Factors related to radiological damage in 61 Spaniards with early rheumatoid arthritis

P Richi, A Balsa, S Muñoz-Fernández, V Villaverde, M Fernández-Prada, J L Vicario, E Martin-Mola

CONCISE REPORT

Objective: To determine whether the presence of radiographic erosions at disease onset in patients with early rheumatoid arthritis (RA) is associated with clinical, serological, or genetic factors of poor outcome and whether patients with erosions only in the feet have a different pattern of presentation.

Methods: Sixty-one patients with early RA (<6 months of evolution) were studied. Clinical evaluation and serological, radiological, and genetic studies were performed at disease onset and after one year.

Results: Forty-one (67%) patients showed erosions in their hands or in their feet, or in both. Subjects with erosive RA had a higher number of swollen joints (SJN; 9 (SD 6) v 6 (3), p=0.008), and rheumatoid factor (RF) positivity was more common (80% v 50%, p=0.02) than those without erosions. Seventeen (17%) of the 41 patients in the group with erosions had erosions only in their feet. This group had a longer duration of morning stiffness (120 (60) v 72 (52) min, p=0.005), better patient’s global assessment of general health (34 (22) v 27 (25), p<0.05), and lower erythrocyte sedimentation rate (32 (22) v 60 (30) mm/1st h, p<0.05) than the rest of the subjects with erosions, and none of them was in remission after one year. Remission after one year was related to a lack of cortical damage at onset and RF negativity.

Conclusions: Radiological damage at disease onset is associated with a worse clinical presentation and RF positivity, which are markers of poor outcome. There is a subgroup of patients, with erosions only in their feet, whose clinical presentation is less aggressive. To identify these cases of early erosive RA, radiographs of the feet should be obtained routinely.

RESULTS

Sixty-one patients (22 men, 39 women) were included in the study, with a mean age of 54 years (range 22–79) and a mean (SD) disease duration of 14 (13) weeks. Forty-four (72%) subjects were RF positive, 35 (57%) patients had the shared epitope in their HLA class II sequence (13% were homozygous).

Forty-one patients (67%) had erosions in their hands or feet, or both. These patients had a higher number of swollen joints (9 (6) v 6 (3), p=0.008), and RF positivity was more common (80% v 50%, p<0.02). No other differences were found between patients with initially erosive and non-erosive disease, and there was no significant correlation between radiological score and other clinical or serological parameters.

Seven (17%) of the forty-one patients of the group with erosions had erosions only in their feet. These patients had a longer duration of morning stiffness (120 (60) v 72 (52) min, p<0.005), better patient’s global assessment of general health, and lower erythrocyte sedimentation rate (32 (22) v 60 (30) mm/1st h, p<0.05) than the rest of the subjects with erosions, and none of them was in remission after one year. Remission after one year was related to a lack of cortical damage at onset and RF negativity.

Statistical analysis

Non-parametric tests were used for statistical analysis. Differences between groups were analysed by Student’s t test for continuous data, and by χ² for discrete data. Correlation was studied using Spearman’s test.

Abbreviations: ARA, American Rheumatism Association; ESR, erythrocyte sedimentation rate; RA, rheumatoid arthritis; RF, rheumatoid factor

Radiological damage in early RA is associated with clinical, serological, and genetic factors.
Table 1 Differences between patients with erosions only in their feet and the rest of the patients with erosive RA. Results are shown as mean (SD) except where indicated otherwise.

