ANTINUCLEAR ANTIBODIES - MULTIPLE, MIXED AND COMPOSITE STAINING PATTERNS ON A LARGE SAMPLE OF SERA REFERRED FOR AUTOANTIBODIES TESTING ON HEp-2 CELLS

Wilton Ferreira Silva Santos^{1,*}, Leandro Kegler Nardes², Daniele de Castro Félix¹, Ana Paula de Castro Cantuária¹

1.Sabin Medicina Diagnóstica, Brasília (DF), Brazil; 2.Escola Superior de Ciências da Saúde, Brasília (DF), Brazil.

*Corresponding author: wiltonss@uol.com.br

BACKGROUND

The Brazilian consensus on autoantibodies (BCA) recognizes three types of pattern combinations on antinuclear antibody (ANA) indirect immunofluorescence test using HEp-2 cells: 1) Multiple: combination of patterns clearly identified on visual reading of HEp-2 cells slides (due to the presence of more than one autoantibody); 2) Mixed: mix of different patterns not readily and clearly identified at visual reading; and 3) Composite: combination of patterns due to the presence of a single autoantibody. The aim of this study is to describe the most frequent combinations of patterns depicted on HEp-2 cells using the BCA proposal and the codes of Brazilian (BCA) and the International Consensus on ANA Patterns (ICAP).

METHODS

Routine ANA testing results reported in the period of January and June of 2017 were reviewed using the BCA classification proposal for combined patterns. ANA testing was carried out by immunofluorescent indirect technique according to the producer's instructions. Visual pattern recognition was done by experts on ANA readings.

RESULTS

In the 6 months period studied, 54,990 samples were tested for ANA, and 11,478 (20.9%) were positive at titer $\geq 1/80$. From these, 1,111 (9.7%) displayed a combined staining pattern as follows: multiple, $n = 945$ (85.1%); mixed, $n = 60$ (5.4%) and composite, $n = 106$ (9.5%). In the group of the multiple/mixed pattern ($n = 1,005$) double, triple and quadruple combination of patterns (ICAP/BCA codes) were observed in 98.0%, 1.8% and 0.2% respectively. The most prevalent combination observed was the isolated double nuclear staining ($n = 678$, 67.5%). Multiple/mixed patterns without nuclear staining were restricted to 15 out of all 1,005 samples. The most common patterns observed in multiple group ($n = 945$) were: AC-4 (fine speckled)+AC-6,7 (discrete dots) ($n = 262$); AC-2 (dense fine speckled)+AC-6,7 ($n = 198$); AC-4+AC-8,9,10 (nucleolar) ($n = 129$); AC-3 (centromere)+AC-4 ($n = 125$); others ($n = 231$). The most prevalent combinations in the mixed group ($n = 60$) were: AC-1 (homogeneous)+AC-5 (coarse speckled) ($n = 14$); AC-4+AC-5 ($n = 13$); AC-4+BAC-4 (Brazilian anticell-4, reticular coarse) ($n = 12$); AC-1+AC-4 ($n = 8$); others ($n = 13$). And the most common composite patterns ($n = 106$) registered were: AC-26 (NuMA-1) ($n = 99$); AC-29 (Topo-I like) ($n = 6$) and AC-14 (CENP-F) ($n = 1$). Other composite patterns were not possible to define due methodological issues (retrospection).

CONCLUSION

Almost 10% of positive results in routine ANA testing displayed a combination of ANA-HEp-2 patterns. Most of them were classified as multiple according to the BCA proposal. The double nuclear pattern was by far the most observed pattern combination. AC-4+AC-6,7; AC-2+AC-6,7; AC-4+AC-8,9,10 and AC3+AC-4 were the most specific combinations reported in the multiple group. AC-1+AC-5 and AC-4+AC-5 were the most common combination in the mixed group. AC-26 were the most representative combination in the composite group.

KEYWORDS

Antinuclear antibodies, Autoantibodies, Laboratory diagnoses, Antinuclear factor.