Comparison of commercial kit for antigen detection with in house immunoassay for antibody detection in histoplasmosis diagnosis

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Histoplasmosis is a worldwide-distributed systemic disease. In HIV patients histoplasmosis is one of the most frequent fungal opportunistic systemic infection. This disease is responsible for high rates of morbidity and mortality, and it is mostly fatal without an early diagnosis and treatment. The gold standard diagnosis of histoplasmosis is based on isolation of the fungus in culture. However, in its absence, serology has been used as a presumptive diagnosis through antibody and antigen detection. Here, we evaluated, retrospectively, the sensitivity of a commercial kit for antigen detection (IMMY) and western blot (WB) immunoassay for antibody detection in different clinical forms of histoplasmosis. We evaluated 38 samples from patients with proven or probable histoplasmosis (18 disseminated, 10 acute pulmonary, six chronic pulmonary, four mediastinal clinical forms) from the Evandro Chagas National Institute of Infectious Diseases (INI-Fiocruz) and São José Hospital (Fortaleza, Ceará). In WB, any well-defined band, with molecular weight of 115 and 88 kDa represent the specific antibodies against H and M antigen and were considered positive test. The antigen detection was performed using the *Histoplasma* GM (IMMY) following the manufacturer´s instructions. The overall tests sensitivities was 81.6% and 78.9%, in WB and antigen detection, respectively. The sensitivities the WB was of 100% (10/10) in acute disease, 100% (6/6) in chronic disease, 100% (4/4) in mediastinal disease and 61.1% (11/18) in disseminated histoplasmosis. While in the detection of antigens, the sensitivities was of 50% (5/10) in acute disease, 83.3% (5/6) in chronic disease, 50% (2/4) in mediastinal disease and 100% (18/18) in disseminated histoplasmosis. In conclusion, it was demonstrated a high sensitivity of WB in pulmonary forms and mediastinal histoplasmosis, whereas antigen detection was more sensitive in disseminated disease. However, when associated both methodologies, all individuals with histoplasmosis were correctly diagnosed. This study demonstrated that antibody and antigen detection tests are promising tools to improve diagnosis of histoplasmosis.

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