<table>
<thead>
<tr>
<th></th>
<th>Erosions only in the feet (n=7)</th>
<th>Erosions in the hands ± in the feet (n=34)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male/female</td>
<td>3/4</td>
<td>14/20</td>
</tr>
<tr>
<td>Age</td>
<td>53 (14)</td>
<td>55 (18)</td>
</tr>
<tr>
<td>Evolution (weeks)</td>
<td>14 (14)</td>
<td>14 (8)</td>
</tr>
<tr>
<td>Morning stiffness* (min)</td>
<td>120 (60)</td>
<td>72 (52)</td>
</tr>
<tr>
<td>TJN68</td>
<td>14 (4)</td>
<td>16 (9)</td>
</tr>
<tr>
<td>SIN66</td>
<td>7 (6)</td>
<td>10 (5)</td>
</tr>
<tr>
<td>Ritchie articular index</td>
<td>12 (4)</td>
<td>10 (4)</td>
</tr>
<tr>
<td>Grip strength</td>
<td>121 (50)</td>
<td>96 (24)</td>
</tr>
<tr>
<td>Pain (VAS)</td>
<td>48 (34)</td>
<td>55 (25)</td>
</tr>
<tr>
<td>Health (VAS)*</td>
<td>34 (22)</td>
<td>57 (25)</td>
</tr>
<tr>
<td>HAQ</td>
<td>1.6 (0.6)</td>
<td>1.6 (0.7)</td>
</tr>
<tr>
<td>Nodules (No [%])</td>
<td>0</td>
<td>8 (24)</td>
</tr>
<tr>
<td>ESR*</td>
<td>32 (22)</td>
<td>60 (30)</td>
</tr>
<tr>
<td>CRP</td>
<td>2.6 (2.2)</td>
<td>4.4 (3)</td>
</tr>
<tr>
<td>RF +ve (No [%])</td>
<td>7 (100)</td>
<td>26 (76)</td>
</tr>
<tr>
<td>RF titre</td>
<td>253 (180)</td>
<td>240 (204)</td>
</tr>
<tr>
<td>ANA +ve (+ve [%])</td>
<td>3 (43)</td>
<td>11 (32)</td>
</tr>
<tr>
<td>Rx score</td>
<td>5 (5)</td>
<td>5 (5)</td>
</tr>
<tr>
<td>SE +ve (No [%])</td>
<td>2 (29)</td>
<td>22 (65)</td>
</tr>
<tr>
<td>SE+ve/SE vene (No [%])</td>
<td>1 (14)</td>
<td>4 (12)</td>
</tr>
<tr>
<td>DRI +ve (+ve [%])</td>
<td>0</td>
<td>11 (32)</td>
</tr>
<tr>
<td>DRI+ +ve (+ve [%])</td>
<td>1 (14)</td>
<td>13 (38)</td>
</tr>
<tr>
<td>DQ2 +ve (+ve [%])</td>
<td>1 (14)</td>
<td>13 (38)</td>
</tr>
<tr>
<td>DQ3 +ve (+ve [%])</td>
<td>2 (29)</td>
<td>13 (38)</td>
</tr>
</tbody>
</table>

*p<0.05.

DISCUSSION

The presence of erosions in the early phases of RA has been identified as a risk factor for poorer outcome.\(^9\) Other studies found a lower rate of erosiveness than our study (67% v 37%\(^9\) and 29%\(^10\)) in patients with a longer period of evolution—that is, <12 or <24 months.

There may be several reasons for these different results. Firstly, positive RF at baseline has been recognised as a high risk factor for bony destruction,\(^2\) and our series had the highest percentage of seropositive patients. Secondly, some authors\(^11\) have suggested that patients with non-erosive, seronegative polyarthritis may not truly have RA, even though they fulfil the diagnostic criteria. In our series 50% of the patients with non-erosive RA were seronegative. The other studies do not give the equivalent data, but the inclusion of a high percentage of this special subgroup of patients might explain the less aggressive behaviour of the disease. Thirdly, a different radiological index was used, and it is not known whether a similar number of joints were evaluated. Fourthly, we consider an erosion to be any discontinuation of the cortical surface, without taking into account its size, whereas other authors consider only erosions >2 mm.\(^12\) Only Higami et al reported similar results to ours.\(^9\) They studied 82 patients with RA who had had symptoms for <1 year. Seventy seven (94%) were seropositive, 50% were heterozygous for the shared epitope and 16% homozygous. They used the Larsen index and found erosive changes in 50 (61%) of their patients.

In our daily practice, we carry out an x ray examination of the hands and feet in all patients with polyarthritis. Seven patients (17%) of the group with erosions had erosions only in their feet. Priolo et al studied baseline radiographs of the hands, wrists, and feet of 284 patients with RA, and found that 31 (11%) subjects had erosions only in the feet.\(^13\) The main differences between Priolo’s study and ours are that he included patients with an average disease duration of 1.4 years, and their patients might have received auranofin or an antimalarial agent before the first radiograph was obtained.

One other hand, Plant et al studied patterns of radiological progression in early RA and found that the feet showed the earliest changes and also tend to plateau earlier.\(^14\) Hence, foot radiographs may give interesting information mainly at the disease onset.

Patients with erosions only in the feet had a lower ESR, and better assessment of general health than those with erosions in hands, or in hands and feet. So if radiographs of the feet had not been obtained, 17% of our patients would have shown only a moderate increase of ESR and absence of erosions. These patients might have been considered to have a milder disease than they really had, which is affirmed by the fact that no one went on remission a year later. We agree with these authors who suggest that changes in radiographs of the feet should be added to the 1987 ARA diagnostic criteria for RA,\(^14\) in order to make good use of all the information available before choosing the best therapeutic option.

In summary, our results support the suggestion that radiological damage appears early in the evolution of RA. Sixty seven per cent of our patients, with a mean evolution of 14 weeks, had erosions in their small joints. Information on the initial onset of erosions and their progression, in addition to standard clinical measures, enables the rheumatologist to select a better long term strategy against the disease.

References

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