

Comparison of the tuberculin Tine Test⁺ and the Mantoux

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(Received 13 April 1978)

SUMMARY

Re-evaluation of recently published figures comparing the tuberculin Tine Test⁺ and the Mantoux showed that, contrary to original opinion, the Tine Test⁺ did perform satisfactorily, the reason for the apparent ineffectiveness lying in the original interpretation of the results.

INTRODUCTION

Holley & Bartzokas (1977) recently published their findings on tuberculin testing of hospital personnel. They voiced dissatisfaction with the tuberculin Tine Test⁺ because of a 30% incidence of doubtful reactors, all of whom were later established to be positive reactors by the Mantoux Test. It was concluded that the Tine Tests⁺ were from a defective lot and loss of potency was suggested as the reason for the deficiency.

COMMENT

On study of the information provided by the authors, it was found that the Tine Test⁺ performed satisfactorily and the reason for the apparent ineffectiveness of the Test lay in the interpretation of the test results. It was stated that the recommendations of the National (American) Tuberculosis and Respiratory Disease Association (1969) were followed in the interpretation of the Tine Test⁺ reactions. However, the comparable recommendations were not followed for the intermediate-dose Mantoux Test. The recommendations for the two tests are shown in Table 1.

With regard to the Mantoux Test, the manufacturer's recommendations of defining a positive reaction as a central round, raised reddened macule, 5 mm or more in diameter were followed. However, these were not in accordance with the 1969 recommendations. The group in which the Tine Tests⁺ gave reactions interpreted as doubtful was retested with the Mantoux, resulting in reactions of 5 mm or more in diameter. Whilst these reactions were interpreted as positive, a large proportion would most probably fall inside the doubtful category of 5–9 mm as defined in 1969. Hence, if comparable recommendations are used, there is far greater agreement between the tests than originally suggested.

The agreement of the 2 mm Tine Test⁺ area of induration with the 5 mm area of the Mantoux Test rests on a sound basis. It was established in clinical testing of

Table 1. *Recommendations for the two tests*

Interpretation of reaction	Diameter of induration	
	Tine test ⁺	Mantoux test
Positive	5 mm or more	10 mm or more
Doubtful	2-4 mm	5 through 9 mm
Negative	Less than 2 mm	0 through 4 mm

patients with the two tests and is reconfirmed periodically in clinical testing of each newly produced lot of Old Tuberculin used in the manufacture of the Tine Test⁺.

Another factor contributing to divergence of results of the two tests was the booster effect of the Tine Tests⁺ on the subsequent Mantoux Tests. It was stated that conversion resulting from the Tine⁺ testing was unlikely because the Mantoux testing was performed within 2-3 weeks. However, it has been demonstrated that the booster phenomenon (increase in size of induration) becomes manifest as early as one week after the initial test (Comstock, 1975). Such apparent conversion may have occurred in the one patient whose negative reaction to the Tine Test⁺ was followed by the positive reaction to the Mantoux Test and may also have increased the size of the second reaction in those retested with the Mantoux Test after a doubtful Tine Test⁺.

REFERENCES

- COMSTOCK, G. W. (1975). False tuberculin test results. *Chest* **68** (Supplement), 465.
 HOLLEY, M. P. & BARTZOKAS, C. A. (1977). Tuberculin testing in hospital personnel. **78**, 325.