CORRESPONDENCE

This department is for the publication of informal communications that are of interest because they are informative and stimulating, and for the discussion of controversial matters. The mandate of this JOURNAL is to disseminate information relating to leprosy in particular and also other mycobacterial diseases. Dissident comment or interpretation on published research is of course valid, but personality attacks on individuals would seem unnecessary. Political comments, valid or not, also are unwelcome. They might result in interference with the distribution of the JOURNAL and thus interfere with its prime purpose.

Changes of Autonomic Nerve Function in the First Two Weeks of Acute Neuritis in a Patient with Borderline Leprosy

TO THE EDITOR:

Little is known of the time course of autonomic nerve dysfunction in the early stages of acute leprous neuritis, and it is not known how steroid treatment affects autonomic nerve dysfunction. In comparison with motor and sensory functions, we followed for over 2 weeks the autonomic nerve function parameters of sympathetic skin response (SSR) and vasomotor response (VMR) in a patient with newly diagnosed leprosy and acute, severe, reversal reaction.

A 49-year-old Nepali woman with newly diagnosed borderline lepromatous leprosy developed acute, severe, reversal reaction (type 1) 1 week after the first dose of multidrug therapy (600 mg rifampin, 100 mg/day clofazimine, 100 mg/day dapsone). She had noticed several skin patches with hypesthesia on her hands and face as well as paresthesia in both hands over the past 3 months. She had previously been in good health with no malnutrition, and did not drink any alcohol. On examination, skin lesions were present in nine body areas and eight nerves were enlarged and tender. Both hands and feet appeared warm and dry with no cracks or skin atrophy.

Treatment with 60 mg/day prednisone was started. Over 14 days, autonomic nerve function parameters of SSR and VMR were tested as described by Soliven, *et al.*(9) and Low, *et al.*(7) on days 1 (on admission before steroid treatment), 3, 5, 7, 10 and 14. In parallel motor (modified MRC scale as described by Brandsma[2]) and sensory function (standard set of five Semmes-Weinstein monofilaments) as described by Bell-Krotoski([2]) was semi-quantitatively measured. VMRs were measured over the skin of the pulp of the distal phalanges of 10 fingers and the two big toes. SSRs were measured in each foot and hand.

VMRs are listed as the proportionate percent reduction for one digit by taking the sum of all and dividing by 12. In addition, the total number of digits with pathological reflexes is listed. Using the Low, *et al.* criteria([7]), a reflex was considered pathological if $<45\%$ reduction (hand) and $<40\%$ (foot) occurred.

The SSR response is considered absent and pathological if no consistent skin voltage change is observed using a sensitivity of 50 V/cm after at least 10 trials separated by long intervals (1–3 min) to avoid the natural habituation of the response.

To quantify sensory and motor testing we developed a scoring system. The sensory score per site varies from 0–5. A score of 5 is given when the thinnest monofilament in the test series is felt (on the hand, 50 mg; on the feet, 200 mg). A score of zero is given if the thickest filament is not felt. Three predetermined bilateral ulnar nerve and median nerve sites were tested. A maximum score is 60. The motor score consists of the sum of individual scores (0–5: O = paralyzed, 5 = normal strength) for muscles in-

nervated by the ulnar, median and radial nerves with a maximum score of 60. (Further details on all technical procedures may be requested from the author.)

Pain, sensation and weakness improved moderately (The Table) with prednisone treatment which was reduced to 50 mg/day on day 10. The results of the 2-week period are given in The Table.

DISCUSSION

There are no data available on the effects of treatment on the autonomic nervous system involvement in acute neuritis of leprosy. Burte, *et al.*[4] studied the effect of 1 year of clofazimine therapy on the autonomic function in patients with longstanding lepromatous leprosy and found no significant improvement of function. However, all patients had longstanding nerve damage with frequent type 2 (erythema nodosum leprosum) reactions.

