Skin Smears and Bacterial Index in Multiple Drug Therapy

TO THE EDITOR:

The letter by Drs. Georgiev and McDougall on skin smears and the bacterial index (BI) (IJL 56:101–104, 1988) gives an opportunity to share with them some of our feelings. Our comments in this often discussed but neglected subject are as follows.

OBSERVATIONS

Laboratory infrastructure. Although high level groups of experts have commented on the inadequacy of smear laboratories, in reality the matter has not moved from theoretical discussion to practice. Most laboratory technicians take a smear reporting job as a last resort. They find it unrewarding compared to the monotonous and strainsome job they do. As per the report of the independent evaluation of NLEP in India, "only 40.5% of the 823 sanctioned posts are filled of which about 10% are untrained." ([1]) Many peripheral laboratories are underequipped. There is a lack of standardization in every step of the smear technique. The few guidelines prepared do not reach the peripheral labs.

Smear reporting as a diagnostic aid. All types of fully evolved leprosy cases can be diagnosed by clinical features alone, and a smear report is mostly limited to early BL and LL cases and those paucibacillary (PB) cases which eventually evolve to the multibacillary (MB) form of the disease, due to irregular therapy.

Smear reporting as an aid to classification. A large number of cases can be grouped in the MB and PB groups by their clinical presentations. In these cases the smear report is confirmatory. A clinician generally depends on the smear report to classify the following cases: a) most of the borderline cases; b) rare BL and LL cases presenting with a single or a few lesions; and c) dapsone-resistant cases which sometimes have atypical presentations.

BI and MI as indicators of effective chemotherapy. Granular bacilli persist in dermal granulomas long after the cessation of clinical activity. Reports to the effect that nonsolid bacilli grow in the mouse foot pad are scanty, and this important aspect needs further study. It is a common observation that in the majority of cases the morphological index (MI) falls appreciably, following chemotherapy, more so if the initial MI is high.

There is an apparent increase in the BI after fragmentation/granulation. An average BI of many sites/patients is sometimes falacious, and a change in the BI is meaningful only in individual cases.

SUGGESTIONS

Keeping in view the inadequacies in smear laboratories and the lack of standardization in smear techniques, the program managers may consider to:

a) organize one central laboratory after mobilizing men and machines from all field smear laboratories. The central laboratory will cater to only the selected cases indicated earlier.

b) overclassify (to err toward MB) in doubtful cases. The stage of the disease as reflected in the number of nerves and skin sites involved is very important. A good number of smear-negative cases with multiple nerve and skin lesions continue to be active after 12/24 doses of multiple drug therapy (MDT) with two drugs. Hence, when in doubt it is safer to overclassify MB and treat with three drugs.

c) define a cut-off point to stop therapy. There are reports that the BI continues to decrease after cessation of therapy ([2, 3]). A WHO study group ([5]) even recommends that the duration of treatment for MB cases should be "at least 2 years" and preferably until "smear negativity." Irregularity in drug compliance is to some extent inevitable if the treatment is prolonged. This is more so in a disease (as leprosy) where regularity does not show the patient an apparent benefit, nor irregularity immediate harm. The fact that nonsolid bacilli grow in the mouse foot pad needs to be established. In view of these facts, it is suggested that the absence of solid and fragmented bacteria in a clinically inactive case may be taken as bacterial inactivity and as the cut-off point for discontinuing treatment.

d) liberalize the process of smear reporting. Regarding the accuracy of smear grading, the following points are worth reconsidering: MI, SFG, and other sensitive indices are in vogue in a few institutions, but with the present laboratory set up these do not appear to be feasible in field situations. *Mycobacterium leprae* is a peculiar pathogen in the sense that its absence in the smear does not exclude the disease. About 80% of cases are smear negative. In contrast to other bacterial diseases, the cure is not founded in microbiological criteria. The extent of tissue damage is not commensurate with the bacterial load. The bacilli have a varied morphology. An acid-fast granule, fragment and rod each individually enjoy the status of a bacterium. The number of bacilli in a microscopic field can be anything from 1 to >1000, and any count whatsoever deserves treatment with three drugs for at least 2 years. In such a state of affairs, precise grading is neither possible nor required. As in any other bacterial disease, why not concentrate our limited resources and energy on reporting positive or negative with reasonable accuracy?

Grading gives the density of bacilli in a patient. For this, a less comprehensive grading which can be done by visual impression alone (as proposed below) will suffice:

<100 = 1+ = Few (F)
100–1000 = 2+ = Numerous (N)
>1000 = 3+ = Innumerable (I)

This will give a rough idea of the bacterial load as the source of infection. Such less-precise grading has already been advocated and practiced ([4]).

A word for the smear reporter. He and his laboratory are equally as important as the smear report. His morale needs to be upheld by a realistic workload and by healthy working conditions.

Our comments are intended as a temporary compromise, and are not made to negate the value of the smear examination.

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