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A COMPARISON OF THE WASSERMANN AND KAHN REACTIONS

BY

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During the period June to September, 1949, 2,223 Wassermann (Wyler, 1929) and Kahn (1928) tests were carried out in parallel; on some occasions the two tests were carried out on the same day, on others on consecutive days. In order to make the comparison a fair one, when the tests were carried out on consecutive days the Wassermann was done first and the Kahn second, and the Kahn first and the Wassermann second alternately. The Wassermann antigen was obtained from the Ministry of Health Reference Laboratory and the Kahn antigen* from Dr. Kahn himself. Approximately half the specimens came from a V.D. clinic, male and female, and the others comprised those from the general wards of several hospitals and antenatal clinics and routine specimens from prospective blood donors and diabetics.

There was agreement (both tests positive, negative, or doubtful) in 2,110 (95%), partial agreement (one test positive or negative and the other doubtful) in 80 (3.5%), and disagreement in 33 (1.5%). As will be seen from Table I, 194 were positive, 1,899 negative, and 17 doubtful.

TABLE I.—Analysis of Results of 2,223 Parallel Tests

Agreement		Partial Agreement		Disagreement	
W.R. negative } Kahn negative } W.R. positive } Kahn positive } W.R. doubtful } Kahn " }	1,899	W.R. positive } Kahn doubtful } W.R. doubtful } Kahn positive } W.R. negative } Kahn doubtful } W.R. doubtful } Kahn negative }	9 33 31 7	W.R. negative } Kahn positive } W.R. positive } Kahn negative }	27 6
	2,110 (95%)		80 (3.5%)		33 (1.5%)

ful with both tests. Of the 80 in which there was partial agreement, 9 gave a positive W.R. and doubtful Kahn, 33 gave a positive Kahn and doubtful W.R., 31 gave a doubtful Kahn and negative W.R., and 7 a doubtful W.R. and negative Kahn. Of the 27 disagreements that gave

*This antigen was kindly given to me by Colonel L. W. Harrison.

a positive Kahn and a negative W.R. 24 were cases of treated syphilis, one was a child presenting no evidence of syphilis but born of syphilitic parents, and two were cases diagnosed as non-venereal and therefore presumably false positives; of the six disagreements with a positive W.R. and a negative Kahn, five were treated cases of syphilis and one was a child, who subsequently gave negative reactions, born of a syphilitic mother; presumably in this case the positive reaction was due to the carry-over of reagin from a syphilitic mother to a healthy child.

The above indicates a very close parallelism between the two tests, the Kahn being rather the more sensitive in cases of treated syphilis. No attempt has been made to assess the absolute sensitivity of these reactions, but both showed a very high degree of specificity. On the whole the W.R. seems to be slightly more reliable and the Kahn rather more sensitive, but it is clear that a combination of the two tests is the optimum.

A second series, similar in every way to the first, except that the Kahn antigens were obtained from two other sources, gave essentially comparable results: 98.7% of 2,298 sera showed complete or partial agreement (see Table II) and 1.3% showed disagreement. Of the 31

TABLE II.—Analysis of 2,298 Parallel Tests

Agreement		Partial Agreement		Disagreement	
W.R. negative } Kahn negative } W.R. positive } Kahn positive } W.R. doubtful } Kahn doubtful }	1,950 207 20	W.R. positive } Kahn doubtful } W.R. doubtful } Kahn positive } W.R. negative } Kahn doubtful } W.R. doubtful } Kahn negative }	16 17 25 32	W.R. negative } Kahn positive } W.R. positive } Kahn negative }	15 16
	2,177 (94.7%)		90 (4%)		31 (1.3%)

sera where there was disagreement between the two reactions, 15 gave positive Kahn and negative Wassermann and 16 gave positive Wassermann and negative Kahn reactions; the former included 9 cases of syphilis, 2 in which there was no information, 1 certain false positive, and 3 probably false positives; the latter included 12 cases of syphilis and 4 false positives. Thus it will be seen that there was little to choose between the two reactions in respect of specificity.

As interesting side-lights on the above, of 86 routine serum examinations on diabetics 3 (3.5%) were positive; 97 blood donors all gave negative reactions; and of 448 routine serum tests in pregnant women 437 were negative, 1 was doubtful, and 10 (2.2%) were positive.

Summary

Two series of Wassermann and Kahn tests were carried out on 2,223 and 2,298 sera. There was close agreement between the two reactions and both showed a high degree of specificity. Both for diagnosis and for control of treatment of syphilis a combination of the two tests seems desirable.

The finding of 2.2% positive reactions in pregnant women and 3.5% in diabetics indicates the advisability of routine tests on these persons.

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