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CHAGAS SEROLOGY AND ITS PROBLEMS

by

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Summary — We performed a comparative study (263 sera) of four serological techniques for the diagnosis of Chagas' disease (IFT, CFT, ELISA, IEP). The concordance of the four techniques was 92.8 per cent, and we obtained good quantitative correlations between IFT, CFT and ELISA techniques. Looking at the positivity or negativity of three out of four techniques in order to sort out positivity and negativity of the sera, we obtained a relative sensitivity for the techniques from 96 per cent to 100 per cent, and a relative specificity from 95.1 per cent to 100 per cent. On the other hand, we evaluated the ELISA and IEP techniques. Both techniques appeared to be valuable for Chagas' diagnosis.

150 patients were submitted to xenodiagnosis and their sera were analysed for Chaga's disease. Four of them without any previous treatment appeared to have a peculiar status with positive xenodiagnosis and negative serology. The authors suggest the systematic practice of xenodiagnosis and serodiagnosis. Besides, the development of a test for detecting circulating antigens of *T. cruzi* could be useful for the implementation of the classical serology on these patients.

KEYWORDS : Chagas' Disease, Serological Diagnosis; ELISA; Immunoelectrophoresis.

Introduction

The classical serology of Chagas' disease is performed by various techniques, the most useful of which are immunofluorescence (IFT) and complement fixation (CFT) tests. In the present work, we evaluate the enzyme linked immunosorbent assay (ELISA) and immunoelectrophoresis (IEP) techniques. In the other hand, we discuss on the limits of validity of the classical serology. The first problem which has been discussed in other studies is that of the specificity. In fact, a highest specificity for Chagas' disease is required when in a same place coexist various infections likely to produce cross reactions in the Chagas' diagnosis (Brénière *et al.*, 1985). The second feature is the existence of sera from confirmed Chagas patients presenting a very low titer of antibodies that are considered negative by classical serology. We report here 4 cases out of 150 patients examined.

Materials and Methods

Epimastigote forms of *T. cruzi* (Tehuentepec strain) were obtained from cell free culture in GLSH monophasic medium at 28 °C (Le Ray, 1975). The parasites were collected by centrifugation at 2,000 **g** and washed three times in Hanks-Wallace solution (Hanks & Wallace, 1949). Then the parasites were suspended in NaC1 1 ‰, desintegrated using an hydraulic press at 1800 PSI (X Press LKB) and centrigurated at 2,600 **g** for 1 hour at 4 °C. The supernatant was dialysed and lyophylized. This total *T. cruzi* antigenic

Results

Evaluation of ELISA and IEP techniques :

Initially, we made the evaluation of ELISA and IEP tests with the 263 patient sera from different endemic areas. Two types of analysis have been done :

— quantitative correlation study between IFT, CFT and ELISA, with the following results :

with the four techniques. For 7.2 per cent of sera, the four techniques were not in agreement, for 6.1 per cent three techniques out of four agreed

Patient No. 1 had a negative serology, one year after a previous positive test with a negative xenodiagnosis which became then positive. Patient

La serología de la enfermedad de Chagas y sus problemas.

Resumen — En 263 sueros hemos efectuado un estudio comparativo de cuatro técnicas serológicas para el diagnóstico de la enfermeded da Chagas (IFT, CFT, ELISA, IEP). Las cuatro técnicas estaban *en concordancia en 92,8 por ciento.* Se *ha obtenido,* por otra parte, buenas correlations cuantitativas entre las técnicas de IFT, CFT y ELISA. Considerando tres técnicas positivas o negativas sobre cuatro para clasificar los sueros en positivos o negativos, la sensibilidad relativa de las técnicas varía entre 96 por ciento y 100 por ciento