We have followed the course of autonomic dysfunction in newly diagnosed leprosy with acute neuritis (type 1, reversal reaction) over the first 2 weeks of treatment with high-dose prednisone. On the day of admission, three pathological VMRs were elicited. Over the following 2 weeks the number of pathological reflexes steadily increased to involve all 12 digits. In parallel the average percent reduction of the response steadily decreased to very low levels. Interestingly, the SSR showed an opposite course. Absent until day 7, the SSR was present from day 10 onward. The course of sensory and motor modalities was similar to the SSR with moderate improvement. How can SSR, sensory and motor function improve and vasomotor function deteriorate in parallel?

One would expect that the broad immunosuppression induced by prednisone would have a positive effect at all levels of neural function. Possibly the concepts of "selective early autonomic nerve damage" and "innocent bystander damage" to autonomic nerves may help to explain. "Selective early autonomic nerve damage" has been suggested by immunocytochemical and vasomotor studies [1, 5]. The longer leprosy infection persists, the wider the spectrum of nerve fiber involvement. Karanth, *et al.*'s immunocytochemical study[5] specifically looked at the differing extent of autonomic nerve damage innervating various skin organs. They found that autonomic nerve fibers supplying blood vessels were more frequently damaged than those innervating sweat glands in patients with tuberculoid leprosy.

"Innocent bystander damage" to autonomic nerves may occur in acute reactions which incorporate a host of systemic cellular and humoral immune responses[8]. These concentrate in and around vessels, possibly damaging "innocent bystanders" such as the nerve endings innervating smooth muscle in the vessels. Here, damage to nerves may be for longer periods than damage to the nerves innervating sweat glands. It is also conceivable that sweat gland innervation has better plasticity than vasomotor innervation, although this has no clinical or experimental support.

Lastly, differing sensitivity of the two tests needs to be considered as a possible conflicting factor. The VMR is known to be more sensitive than the SSR[6]. If this were to be a conflicting problem in our case, one would expect the SSR to be affected later on when the more sensitive VMR showed maximal dysfunction.

This case report suggests that in prednisone-treated, acute, early, leprous neuritis there may be ongoing, selective, autonomic nerve damage while sensory and motor nerve fibers are improving.

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Leprosy and AIDS in the Amazon Basin

To The Editor:

The state of Amazonas in Brazil is a hyperendemic area of leprosy. Although there has been a control program in action for about the last 20 years, the prevalence rate and the detection rate were 39.4 per 10,000 and 67 per 100,000 inhabitants in 1994, respectively. The first case of AIDS in the state was diagnosed in 1986. Although there is a low incidence rate of AIDS in the state of Amazonas (9.5/100,000), 63% of the cases were diagnosed within the last 3 years (Ministerio da Saude do Brasil. Boletim Epidemiologico D.S.T./AIDS, Brasilia, 1995. Ano VII). This shows an increased trend of AIDS in the region. Despite an existing possibility of an interaction between *Mycobacterium leprae* and the HIV infection([1–3, 6, 7]), few clinical reports have been written and the effects of this co-infection have not yet been defined([4, 5]).

In this letter, the clinical aspects and progression of four patients who were identified as having leprosy and HIV infection [HIV 1-HIV 2 antibodies by enzyme immunoassay (Genelavia-Sanofi, France, and immunofluorescence)], one of them with AIDS which was identified by the presence of Kaposi's sarcoma, are described.

Case 1. JCLN, a 25-year-old married male, presented with a hypochromic lesion on the left arm, was skin-smear negative, intradermal reaction was Mitsuda positive and a histopathological examination of the lesion showed tuberculoid infiltrate. This led to the diagnosis of the tuberculoid form of leprosy in October of 1992. A drug combination treatment, including ofloxacin, was given to the patient who had agreed to take part in a double-blind trial for a period of 6 months. The patient took the treatment regularly and had no side effects or leprosy reactions. A routine serologic exam showed a positive result for HIV on 27 October 1993. Only after that did the patient say that he had known he was infected with HIV since 1991 but that he had ignored the fact and had not taken any preventative measures. The leprosy lesion has disappeared, and a general clinical exam and laboratory exams have not shown any abnormalities.

Case 2. VNA, a 27-year-old, male homosexual hairdresser. A diagnosis of borderline lepromatous leprosy was made on 15 September 1994. The patient presented with skin infiltration and disseminated plaques. The first skin-smear exam showed a bacterial index (BI) of 3.2 with 1% of intact