelial cell proliferation (↗) after zinc therapy. (H&E $\times 600$).