

THE TUBERCULOSIS FACTOR IN REACTIVITY TO LEPROMIN

TO THE EDITOR:

This communication is in reply to your inquiry about certain of the data bearing on my thesis concerning the leprosy and tuberculosis factors in reactivity to lepromin, as summarized in an abstract in the Madrid Congress issue of *THE JOURNAL* [21 (1953) 584]. The paper from which

that abstract was prepared was written in 1952, and a part of it dealing with the influence of BCG vaccination was read at a meeting in Belo Horizonte that year (Anais do XI Congresso Brasileira de Higiene, Imprensa Official de Minas Gerais, Belo Horizonte, 1953, pp. 787-790). Although I sent that abstract to Madrid, I changed my mind about publishing the paper itself, awaiting the acquisition of further data.

I believe you are especially interested in the following observations involved in that study, on the bearing of the tuberculosis factor on lepromin reactivity. They pertain mainly to a lot of 292 orphanage children, aged 2-14 years, divided into two groups according to the results of the tuberculin test: (a) 139 negatives (to OT 1/10), and (b) 153 positives. The very dissimilar results of the tests with lepromin (Hayashi-Mitsuda type) are shown in the following tabulation. Also shown are the lepromin results in a group of 257 children of the same age range, without leprosy contact, who had been vaccinated intradermally with BCG after having been found tuberculin negative.

Group ^a	No. in group	Mitsuda positive			Mitsuda negative		
		No. & %	F+	F-	No. & %	F+	F-
1. Orphanage children, tuberculin negative ^b	139	9 (6.5)	2	7	130 (93.5)	1	129
2. Orphanage children tuberculin positive	153	142 (92.8)	68	74	11 (7.2)	2	9
3. BCG-vaccinated children (noncontacts)	257	234 (91.1)	123	111	23 (8.9)	2	21

^a All groups aged 2-14 years; averages not available.

^b Mantoux test, OT 1/10 dilution.

First to be noted is that only 9 (6.5%) of the tuberculin negatives were Mitsuda positive (but that many *did* react, despite the lack of evidence of either the tuberculosis or the leprosy factor), whereas no less than 92.8 per cent of the tuberculin positives gave that reaction. The difference could hardly have been more striking. The BCG-vaccinated children gave practically the same percentages as did the natural tuberculin positives of the orphanage group. It is to be understood that none of these children were tested with lepromin more than once; it cannot be said how many of Group 1 would have reacted if tested again.

There was the same correlation trend in the early (Fernandez = F) reaction, but to a much less degree. That reaction was seen in 70 (45.7%) of the tuberculin positives of the orphanage children also in 48.7 per cent of the BCG group, but in only 3 (2.2%) of the tuberculin negatives. Most of the few orphanage children who were Mitsuda positive despite insensitivity to tuberculin were also insensitive to lepromin with respect to the

Fernandez reaction—7 out of 9. Of the total of 73 early positives, 70 were among the Mitsuda reactors, although there were 3 among the negatives. Yet it will be noted that in both Groups 2 and 3 (tuberculosis factor present), the late reactors were divided practically equally with respect to the early reaction.

On the other hand, a very few early reactors may be found among Mitsuda negatives, even—rarely—in the absence of tuberculin reactivity, which facts are difficult to explain.

To return to the Mitsuda results of Group 1, the finding that only 6.5 per cent were prepared to react positively to the first test differs notably from the findings in the Philippines of Guinto *et al.* [THE JOURNAL **23** (1955) 32-47] who, dealing with healthy, country schoolchildren 7-9 years of age, got 34.0 per cent Mitsuda positives among 153 tuberculin negatives—proportionately over five times as many as in my group.

On the other hand the 92.8 per cent of my Group 2, where only the tuberculosis factor is known to have been operative, is materially higher than the 77.5 per cent that Guinto *et al.* got in their 391 tuberculin-positive children. This difference would be hard to explain, unless it could be done on the ground of a difference of antigenicity of the lepromins used.

In considering these results in tuberculin negative children the Editor would doubtless give some importance to a third factor, i.e., environment. The orphanage children had spent all of their lives—or some material proportion thereof immediately preceding the testing—in the institution where the environment is exceptionally clean. Consequently, they had been protected from nonspecific, natural influences of the outside world, especially the soil, which might “condition” the individual to react to lepromin (or to large doses of tuberculin). These influences would have been at play with Guinto’s children.

Be that as it may, the comparison between the two groups of orphanage children is an exceptionally “pure culture” observation of the influence of natural contamination with the tubercle bacillus.

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