Evaluation of the prevalence of 52 kDa Ro/SS-A autoantibodies in a cohort of patient sera.

Aisha Bisimwa¹, Diane MacDonald¹, Lesley Smyth², Chris Scott¹
¹ Immunology, Barts Health NHS Trust, London, UK.
² School of Health Sport and Bioscience, University of East London, London UK

Introduction

Antibodies to Ro52 antigen have recently been identified as one of the first antibodies to become evident in connective tissue disease before symptoms become apparent.

Ro52 could be a possible serum marker for certain connective tissue diseases such as primary Sjögren’s syndrome, primary biliary cirrhosis, systemic sclerosis and dermatomyositis as shown by studies performed by (Yoshimi et al., 2012) and (Hudson et al., 2012). The presence of anti-Ro52 antibodies could provide an additional clue to diagnosis and prognosis of CTD.

Anti-Ro/SS-A antibodies may directly react against either Ro52/Ro60 or both and the current testing system is lacking in distinguishing between the two antigens. To become applicable for routine laboratory practice, this study evaluated the use of the ELISA technique to distinguish between antibodies to the two separate Ro antigens.

Method

This was a monocentric retrospective study of a cohort of CTD patients. Patients were identified from the immunology laboratory records at Barts Health NHS Trust.

120 patients were selected for this project and they were categorised as three groups of 40 patients each. These groups were classed as the Ro52 antigen test samples, negative controls and diseased controls.

The Ro52 test samples were samples from patients who were highly likely suffering from SLE or SS while the negative controls are patients who were never before tested for any connective tissue disease but were positive for another completely unrelated disease, in this case, thyroid disease. The disease controls were patients positive for ANA and double stranded deoxyribonucleic acid (dsDNA) test. The dsDNA test is performed using both ELISA and IIF technique and is a confirmatory test to the ANA. It has a fairly high diagnostic sensitivity for SLE.

Results

Isolated Ro52+Ro60- were relatively common in the Ro52 test group. 32/40 (80%) were Ro52+Ro60-, 5/40 (12.5%) were Ro52- Ro60- and only 3/40 patients (7.5%) were Ro52+Ro60+.

In the diseased controls and negative controls (healthy controls), there were no Ro52+ Ro60- samples. The majority of patients in these two control groups were Ro52-Ro60-, with the values being, 33/40 (82.5%) and 35/40 (87.5%) in the diseased and negative controls (healthy patients) respectively.

There were only 4/40 (10%) patients who were Ro52+Ro60+ in both the diseased and negative controls. Ro52-Ro60+ was detected in only 3/40 (7.5%) in the diseased controls and 1/40 patient (2.5%) in the negative controls.

<table>
<thead>
<tr>
<th>Group</th>
<th>Ro52+ / Ro60-</th>
<th>Ro52- / Ro60+</th>
<th>Ro52/- Ro60-</th>
<th>Ro52+ / Ro60+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ro52 test</td>
<td>32</td>
<td>0</td>
<td>5</td>
<td>3</td>
<td>40</td>
</tr>
<tr>
<td>Diseased control</td>
<td>0</td>
<td>3</td>
<td>33</td>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td>Negative controls</td>
<td>0</td>
<td>1</td>
<td>35</td>
<td>4</td>
<td>40</td>
</tr>
</tbody>
</table>

Discussion

The prevalence of Ro52 antibodies in the selected cohort of patients was found to be quite common. 80% of the patients tested positive for isolated Ro52 antibodies. This data is consistent with studies in the literature.

The corresponding clinical data of these patients show that they are likely to have a connective tissue disease and therefore identifying the exact antigen involved in disease pathogenesis may be useful for the clinician.

Of those patients who were Ro52+/Ro60- 24% had RA/joint pains, 18% had evidence of a CTD, and 15% had abnormal liver function. The following comment is now added to all Ro52 positives “Ro/SSA 52 antibodies (without Ro/SSA 60) can be found in autoimmune myositis, SLE, Sjogrens syndrome, Systemic Sclerosis and autoimmune liver disease.”

This project was submitted in partial fulfilment for the award of MSc in Biomedical Sciences from University of East London.