

# STUDIES ON THE USE OF SKIN TEST IN THE DETECTION OF BILHARZIASIS IN IRAN\*

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**ABSTRACT** Skin test trials with standard *S. mansoni* antigen have been undertaken in Iran to determine the reliability of this method for the mass-diagnosis of urinary bilharziasis and the factors which interfere with the results obtained, such as the presence of animal schistosomes and human infection with intestinal helminthiasis.

Five groups of people, namely, known infected cases of urinary bilharziasis, treated cases, negative persons with probable exposure to *S. bovis cercariae*, negative cases from non-endemic area and students with different intestinal helminths, were included in these studies.

A total of 234 persons were examined during this trial.

The results obtained indicate that, while the difference observed between known positive and negative cases is highly significant, the difference between positive cases and cases treated a year previously is not significant. When the difference between positive cases and persons exposed to *S. bovis* is significant, the difference between the latter group and negative cases is not significant.

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from helminths.

A statistical analysis of the results, using X<sup>2</sup> tests, indicated the following :

1. The difference observed between the percentage of persons with a positive reaction among known positive and known negative cases (patients from Shah-abad and persons from the Isfahan village) was highly significant, with  $P < 0.01$ .

2. No statistically significant differences were observed between the known positive and treated cases. This result again proves the fact that skin tests remain positive in treated cases for at least one year after treatment.

3. The difference between the known positive cases and the group exposed to *S. bovis* was highly significant, with  $P < 0.1$ .

4. Although the percentage of positive reactions among negative persons exposed to *S. bovis* infection (inhabitants of Chagha Sorkh), being 55.5%, was higher than the positive reaction among negative cases without this exposure (inhabitants of the Isfahan village with a false positive rate of 40% and students of the Medical School with 32.1%), the difference observed was not statistically significant.

5. No correlation has been found between infection with helminthiasis and positive skin test reactions. In other words, no cross-reaction was observed between the schistosoma intradermal test and infection with other helminths.

The results obtained from these analyses may indicate that, although exposure to mammalian cercariae will cause some degree of cross-immunity, the degree of immunity is not so high as to create statistically significant differences between the two groups.

**DISCUSSION** The use of the intradermo-reaction as a method of mass-diagnosis of bilharziasis has already been tried by some workers. Khalil (5), in a trial carried out in Sudan, concluded that the intradermal test is valuable in epidemiological surveys.

Although the trial by Sadun and Biocca (1) indicated that the accuracy of this method will be doubtful in areas where animal schistosomes occur, the highly significant difference observed during the present work between known positive cases and groups with exposure to *S. bovis* cercariae shows that this exposure does not significantly interfere with the results of skin test trials.

This finding is not surprising, since this type of cross-reaction has not been observed among individuals with a history of avian bilharziasis tested by *S. mansoni* antigen (6). The high rate of false positive reactions among people from the non-endemic

areas of Isfahan and Teheran is surprising and does not conform to the findings of other workers, especially when considering the total absence of any animal schistosomiasis revealed by a survey of this area.

Martins (7), in a skin test trials carried out among 100 children and 100 adults from a non-endemic area in Brazil, found 3 false-positive and 9 doubtful reaction only. The reason for the finding of these high false-positive reactions can be attributed to the nature of the antigen used and its non-specificity. Another interesting finding during this trial was the total absence of any false-negative reaction among bilharzia-infected cases.

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