A preliminary evaluation of the dimensionality and clinical importance of pain and disability in osteoarthritis of the hip and knee

N. BELLAMY, W.W. BUCHANAN

Department of Rheumatology, University of Western Ontario, London, Canada; Department of Rheumatology, McMaster University, Hamilton, Ontario, Canada.

SUMMARY Current methods of clinical assessment in osteoarthritis show a high degree of variability. By contrast, patients with rheumatoid arthritis may be evaluated using a number of standardised and validated indices. One hundred patients with primary osteoarthritis of the hip and knee were interviewed in order to determine the dimensionality of their discomfort and disability and to define the clinical importance of each component item. The symptomatology of osteoarthritis was captured by five pain, one stiffness, twenty-two physical, eight social and eleven emotional items. In spite of a high degree of variability in the frequency of involvement of the individual items, their clinical importance was similar both within as well as across dimensions. Further studies are indicated to determine the reliability, validity and responsiveness of each of the items identified as a prelude to developing a standardized method of assessing patients with osteoarthritis of the hip and knee.

Key words: Osteoarthritis, Pain, Disability, Clinical Importance.

INTRODUCTION

Discomfort (pain and stiffness) and disability (physical, social and emotional) are the major symptoms of osteoarthritis. In spite of the greater prevalence of osteoarthritis, more attention has been directed towards the study of functional decrements and the quality of life of patients with rheumatoid arthritis (1) than to patients with degenerative forms of arthritis (2,3). In respect to outcome measurement in osteoarthritis clinical trials, we have reported in a previous edition of this journal, a review of 63 clinical studies of nonsteroidal anti-inflammatory drugs reported between 1962 and 1982 and have observed a high degree of variability in the outcome measures employed (4). In addition to lacking any standardisation, current measures presume a validity extrapolated from the rheumatoid arthritis literature. Thus, the majority of indices which have been developed for use in rheumatic diseases have been based on patients with rheumatoid arthritis (5-29). However, fundamental differences exist between patients with rheumatoid and osteoarthritis in respect of the age of onset, distribution of joint involvement, natural history of the disease and response to treatment. Only the Doyle (7) and Lequesne (24) indices have
been expressly developed for evaluating patients with osteoarthritis. However, the Doyle Index is unidimensional and is a modification of the Ritchie Index while the Lequesne Index is oligodimensional and utilizes a restricted number of response alternatives.

In view of these deficiencies in outcome measurement in osteoarthritis clinical trials, we are currently undertaking a series of studies to rationalize the measurement process pertaining to patients with primary osteoarthritis of the hip and/or knee. In the present study the extent of each of five content domains was assessed and component items ranked according to their prevalence and clinical importance. The objective was to define the dimensionality of pain and disability and identify those component items having the greatest clinical importance in a group of potential drug-study patients.

MATERIALS AND METHODS

One hundred out-patients with osteoarthritis of the hip and/or knee were selected for study. To be eligible patients had to fulfill the following criteria: 1) Attend a rheumatological clinic at either the University of Western Ontario, London, or McMaster University Medical Centre, Hamilton; 2) Be ambulatory; 3) Have symptomatic primary osteoarthritis affecting at least one hip or knee and requiring treatment with a nonsteroidal anti-inflammatory analgesic medication; 4) Have minimal or no spinal symptoms; 5) Be unrestricted (in their functional capacity) by any co-morbid condition and; 6) Not have had prior hip or knee replacement surgery or an osteotomy. The patients selected for study would all have been eligible for a clinical trial of nonsteroidal anti-inflammatory drug therapy since they were all typical of patients commonly used in such trials.

The survey questionnaire was developed by a peer review process utilizing the opinions of four rheumatologists (WWB, NB, PT, PJR) and two clinical epidemiologists experienced in clinical measurement in the rheumatic diseases (CG, LC). Initial questions were open-ended and probed the clinical importance and characteristics of any pain, stiffness, physical, social or emotional dysfunction. Once spontaneous responses to these questions were exhausted, a battery of closed-ended questions derived from six existing questionnaires (10-13, 25, 27, 31, 32) was used to complete the assessment of each dimension and quantitative any sources of discomfort or disability detected.

The following data were recorded: 1) The presence or absence of each of several types of discomfort or disability (Table I-IV); 2) The frequency with which each type of discomfort or disability occurred (daily, weekly, fortnightly, monthly or less) and 3) The importance of the discomfort or disability to the patient (0 = none, 1 = slight, 2 = moderate, 3 = very, 4 = extremely). It should be noted that patients were specifically asked to record the perceived importance of each type of discomfort or disability reported in order to assess its clinical relevance. Furthermore, the discomfort and disability sought was specified as having been recently experienced and directly related to osteoarthritis of the hip and/or knee. Thus, each patient was asked to report only those symptoms which they felt were the direct result of their articular disease.

During questionnaire construction, items directed specifically at patients of one or other sex (e.g. ironing) were avoided and the questions rephrased in more general terms (e.g. light domestic duties). Patients were not asked about sexual function in order to avoid embarrassment and because this has been previously noted to inhibit responses even to subsequent non-sexual questions.

Before being formally applied the questionnaire was pre-tested in 15 osteoarthritic patients in order to assess its comprehensibility and feasibility. Thereafter, the questionnaire was administered to 90