ANALYSIS Screening Methods in the Diagnosis of Connective Tissue Diseases: an Italian Multicenter Study

Trezzi B.1,2, Lupetti M1, Pregolato F3, Borghi O3,4, Alpini C5, Finazzi S5, Franceschini F5, Gerli R5, Giovannelli L5, Ghirardello A5, Giudizi MG5, Morozzi G5, Pratesi F5, Riccieri V5, Sabatini P5, Sebastiani G5, Tonello M5, Radice A2,5 on behalf of the “Forum Interdisciplinare per la ricerca sulle malattie autoimmuni, F.I.R.M.A.”

1Microbiology Inst & 2Clin Immunol, S. Carlo B. Hospital, Milan; 3Exp Immunohematology Lab IRCCS Ist. Auxologico Italiano & 4DISCCO, University, Milan; 5Forum Interdisciplinare per la ricerca nelle malattie autoimmuni (F.I.R.M.A.), ITALY.

INTRODUCTION

Diagnosis of Connective Tissue Diseases (CTD) is based upon clinical criteria and serological testing for detection of autoantibodies such as antinuclear antibodies (ANA). Although indirect immunofluorescence (IF) on Hep-2 cells is considered the reference technique for ANA testing due to the high sensitivity, the method is burdened with some criticisms. New techniques have been developed to overcome the Hep-2-IF drawbacks. Among the latest generation of “ANA screening assays” the fully automated fluoroenzyme immunoassay EliA™ CTD Screen on Phadia 250 (Phadia AB) is reported as a reliable method to help diagnosing ANA-associated rheumatic diseases (AARD).


METHODS: results of ANA screening by EliA™ CTD Screen, a mix of 14 antigens, the most relevant for AARD (Tab.1) were compared with the Hep-2-IF in 378 subjects (287 autoimmune patients, 34 non-autoimmune pathological controls, 57 healthy donors)(Fig.1).

RESULTS & DISCUSSION

Agreement between EliA™ CTD Screen & Hep-2-IF

- The CTD screen levels among groups were significantly different (Kruskal-Wallis chi-squared=150.5, df=2, p-value << 0.001) (Fig.2)
- Autoantibody levels in the positive pathological cntrls were significantly lower than the positive autoimmune samples (W=144.5, p=0.005) (Fig.2)

Compared to Hep-2-IF, EliA™ CTD Screen showed a good overall (83.3%) & negative agreement (90.7%), while the positive one was slightly lower due to the presence in the cohort of 33 RA pts (81.2%)(Tab.3)
Indeed, the clinical context in which the CTD screen finds the best use is that of diagnosis/confirmation of AARD (ANA Associated Rheumatic Disease, namely SLE, SSc, SJGs, AIM and MCTD) rather than SARD (all AARD + RA) because RA is not typically related with ANA or ANA subserology
Considering diagnosis, EliA™ CTD Screen showed a sensitivity of 82.6% & a specificity of 91.2%. As EliA™ CTD Screen does not include RA specific antigens, agreement & sensitivity were re-calculated after the exclusion of RA pts (Tab.4).

CONCLUSIONS: The EliA™ CTD Screen showed very good agreement with Hep-2-IF and may help in differentiating pts with/without CTD. Further studies are needed to define its potential position in ANA testing algorithms.

A. Radice, radice.antonella@asst-santilipolocarlo.it