

## Lepromin Skin Test in Normal People in Singapore—A One-year Follow Up

TO THE EDITOR:

The lepromin test is an intradermal skin test used to classify a case of Hansen's disease into the tuberculoid or lepromatous variety (<sup>5</sup>). This survey was prompted by the fact that the incidence of lepromin positivity in Singapore is unknown. Singapore is a highly urbanized island in South East Asia which is endemic for Hansen's disease.

We prepared our human lepromin solution in the manner recommended by WHO (<sup>5</sup>). The solution contained  $160 \times 10^6$  bacilli per ml prepared from a nodule of a lepromatous leprosy patient, and 0.1 ml was injected in the usual manner intradermally in the volar forearms of 120 normal volunteers. The Mitsuda reaction was read at 21 days by two people. Simultaneously, a tuberculin test was done on the other forearm. One year later, 30 of the subjects were recalled and re-tested with armadillo-derived

lepromin containing  $160 \times 10^6$  bacilli per ml.

A positive result was defined as per WHO criteria as being any induration 3 mm or greater in diameter (<sup>1</sup>). Table 1 gives the number of cases according to age. There was an overall positivity rate of 70.3% which corresponds to the rate found in most endemic countries where similar studies have

TABLE 1. *Lepromin test (human) in 120 normal subjects.*

Age group	Positive	Negative	Total
10-19	6	2	8
20-29	48	11	59
30-39	19	10	29
40-49	14	3	17
50-59	1	5	6
60-69	0	1	1
Total	88	32	120

TABLE 2. Comparison of Mitsuda reactions in 30 normal individuals using human and armadillo lepromin solutions administered one year apart.

Response <sup>a</sup>	No. of subjects
No change	10
Increased induration by 1 mm or less	8
Increased induration between 1 mm to 2 mm	2
Increased induration by more than 2 mm	10

<sup>a</sup> Responses to armadillo lepromin compared to responses to human lepromin one year later.

been done (<sup>2</sup>). Shepard and Saitz (<sup>3</sup>) found that sensitivity to tuberculin had little relationship to the lepromin reaction (Mitsuda). This present study confirms that relationship.

Twenty females and 10 males presented for the repeat lepromin test. Among the females, all positives remained positive at 21 days, while 5 cases previously negative had readings of 3 mm or greater. This gave a 90% positivity rate. Among the males, of the 5 subjects initially negative, 2 became positive and had readings of 5 mm and 10 mm. A further 5 subjects were initially positive, but on re-testing 2 were negative. Table 2 shows the comparison of the Mitsuda reaction using different lepromin solutions in those who were re-tested. The Mantoux reaction was greater than 10 mm in induration in those individuals who were negative to both human and armadillo lepromin.

Hansen's disease is still endemic in Sin-

gapore, although the number of new cases has been steadily decreasing.

The Mitsuda reaction is a consequence of an intact cell-mediated immune response to persistent antigenic material of *Mycobacterium leprae* as suggested by Wade (<sup>4</sup>). It is interesting to note the increase in positivity of those re-tested with armadillo lepromin 1 year after receiving human lepromin. That 2 males became negative after initially being positive is unusual. It is possible that technical factors could account for this. Of the 30 re-tested individuals, 20 showed an increased induration of 1 mm or more when re-challenged with armadillo lepromin (Table 2).

—K.V. Ratnam, M.B.B.S.,  
M.R.C.P., M.Sc., Dip.Ven.

Senior Registrar  
Middle Road Hospital  
250 Middle Road  
Singapore 0718

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