A comparative study of functional performance between male and female rheumatoid arthritis patients at (RJRC)

Aida M. Doughan, MD, Jane S. Kawar, MD, Ali H. Otom, MD

ABSTRACT
Objectives: The purpose of this study is to compare the functional disability between male and female rheumatoid arthritis patients measured by the Stanford Health Assessment Questionnaire Disability Scale (HAQ). Methods: This is a prospective study of 150 rheumatoid arthritis patients seen in the rheumatology clinic at the Royal Jordanian Rehabilitation Center during a 10 week period in 1994. One hundred and twenty seven were females and 23 were males with a mean age of 46 years. Patients were assessed using standardized clinical, biochemical and radiographic examination. Functional disability was measured using the Stanford Health Assessment Questionnaire Disability Scale. Results: The results suggest that there is significant differences between males and females for HAQ score (mean score M=1.07, F=1.5, p=0.05) and for hemoglobin (means (SD) M=13.5 (1.2), F=12.0 (1.5)g/dL, p<0.01 but not for other parameters. Conclusion: The data suggest that the impact of rheumatoid arthritis has a greater effect on the functional status of women.

Saudi Medical Journal 1997; Vol. 18 (4):410-413

Keywords: Rheumatoid arthritis, Steinbrocker index, functional status.

The term rheumatoid arthritis (RA) introduced by Garrod in 1859, describes a systemic disease that is characterized by a systemic inflammatory polyarthropathy with morning stiffness and rheumatoid factor (RF) positivity in 80% of patients. Rheumatoid arthritis is a chronic, systemic, inflammatory disorder of unknown etiology. It has been described as one of the great mysteries of medicine. Though considerable light has been thrown on this disease during the last few years much work and study by many investigators has failed to disclose the nature of the malady. Rheumatoid arthritis usually results in progressive joint destruction, deformity and ultimately a, variable degree of incapacitation. The worst prognosis for disability was found in patients who were older women, who showed radiographic worsening and developed functional impairment early in the disease course. Men had a better outcome than women and the impact of RA has a greater effect on the functional status of women. Some male patients exhibit a robust response to rheumatoid arthritis and function normally despite their disease activity. They exhibit an athletic build, mental solidity and independence. We have used a standardized clinical biochemical, radiographic evaluation and an established measure of functional disability, the Stanford Health Assessment Questionnaire (HAQ) Disability Scale, to compare the functional status of male and female patients attending our rheumatology clinic.

Patients and methods One hundred and fifty consecutive patients with definite rheumatoid arthritis (RA) according to the 1958 ARA criteria were seen in the rheumatology department at the Royal Jordanian Rehabilitation Centre (RJRC) during a 10-week period in 1994. They were interviewed and assessed using standardized clinical, biochemical and radiographic evaluation. Current drug therapy and duration of early morning stiffness in minutes (>30min) were recorded. Blood was taken for hemoglobin, erythrocyte sedimentation rate (ESR), C-reactive protein (CRP) and late test (a latex titre of greater than 1:80 was considered significant). The disease duration and presence of subcutaneous nodules at any time in the patient's history were

From the Department of Rheumatology and Rehabilitation, (Doughan, Kawar, Otom) Royal Jordanian Rehabilitation Center, Jordan.

Received July 1995. Accepted for publication in final form September 1996.

Address correspondence and reprint request to: Dr. Aida M. Doughan, Royal Medical Services, Royal Jordanian Rehabilitation Center, Department of Rheumatology & Rehabilitation, PO Box 644, Sweileh 119110, Amman, Jordan. Fax No. 962-6-827493.
Table 1 - Disability index questionnaire

<table>
<thead>
<tr>
<th>Activity</th>
<th>Without difficulty?</th>
<th>With difficulty?</th>
<th>With some help from another person?</th>
<th>Unable to do?</th>
</tr>
</thead>
</table>
| 1. Dressing and grooming  
   a) get you clothes out of the closet and drawers  
   b) dress yourself including handling of closures (buttons, zippers, snaps)  
   c) Shampoo your hair | -                  | -                | -                     | -            |
| 2. Arising  
   a) stand up from a straight chair without using your arms for support | -                  | -                | -                     | -            |
| 3. Eating  
   a) cut your meat  
   b) lift a full cup or glass to your mouth | -                  | -                | -                     | -            |
| 4. Walking  
   a) walk outdoors on flat ground | -                  | -                | -                     | -            |
| 5. Hygiene  
   a) wash and dry your entire body  
   b) use the bathtub  
   c) turn faucets on and off  
   d) get on and off the toilet | -                  | -                | -                     | -            |
| 6. Reach  
   a) comb your hair  
   b) reach and get down a 5 lb bag of sugar which is above your head | -                  | -                | -                     | -            |
| 7. Grip  
   a) open push - button car doors  
   b) open jars which have been previously opened  
   c) use a pen or pencil | -                  | -                | -                     | -            |
| 8. Activity  
   a) drive a car  
   (For reasons other than arthritis, I do not drive...)  
   b) run errands and shop | -                  | -                | -                     | -            |

"without difficulty" = 0, "with difficulty" = 1, "with some help from another person or with a device" = 2, and "unable to do" = 3. The highest score on any question within a component is the score for that component, Table (1).

Results The results suggest that the patient groups were matched for age, disease characteristics, disease activity, disease duration and severity of joint damage. There were significant differences between males and females for the HAQ Score (M=1.07, F=1.5, p=0.05), and we also found significant differences between males and females for hemoglobin (means (SDM=13.5 (1.2), F=12.0(1.6)g/dl, 0.01) but not for the other parameters, disease characteristics, disease activity and treatment, see (Table 2). For comparison the distribution of Steinbrok function capacity grades is also shown (Fig. 1). Our data support the hypothesis that the impact of rheumatoid arthritis has greater effect on the
Number of Patient

<table>
<thead>
<tr>
<th>Functional class</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>II</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>III</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>IV</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Figure 1 - Distribution of Steinbrocker functional class scores for 127 female and 23 male RA patients

Discussion  Rheumatoid arthritis has a highly variable clinical course; in some, manifestations are mild, while in others, the disease rapidly progresses to a severe, crippling form. Age has been found to be the most powerful single predictor of disability. The prevalence of RA increases with age for both males and females.

Ageing may have an interesting diversity of effect on the immune response. The prevalence of antibodies such as RF's antinuclear antibodies increases with age. This may be related to decrease in the number or functional activity of suppressor T cells capable of controlling the response of the immune system. It has also been noted that in our military population there is a relative infrequency of RA in younger adult males compared with other types of inflammatory arthritis. Females predominate over males in an overall sex ratio of 3:1. Under the age of 60, the female to male ratio was 5:1, whereas at the age of 60 and older the sex ratio was approximately equal (1.4:1). In the present study the mean age was 46 years for both sexes, with male to female ratio of 1.55.

Sex related host factors seem to play an important role in determining the onset and severity of RA. Males may acquire a relative protective factor at adolescence which may be lost in older ages. This concept may relate to the recognized pregnancy induced remission and post partum exacerbation or new onset of RA. Predominance in females parallels the effect of hormones on the immune system. The ability of females in many mammalian species, including the human to surpass males in both humeral and cellular immune response may be accentuated in females. The difference in hemoglobin between male and female RA patients was of the same order as that seen between healthy men and women. Patients with rheumatoid arthritis experience a variety of functional limitations associated with pain, fatigue and joint destruction that are whole markers of the disease. Measurement of disability is important for 2 reasons. First, as pointed out by Steinbrocker in 1949, there is a need to differentiate between the effect of therapy on inflammatory activity and on functional outcome. Secondly, our patients are fearful of disability.

Many different tools are available to measure disability of these patients. The simplest to complete and score is probably the HAQ disability index. It has been extensively evaluated, it is short, takes a few minutes to be completed by the patient, each category of the HAQ relates to aspects of disability, measures multiple activities, including mobility, dexterity and the impact on social activities. It has been used to evaluate a large population of rheumatoid arthritis patients. It was found to be more sensitive to patients functional change than the Steinbrocher grading. It is considered one of the best currently available functional measures.

The differences in scores between men and women in our study are likely to reflect social and cultural roles, differences in build and psychological make up between the sexes. Yelin et al. have attempted to identify the factors that

Table 2 - A comparison between male and female rheumatoid arthritis patients. Patients, disease characteristics, treatment, disease activity and functional status

<table>
<thead>
<tr>
<th>Patients</th>
<th>Men</th>
<th>Women</th>
<th>P. value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>23</td>
<td>127</td>
<td></td>
</tr>
<tr>
<td>Mean age (ys)</td>
<td>46</td>
<td>46</td>
<td></td>
</tr>
<tr>
<td>Disease characteristics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disease duration(yrs)</td>
<td>8.9</td>
<td>11.4</td>
<td>NS</td>
</tr>
<tr>
<td>Seropositivity (%)</td>
<td>73.9</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td>Erosions (%)</td>
<td>73.9</td>
<td>85</td>
<td></td>
</tr>
<tr>
<td>Nodules (%)</td>
<td>26</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Disease activity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMS (mm) &gt;30</td>
<td>68</td>
<td>76</td>
<td>NS</td>
</tr>
<tr>
<td>E.S.R. (mm/h) &gt;30</td>
<td>74</td>
<td>92</td>
<td></td>
</tr>
<tr>
<td>C-reactive protein (mg/1)</td>
<td>52</td>
<td>64</td>
<td></td>
</tr>
<tr>
<td>Hemoglobin (g/dl)</td>
<td>13.5</td>
<td>12</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Treatment (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analgesic + NSAID alone (%)</td>
<td>13</td>
<td>21</td>
<td>NS</td>
</tr>
<tr>
<td>DMARD's (%)</td>
<td>61</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>Corticosteroids (%)</td>
<td>0</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Immunosuppressors (%)</td>
<td>26</td>
<td>13</td>
<td>NS</td>
</tr>
</tbody>
</table>

Functional status

| HAQ Score | 1.07 | 1.5  | 0.05    |

NSAIDS: non-steroidal anti-inflammatory drugs;
DMARDs: disease modifying anti-rheumatic drugs. Means were compared using Student's t-test and percentages (calculations on actual numbers) using chi squared test.
are most important in predicting work disability. They found that disease characteristics and treatment are less important factors in predicting work disability than are work-place characteristics and social factors.

Gove10 has argued that a home-making role creates a considerable strain on the individual and contributes to the higher rate of symptoms and disability among women. In our Jordanian society, most women in urban and rural areas are full-time housewives. They are expected to look after big families with an average of 6 children; sometimes they are expected to look after grandparents and occasionally relatives. Their work includes all household jobs such as cleaning, cooking and washing. In rural areas they are engaged in farming and it’s related work. Women who go out to work are also expected to do the housework and look after children in the afternoon. Therefore the study shows that the amount and type of work will enhance the disability from RA. This finding is consistent with previous studies11,12 demonstrating the relatively greater importance of social factors versus clinical disease factors in predicting disability.

References