

TUBERCULIN REACTIONS OF THE HONG KONG CHINESE, WITH SPECIAL REFERENCE TO THE USE OF TUBERCULO-PROTEIN

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THIS paper records the results of quantitative Mantoux tests on a relatively small sample of Hong Kong Chinese, the reactions of each subject being determined to old tuberculin and to purified tuberculo-protein.

Previous observations on the Chinese indicate that, under urban conditions at any rate, there is a high degree of tuberculinisation. Thus, Korns (1925) found that in Peiping, of 2049 Chinese between the ages of eight and twenty, 30 per cent. gave positive von Pirquet reactions. De Haas (1933), using the von Pirquet test on Chinese in Batavia, found that over 40 per cent. of children under six years were positive, and that between the ages of ten and fourteen, 80 per cent. were positive. Lai, Kao and Chen (1934) applied the Mantoux test, using 0.1 cm. of 1/1000 old tuberculin, to Chinese of various ages in Shanghai. They found that 60 per cent. of all those tested were positive; of those over twenty-four years of age, 94 per cent. gave positive reactions. Anderson (1934) states that at the West China Union University 87.2 per cent. of the new students in the age group sixteen to twenty years were positive to one-tenth of a milligram of old tuberculin by the Mantoux technique. In Hong Kong, Scott (1921) and Minett (1930) have emphasised the frequency of post-mortem evidences of tuberculosis in Chinese autopsied in the Government mortuary.

The subjects of the present investigation were for the most part hospital patients. Careful note was taken whether individuals were suffering from clinical tuberculosis. The tuberculin was kindly supplied by Dr R. A. O'Brien of the Wellcome Physiological Laboratories. Both the old tuberculin and the tuberculo-protein were received in strong solutions and diluted in 0.5 per cent. phenol saline before use. The diluted solutions were not kept longer than 14 days, if not used before then. The technique described by D'Arcy Hart (1932) was followed, the tests being performed by the intradermal injection of 0.1 c.c. of old tuberculin into the flexor aspect of the right forearm and a similar amount of the tuberculo-protein into the left forearm. The initial dilution of the old tuberculin used was 1/10,000, and after some preliminary experimentation the same dilution of a solution of tuberculo-protein of standard potency was employed. The results were read after 48 hours. The criterion taken for a positive reaction was an area of erythema or erythematous infiltra-

tion not less than 5 mm. in diameter. If one or both tests were negative, a further injection of the respective tuberculin in a 1/1000 dilution was then made. This was examined after the passage of another 48 hours. If negative to this dilution the subject was then re-tested with a 1/100 and if necessary with a 1/10 dilution of either or both tuberculin preparations. In the event of the latter dilutions being used, a control injection of glycerinated veal broth was administered.

Owing to the difficulty in gaining access to a sufficient number of young subjects the group of children tested was too small to provide data of statistical value concerning the frequency of positive reactions in relation to age groups. The reactions obtained with tuberculo-protein were generally less vigorous than those obtained with corresponding dilutions of old tuberculin. In a few cases in which vesiculation followed the injection of old tuberculin, no such reaction was caused by the tuberculo-protein. Two of the subjects were negative to tuberculo-protein 1/10, but positive to the same dilutions of old tuberculin. As 1/1000 is often taken as an arbitrary standard in tuberculin testing, it is of interest to compare the number of reactors positive to this and higher dilutions of old tuberculin with the number positive to similar dilutions of tuberculo-protein. Of a total of 259 individuals tested, 241 or 93.1 per cent. were positive to old tuberculin in dilutions of 1/1000 and 1/10,000, whereas 220 or 84.9 per cent. were positive to similar dilutions of tuberculo-protein.

Table I records the percentages of positive reactions for each dilution of the old tuberculin and the tuberculo-protein for the whole series of 259 individuals tested, irrespective of age.

Table I

	Old tuberculin		Tuberculo-protein	
	No. tested	No. positive	No. tested	No. positive
1/10 T	259	173 (69)	259	133 (51)
1/1 T	86	68 (79)	126	87 (69)
1/100	18	11 (61)	39	29 (74)
1/10	7	2 (28)	10	3 (30)
Negative	5		7	

Note. Those negative in each test were tested with the next stronger dilution.
Percentage figures in brackets.

The percentages were lower with tuberculo-protein. The solution was therefore somewhat below standard strength at the time of use. This may have been due to a miscalculation in making up the original strength sent to me, or to deterioration during transit or storage—it is impossible now to determine which. Regarding the stability of the tuberculo-protein concerning which little appears to be known, the sample used in this investigation arrived here by post from England in October, was kept in the ice-chest during the ensuing two months at the end of which it appeared to be quite as potent as when first received.

SUMMARY

1. The tuberculin reactions of 259 Hong Kong Chinese, mostly adults, were determined by the Mantoux method. Each individual was tested with various dilutions of both old tuberculin and tuberculo-protein.

2. Of 215 subjects above the age of twenty, 93·1 per cent. yielded positive reactions to old tuberculin in dilutions of 1/1000 or higher.

3. Tuberculo-protein compared with old tuberculin of similar dilutions did not yield such a high percentage of positive reactions, seldom produced such vigorous reactions and never caused vesiculation. (This may have been due to deterioration.)

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