Autoantibodies against Dense-Fine-Speckled 70 (DFS70) Do Not Entirely Exclude Connective Tissue Diseases

University Hospital Bonn, Institute of Medical Biometry, Informatics and Epidemiology, Bonn, Germany
University Hospital Bonn, Institute of Clinical Chemistry and Clinical Pharmacology, Bonn, Germany
University Hospital Bonn, Institute of Internal Medicine, Department of Dermatology, Immunology, and Clinical Immunology, Bonn, Germany
University Hospital Bonn, Institute of Clinical Chemistry and Clinical Pharmacology, Bonn, Germany
University Hospital Bonn, Institute of Internal Medicine, Department of Dermatology, Immunology, and Clinical Immunology, Bonn, Germany
University Hospital Bonn, Institute of Medical Biometry, Informatics and Epidemiology, Bonn, Germany

Background: Antinuclear antibodies (ANA) are serological markers for the presence of rheumatic diseases [1]. In some patients, a pattern can be detected in ANA immunofluorescence that resembles an anti-dense-fine-speckled-70 antibody [2]. This is detected less frequently in patients with connective tissue diseases (CTD) and is therefore often used as an exclusion criterion for a CTD [2]. To date, however, it is not clear how the presence of an anti-DFS70 autoantibody will reliably rule out CTDs.

Objectives: To examine the degree to which CTDs can be excluded from either a positive test and whether there are discrepancies between patients with CTDs and a negative anti-DFS70 test and those with CTDs and a positive anti-DFS70 test.

Methods: We analyzed data of 460 patients who were tested for the presence of the DFS70 antibody at the University Hospital Bonn, Germany. Patients were examined with regard to clinical symptoms and signs, type of disease, type of CTD, fulfillment of the classification criteria for the particular CTD, DFS70 antibodies, other autoantibodies, and ANA titer. Gold standard for presence of a CTD was the diagnosis of the treating rheumatologist.

In addition, we identified 21 patients with a positive test result in the presence of a CTD, which accounts for 25.9% of all anti-DFS70 positive tested patients. We found no significant differences in DFS70-positive patients with CTD in regard to age, gender, symptoms, clinical signs and other disease-specific antibodies compared to patients with negative DFS70 status and present CTD.

Results: Of the 460 patients, 79.8% were female and 18.2% were diagnosed with a CTD. 354 patients (77.0%) were tested negative, 81 (17.6%) positive and 25 (5.4%) had a borderline anti-DFS70 autoantibody result.

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Of the 21 DFS70-positive patients with CTD, 12 (57.1%) were tested for the presence of disease-specific autoantibodies. Specific autoantibodies could be detected in all of the tested patients with systemic lupus erythematosus, systemic sclerosis, Sjögren's syndrome and mixed connective tissue disease.

DFS70 autoantibodies had a specificity of 86.8%, a sensitivity of 26.9% and a positive predictive value of 68.2% at an ANA titer of ≥1:160, with respect to the absence of a connective tissue disease.

Table 1. Sensitivity, specificity and positive predictive value of anti-DFS70 autoantibody in different ANA titers (borderline patients excluded)

<table>
<thead>
<tr>
<th>ANA Titer</th>
<th>DFS70 Positive</th>
<th>DFS70 Negative</th>
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</thead>
<tbody>
<tr>
<td>No present</td>
<td>52/58 (91.3)</td>
<td>145/148 (97.9)</td>
</tr>
<tr>
<td>Present</td>
<td>21/21</td>
<td>22/22</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>95.2%</td>
<td>97.9%</td>
</tr>
<tr>
<td>Specificity</td>
<td>60.7%</td>
<td>97.9%</td>
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Conclusion: Autoantibodies to DFS70 often occur in CTD patients and are therefore not a valid exclusion criterion for a CTD. We observed no CTD in 68.2% of patients who were tested positive. Thus, in difficult situations, the DFS70 test may be helpful and the additional exclusion of other autoantibodies may render CTD even less probable.

References: