Behçet's syndrome patients have high levels of functional disability, fatigue and pain as measured by a Multi-dimensional Health Assessment Questionnaire (MDHAQ)

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ABSTRACT

Objective. *Current tools for assessing Behçet's syndrome (BS) do not include patient-reported outcomes such as functional disability, pain or fatigue. We examined various outcome measures using the multi-dimensional Health Assessment Questionnaire (MDHAQ) and compared them between BS patients with and without arthritis. We also compared the results to those for patients with rheumatoid arthritis (RA), the disease in relation to which the MDHAQ has been most thoroughly studied.*

Methods. *We conducted a comparative review of BS and early RA patients being followed at the New York University Hospital for Joint Diseases (NYU HJD) and the Behçet's Syndrome Center. All patients completed an MDHAQ at each visit, which included functional disability, pain, morning stiffness, fatigue, and patient and physician global assessments of disease activity. A chart review for BS manifestations and treatments was also carried out. All patient evaluations reported here represent the baseline values at first visit.*

Results. *129 patients with BS and 116 with early RA were surveyed. BS patients had similar pain levels and physician global assessment of disease activity to the RA patients and higher functional disability, fatigue and patient assessments of global disease activity. Among BS patients, those with arthritis had significantly higher scores for all the outcome measures examined except the physician global assessment of disease activity.*

Conclusions. *Using the MDHAQ could reveal previously under-recognized problems in BS, as was observed in this survey of BS patients with arthritis. Such information might be helpful in the management of patients with BS.*

Introduction

Behçet's syndrome (BS) is a systemic vasculitis that commonly manifests itself in the form of mucocutaneous lesions and eye and gastrointestinal involvement (1). It can also affect the joints, central nervous system, and blood vessels of all types. The effects of BS on everyday functioning and the quality of life have been studied and two tools have been developed for its assessment. The Behçet's Disease Activity Index (2) was designed to measure disease activity separately from chronic damage. The Behçet's Disease Quality of Life (BD-QoL) measure was created to supplement data gathered from the activity index and to measure the impact of BS on the patient's daily life (3). The activity index is completed by the physician/assessor together with the patient, while the BD-QoL is completed by the patient.

One of the present authors (YY) has been using the multi-dimensional Health Assessment Questionnaire (MDHAQ) as part of his routine clinical practice since 2001 for all patient visits regardless of the diagnosis (4). The data is stored in a prospective database. In 2005 this system was implemented at New York University Hospital for Joint Diseases (NYU HJD) (5) and at the same time the hospital established a Behçet's Syndrome Evaluation, Treatment and Research Center.

We were interested in seeing how BS patients fared in terms of the various areas covered in the MDHAQ compared to patients with rheumatoid arthritis (RA), the disease for which the MDHAQ was initially used. The HAQ and MDHAQ can predict long-term outcomes for severe RA such as work disability or premature mortality over 5-10 years with greater significance than joint counts, and with far greater significance than quantitative radio-

graphic scores or laboratory tests (6, 7). Patient questionnaires have applications in many other rheumatic diseases, including osteoarthritis, systemic lupus erythematosus, fibromyalgia, scleroderma, and ankylosing spondylitis, and this was one of the reasons for starting the practice of administering an MDHAQ to all patients at each visit (8, 9). The data obtained may help in the development of a patient questionnaire for BS, possibly a modified version of the MDHAQ that incorporates BS-specific questions in addition to the usual domains covered by the MDHAQ.

Methods

A retrospective chart review was conducted on BS patients seen at the NYU HJD Behçet's Syndrome Center. This center was created in May 2005 and all BS patients were enrolled consecutively in the registry; one-third of them have been followed by the senior author since 2001 and the remainder were first seen at the new center after 2005.

At each visit, patients were given an MDHAQ to fill out regardless of their diagnosis. Data routinely collected from all patients using this instrument include functional status in the HAQ format (*i.e.*, 10 questions associated with the MDHAQ physical function score); visual analog scales (VAS) for pain, fatigue, and patient and physician global assessments of disease activity; a 60-item review of systems; and assessment of morning stiffness, medications, and allergies (10).

The questionnaire data and all baseline presenting characteristics were studied in the BS patients, including patient demographics, medications, the presence of BS symptoms (oral ulcers, genital ulcers, skin lesions, eye disease, pathergy, thrombosis, central nervous system involvement, pulmonary disease, HLA-B51 positivity, arthritis, erythema nodosum, and headache), and the physician's global assessment of disease activity. This study was approved by the New York University institutional review board.

The BS patients were compared to early RA patients seen consecutively during the same period, taking into consideration the parameters listed above, including function, pain, fatigue, and the patient global and physician global assessments. All of the early RA patients form part of the ERATER cohort, which has been described in detail elsewhere (11), with early RA being defined as less than 3 years of disease in this registry. Only the initial baseline visits were evaluated for both cohorts.

SPSS version 16.0 was used to calculate all the statistics. Means were compared using Student's *t*-test for independent samples. Equality of variance was not assumed. Groups were defined as patients with BS versus patients with RA. BS patients were then further subdivided into groups with arthritis and groups without arthritis for comparison to the RA cohort as well as to each other. It is important to note that the control patients with early RA were not taking any medication at baseline, whereas some of the BS patients were on medication when they presented to our center. The purpose of using the RA controls was to demonstrate that BS patients may have similar levels of functional disability, pain and so on compared to a clearly "arthritic" condition such as RA.

Results

Included in our analysis were 129 consecutive BS patients; most were female and Caucasian, with a mean disease duration of 11 years (Table I), and 124 fulfilled the international study group criteria for the diagnosis of Behçet's disease (12). A more detailed analysis of these patients, with regard to ethnicity and clinical findings, forms the substance of another manuscript now in preparation.

The BS patients were taking a wide variety of DMARDs, the three most commonly prescribed being prednisone (79 patients), azathioprine (47 patients), and colchicine (44 patients).

Upon comparison the BS and RA groups showed similar results for pain and the physician global assessment of disease activity (Table II), but BS patients reported significantly higher levels of functional disability, fatigue and patient assessment of global disease activity.

We then compared BS patients with (n=68) and without arthritis (n=61) to each other and to RA patients. BS patients with arthritis exhibited significantly higher functional disability scores, fatigue, and patient global values than the RA patients, while results for pain and the physician global assessment were similar (Table III).

When RA patients were compared to BS patients without arthritis, only pain was significantly higher in RA; the

Table I. Demographic data on the Behçet's syndrome (BS) and rheumatoid arthritis (RA) cohorts [mean (standard deviation)].

	BS (n=129)	RA (n=116)
Female	91 (70.5%)	89 (76%)
Age	36 (12)	55 (13)
Ethnic/racial background	White: 108 (83.7%)	White: 31 (26%)
	Asian: 7 (5.4%)	Asian: 6 (5%)
	Hispanic: 6 (4.7%)	Hispanic: 37 (32%)
	Black: 4 (3.1%)	Black: 43 (37%)
	Other: 4 (3.1%)	
Disease duration (mean)	11 years	7 months
Education	15 years	12 years

Table II. Comparison of RA patients and all BS patients (mean ± standard deviation).

	Function (0-10)	Pain (0-10)	Fatigue (0-10)	Patient global (0-10)	Physician global (0-10)
BS (n=129)	1.6±1.9	4.2±3.1	5.6±3.3	4.9±2.9	1.9±1.3
RA (n=116)	0.6±0.6	4.5±3.1	3.8±2.9	4.2±2.7	2.0±1.7
P value	<0.001	0.5	<0.0001	0.042	0.7

BS: Behçet's syndrome, RA: rheumatoid arthritis.

Table III. Comparison of RA patients to BS patients with arthritis (mean ± standard deviation).

	Function (0-10)	Pain (0-10)	Fatigue (0-10)	Patient global (0-10)	Physician global (0-10)
BS (n=68)	2.1±2.0	5.0±3.1	6.6±3.0	6.1±2.8	2.2±1.1
RA (n=116)	0.6±0.6	4.5±3.1	3.8±2.9	4.2±2.7	2.0±1.7
P value	<0.001	0.3	<0.001	<0.001	0.7

BS: Behçet's syndrome; RA: rheumatoid arthritis.

Table IV. Comparison of RA patients to BS patients without arthritis (mean ± standard deviation).

	Function (0-10)	Pain (0-10)	Fatigue (0-10)	Patient global (0-10)	Physician global (0-10)
BS (n=61)	0.9 ±1.6	3.2±3.2	4.5±3.4	3.8±2.7	1.6±1.2
RA (n=116)	0.6±0.6	4.5±3.1	3.8±2.9	4.2±2.7	2.0±1.7
P value	0.07	0.02	0.2	0.4	0.1

BS: Behçet's syndrome; RA: rheumatoid arthritis.

Table V. Comparison of BS patients with arthritis and BS patients without arthritis (mean ± standard deviation).

	Function (0-10)	Pain (0-10)	Fatigue (0-10)	Patient global (0-10)	Physician global (0-10)
BS arthritis (n=68)	2.1±2.0	5.0±3.1	6.6±3.0	6.1±2.8	2.2±1.1
BS without arthritis (n=61)	0.9±1.6	3.2±3.2	4.5±3.4	3.8±2.7	1.6±1.2
P value	0.001	0.003	0.001	<0.001	0.03

BS: Behçet's syndrome.

remainder of the variables were similar between the two groups (Table IV).

BS patients with arthritis had significantly higher scores for function, pain, fatigue, and patient and physician global assessment compared to BS patients without arthritis (Table V).

Discussion

It is interesting to note that BS patients had similar pain levels to RA patients. Another novel observation was that the BS patients' global assessment of disease activity was higher than that of RA patients, as were the BS functional disability scores and levels of fatigue. When BS patients were divided into groups based on the presence or absence of arthritis, those with arthritis had significantly higher functional disability, fatigue and patient global assessment of disease activity scores than RA patients, whereas BS patients without arthritis had less pain than RA patients but similar disability levels with regard to the remainder of the outcome measures. Worth noting is the fact that BS patients with arthritis had worse scores than BS patients without arthritis for all the measures considered.

It is important to underline that the early RA patients were not taking any medication when the analyses were carried out (at baseline), whereas the BS patients were on some form of medication when they presented to our center. We believe that this probably biases the results in favor of RA patients and it is possible that BS patients taking no medications at baseline would have even worse disease activity scores than those reported here. The same bias favoring RA patients would apply to the younger age of the BS patients compared to the RA patients, as functional disability tends to increase with age. The BS patients, who as a group were younger, had as bad or worse functional disability than the older RA patients. It is also important to keep in mind that, as previously reported (13), our cohort of BS patients probably represents a milder disease group. The MDHAQ may perform differently in BS patients with more severe manifestations of the syndrome.

We were able to find a small number of studies reporting on function, pain, fatigue and their effects on quality of life measures in Behçet's syndrome. Bodur *et al*. reported higher levels of fatigue in BS patients than in healthy controls (14). Gur *et al*. have been the only group so far to use the HAQ (among other measures) to compare BS patients with healthy controls. Analogous to our findings, they reported increased levels of pain and higher HAQ scores among patients with BS and arthritis compared to BS patients without arthritis or healthy controls (15). None of these studies analyzed patients with other diseases as additional controls.

Ours is the first study to evaluate an easy-to-use patient questionnaire – the MDHAQ – in BS patients. MDHAQ is unique in that it has been shown to be a useful instrument for many rheumatologic conditions, which makes inherent sense since most rheumatologic conditions cause some degree of functional disability, pain and fatigue. The fact that BS patients had similar pain levels to those seen in untreated early RA patients is interesting, as is the significantly higher functional disability and fatigue experienced by BS patients. In addition, BS patients with arthritis seem to be particularly worse off as assessed by the MDHAQ. Recently, disease clusters have been identified in BS (16); arthritis/acne is one such cluster. The rather unique association of arthritis with a greater disease impact, as highlighted in this study, warrants further study in the light of its possible association with disease mechanisms on the one hand, and its implications for management on the other.

The current BS disease activity scale does not include the assessment of functional disability, pain, fatigue, or the patient global assessment of disease activity measures. Our results suggest that these may be important aspects that should be addressed in the evaluation of BS patients. Using an MDHAQ

could help to identify previously unrecognized or under-recognized problems in BS. The longitudinal performance of the MDHAQ will provide more information regarding the role of MDHAQ in the assessment of Behçet's patients. It is important to note that the longitudinal follow-up of BS patients using such an approach – which is lacking in the present report – will be necessary to demonstrate whether the treatment response can be monitored and treatment decisions made using this tool.

Finally, we should also consider including problems relating to more disease-specific pathologies such as vision, cortical and coordination functions, and sexual problems, thereby supplementing the present components of the MDHAQ in future outcome assessment tools to be used in Behçet's syndrome.

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