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EDITORIALS

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THE USE OF BCG IN THE PROPHYLAXIS OF LEPROSY WHO SHOULD BE VACCINATED, HOW AND WHEN?

When, in 1939, it was shown that the administration of BCG had the effect of transforming the lepromin reactivity from negative to positive in healthy individuals, the possibility of using this vaccine in leprosy for prophylactic purposes was immediately entertained. Since then many reports on this subject have been published, and the matter has been much discussed in congresses and conferences.

There is almost unanimous accord that BCG vaccination is advisable for persons exposed to leprosy infection, but there are marked differences of opinion as to how that is to be done most effectively. This confusion concerns not only the persons who should be vaccinated, but also the time when it should be done and the method of doing it.

As regards the first point, i. e., who should be given BCG as a protective measure against leprosy, opinions range from those who hold that vaccination should be limited to lepromin-negative contacts to those who believe that there should be mass vaccination of all the population of endemic areas.

In a recent article[1] I expressed my own opinion essentially as follows: If it be agreed that BCG can increase the defenses of an individual exposed to leprosy infection, and if it be granted that its administration by the oral route is free from risk and is simple in that it requires no preliminary testing for tuberculin sensitivity, I would not hesitate to advise mass vaccination of the population of leprosy endemic areas.

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[1] FERNANDEZ, J. M. M. Influence of the tuberculosis factor on the clinical and immunological evolution of child contacts with leprosy patients. *Internat. J. Leprosy* **23** (1955) 243-258.

If this *"desideratum"* should be impossible for economic or other reasons, making it necessary to select the persons to be vaccinated, the following is the order of priority that would be recommended, from the minimal upward:

1. Lepromin-negative contacts of open cases of leprosy.
2. Lepromin-negative contacts of any case of leprosy.
3. All contacts with any case of leprosy.
4. Lepromin-negative school children in the endemic area.
5. All school children, without discrimination, in the endemic area.
6. All inhabitants, without discrimination (which brings us around to the point where we started).

As seen in Nos. 3, 5 and 6 of this plan, indiscriminate vaccination will also include the lepromin-positive individuals. This measure has its justification in that experience has shown that lepromin-positive contacts, although they do not acquire the malign form of the disease, may nevertheless be susceptible to infection. It can therefore be supposed that if we enhance the natural defenses by BCG vaccination, we may succeed in building up in them a complete immunity that will protect them from all risk. Wade [2] has contemplated this possibility in suggesting the desirability of trying this kind of vaccination in such persons, or multiple vaccinations in the manner of the "concurrent" method of de Assis.

Regarding the second aspect of the question, i. e., when to use BCG vaccination, I believe that the earlier it is done the better. The ideal would be to vaccinate at birth, because I believe that the effect depends basically on priority of the tuberculosis infection over that of leprosy.

The third aspect, which concerns the form of administrating the vaccine, is at present the most important and also the most debated one. There are wide differences between different authors with regard to the type, dose, route, and frequency of administration of BCG.

It is not my purpose here to discuss in detail the different variants of this aspect of the matter. I will confine myself to pointing out that some workers defend the use of the classical BCG, and others prefer the lyophilized product; that the Brazilian school is decidedly partial to oral vaccination, while the Europeans prefer the intradermal route; that there are some who base the dose on the age of the individual, and on the age of the vaccine, while others recommend uniform doses; and, lastly, that some prefer the administration of broken doses at weekly or monthly intervals and others are inclined to a single massive dose (this last, of course, referring to oral vaccination).

The serious difficulty arising from this conflict of opinion is that when one attempts to strike a balance, the experiences of different centers of work cannot be compared because of the diversity of the methods em-

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[2] WADE, H. W. Personal communication.

ployed. This makes it difficult to arrive at definite conclusions regarding the value of BCG vaccination.

The last aspect of this problem on which I wish to comment concerns those individuals who, despite vaccination, remain persistently lepromin negative. This is the element among contacts of open cases which deserves most attention. Should one give multiple vaccinations, using simultaneously the oral and intradermal routes, as recommended by Arguello Pitt and associates? [3] Or would it be better to combine the BCG vaccination with some "leprolin," perhaps of the Stefansky or marianum type? Would the institution of "precautional" sulfone treatment be indicated in such cases. I believe with Hanks [4] that these "poor responders" perhaps constitute the key to the problem of prophylaxis, since it is the weak point in the protective armamentarium.

In concluding these comments, I suggest the urgent need of bringing up this subject in the next international meetings—the Pan-American Conference to be held in Lima, and the International Congress of Leprology in India—in order to unify the norms so that our experience will prove fruitful.

—J. M. M. FERNANDEZ