Lepr Rev (1980) **51**, 195–198

Letter to the Editor

In vitro stimulation of neutrophil motility in lepromatous leprosy

Sir,

It has been previously reported that ascorbate,[1, 2] levamisole,[3, 4] metoprolol,[5] propranolol[6, 7] and sotalol[5] can promote increased neutrophil migration *in vitro* and *in vivo*[2, 8, 3] in normal individuals and in individuals with abnormal leucotaxis. We have recently investigated the effects of these agents at concentrations which have been reported to stimulate leucocyte motility on the chemotactic responsiveness of neutrophils from patients with lepromatous leprosy. Blood neutrophils from these patients have markedly depressed neutrophil chemotaxis.[9] The abnormality is due to the presence of high levels of inactivators of chemotactic factors in the patients serum[10] and to the presence of cell-directed serum inhibitors of motility[11] and to acquired neutrophil intrinsic defects of locomotion.[11]

Twelve new untreated admissions which included six borderline (BL), two sub-polar (LI) and four lepromatous (LL) patients were investigated. The classification was based on the clinical and histopathological criteria of Ridley and Jopling.[12] All patients showed negative skin tests to lepromin. Heparinized venous blood was processed as previously described[7] and neutrophils resuspended to a concentration of 5×10^6/ml (in the presence or absence of the test agents) in Hank's balanced salt solution. The leucoattractant used was endotoxin activated autologous serum.[7] Neutrophil motility was assessed in a modified Boyden chamber using 5 μm pore size Millipore filters and a 3 hr incubation period.[7] Results are expressed as neutrophils per microscope high power field.

In a second series of experiments the ability of the same agents to inhibit the inhibition of migration of normal neutrophils in the presence of sera from the leprosy patients was assessed. Results of both series of experiments are shown in Table 1.

References

[1] Goetzl EJ, Wasserman SI, Gigli I *et al.* *J Clin Invest*, 1974, **53**, 818.
[2] Anderson R, Theron A. *S Afr med J*, 1979, **56**, 429.

Table 1. The effects of calcium and sodium ascorbate; levamisole, metoprolol and sotalol on (a) the chemotaxis of neutrophils from patients with lepromatous leprosy, and (b) the inhibition of chemotaxis of neutrophils from normal individuals in the presence of serum from patients with lepromatous leprosy

	Control (no drug)	1×10^{-2} M Calcium ascorbate	1×10^{-1} M Sodium ascorbate	1×10^{-3} M Levamisole	2.5×10^{-3} M Metoprolol	1×10^{-4} M Propranolol	2.5×10^{-3} M Sotalol
(a)	35 ± 15*	198 ± 85	232 ± 60	192 ± 70	158 ± 64	173 ± 53	162 ± 49
(b)	63 ± 11 (153 ± 21)†	192 ± 43	187 ± 37	191 ± 39	182 ± 42	192 ± 36	167 ± 31

*Results as cells/high power field as mean and standard error.

†Corresponding value for normal neutrophils incubated with 5% autologous serum.

The above results indicate that calcium and sodium ascorbate, levamisole, metoprolol, propranolol and sotalol can stimulate the chemotactic responsiveness of neutrophils from patients with lepromatous leprosy and eliminate the inhibitory effect of sera from patients with lepromatous leprosy on the motility of normal neutrophils. They may therefore be useful in the *in vivo* restoration of leucotaxis in these patients

[3] Anderson R, Glover A, Koornhof HJ *et al. J Immunol,* 1976, **117**, 428.
[4] Wright DG, Kirkpatrick CH, Gallin JI, *J Clin Invest,* 1977, **59**, 941.
[5] Anderson R. *S Afr med J,* 1979, **56**, 165.
[6] Anderson R, Van Rensburg AJ, *S Afr med J,* 1978; **53**, 694.
[7] Anderson R, Van Rensburg AJ, *Immunology,* 1979, **37**, 18.
[8] Anderson R, Oosthuizen R, Theron A *et al. Clin Exp Immunol,* 1979, **35**, 478.
[9] Bullock WE, Ho MF, Chen MJ, *J Reticuloendothel Soc,* 1974, **16**, 259.
[10] Ward PA, Goralnick S, Bullock WE, *J Lab Clin Med,* 1976, **87**, 1025.
[11] Sher R, Anderson R, Glover A *et al. Infec Immun,* 1978, **21**, 959.
[12] Ridley DS, Jopling WH. *Int J Lepr,* 1966, **34**, 255.

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We apologise most sincerely to Dr Felton Ross for mistakes in the printing of his letter on pages 92 and 93 of Leprosy Review, **51**, Number 1, 1980. It should correctly read as follows:–

Does clofazimine have any value in the management of reversal reation?

Sir,
With reference to the article on clofazimine in *Leprosy Review* **50**, 1979, 134–44, I would like to make the following comments:

Two papers (references 1 and 2 below) are frequently quoted in support of the contention that clofazimine is effective in the management of reversal reactions, but neither paper really makes the case.

In his paper Pfaltzgraff[1] states: 'All patients were given steroids for rapid relief of neuritic signs and symptoms.' In my view he makes a good case for the effectiveness of steroids in reversal reactions, but is less convincing regarding the effectiveness of clofazimine.

In her paper Schulz[2] writes: 'In our patients neuritis was adequately controlled after an average of $3\frac{1}{2}$ months of treatment with clofazimine.' I submit that average time lapse of $3\frac{1}{2}$ months before the control of neuritis is in reality evidence of the ineffectiveness of clofazimine in these cases.

Both Pfalzgraff and Schulz deserve thanks and congratulations for having

tackled a problem most of us have evaded, but surely it is time to settle the issue one way or the other. At least we should stop recommending clofazimine for the management of reversal reaction until more definite evidence is available.

Barnetson, *et al.*[3] have done leprosy patients a great service by exploding the myth of dapsone as a causative agent in reversal reactions by a controlled clinical trial. It is my belief that the alleged effectiveness of clofazimine in reversal reactions is also a myth. Have any of your esteemed readers evidence to the contrary?

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References

1 Pfaltzgraff RE. The control of neuritis in leprosy with clofazimine. *Int J Lepr,* 1972, **40,** 392.

2 Schulz EJ. Forty-four months experience in the treatment of leprosy with clofazimine. *Lepr Rev,* 1972, **42,** 178.

3 Barnetson R Stc, Pearson JMH, Rees RJW. Evidence for prevention of borderline leprosy reactions by dapsone. *Lancet,* 1976, **11,** 1171.

Editorial Note

Due to the unusual number of pages used in Number 1, (110 instead of 80), we regret that it is not possible to include *Book Reviews + Abstracts* in this Number; they will be carried forward to Number 3.