A 3-page standard protocol to evaluate rheumatoid arthritis (SPERA): Efficient capture of essential data for clinical trials and observational studies

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ABSTRACT

An efficient 3-page format known as the "standard protocol to evaluate rheumatoid arthritis" (SPERA) has been developed to collect essential baseline clinical data in clinical trials and clinical research studies.

The three pages address: 1) clinical features of rheumatoid arthritis (RA), 2) medications taken, and 3) a 42-joint count. Two additional documents, a patient questionnaire and a radiographic scoring sheet, are included for a comprehensive database. The 15-20 minutes needed to complete the SPERA generally adds efficiency over time in standard clinical care, and does not preclude the collection of additional information for clinical care and/or clinical research. The SPERA is presented not as the most desirable format, but rather as an example of a possible approach to the development of a consensus in the rheumatology community regarding a common format for the collection of core clinical data in RA.

Introduction

Information collected in clinical care may be classified as "objective", i.e. obtained by a health professional, and "subjective" i.e. provided by the patient. In general, most "objective" data such as laboratory tests or imaging procedures are collected according to a standard format. By contrast, most "subjective" data, such as the patient history, are not collected according to a standard format.

In recent years, some patient history data have been collected in the standard format of a patient self-report questionnaire. Patient questionnaires facilitate the flow of information and allow comparison of data concerning pain, physical function, or other measures from one site to another or from one visit to another in an individual patient. This development suggests that further information from a medical history and physical examination might be collected in a standard format to facilitate clinical research and clinical care.

An example of data which might be collected in a standard format involves comorbidities, which generally are more common in patients with rheumatoid arthritis than in the general population (1). Comorbidities also are a significant predictor of work disability and premature mortality in RA, at higher levels than radiographic scores or laboratory tests in one study (2). Data concerning comorbidities in patients with RAare collected with relatively similar lists in clinical trials and clinical care. However, the absence of a standard format detracts from the pooling of data into multicenter databases for clinical research.

We have developed in clinical research over the last two decades a 3-page standard format for the efficient collection of data in patients with inflammatory arthritis, termed a "standard protocol to evaluate rheumatoid arthritis" (SPERA) (3). This protocol provides an efficient format for assessment that can be completed generally in 15-20 minutes or less. The protocol captures the most important baseline information that most clinicians wish to know concerning a patient who might have RA, as well as baseline information for a clinical trial or observational research study. It helps avoid the collection of exensive information which may be of limited or no value while adding expense, time and effort for patients and health professionals. However, the SPERA does not preclude the collection of additional data for specialized studies.

The SPERA format described here is not advocated as most desirable, but is presented as an example of a possible approach for the rheumatology community to reach a standard format for

R731–Standard protocol to assess rheumatoid arthritis (SPERA):(Old R507, R533)Page 1/3
Clinical Lifetime Updateable Evaluation (CLUE-RA) - Rheumatoid Arthritis Clinical Features

Name _____ ID# _____ Date of Birth _____ (day/month/yyyy) Today's date _____ (day/month/yyyy)

CLUE FORM COMPLETED BY _____ Rheumatologist _____

HISTORY OF ONSET OF RA:

RA-1st Symptoms (Mo/Yr) _____
RA-Diagnosis (Mo/Yr) _____
1st DMARD(s) started _____
1st DMARD (Mo/Yr) _____

ARA CRITERIA FOR RA:	Ever? "–" or "+"	If "+", Mo/Yr
Morning Stiffness > 1 hour		
Soft tissue swelling of >= 3 Joint Groups		
Swelling of PIP, MCP, or Wrist Joints		
Symmetrical Swelling		
Subcutaneous Nodule		
Positive Rheumatoid Factor		
Highest Rheumatoid Factor		
Radiographic Erosion		

EXTRA-ARTICULAR DISEASE:	Ever? "–" or "+"	Onset Mo/Yr
Pulmonary Fibrosis		
Pulmonary Nodules		
Clinical Pericarditis		
Felty's Syndrome		
Lymphadenopathy		
Carpal Tunnel		
Tarsal Tunnel		
Vasculitis		
Scleritis		
Neuropathy		
Raynaud's phenomenon		
Dry Eyes		
Dry Mouth		

COMORBIDITIES:	Ever? "–" or "+"	If "+" Mo/Yr
Hypertension		
Angina		
Heart Attack		
Coronary Artery Disease		
Other Heart Disease		
Hyperlipidemia		
Peripheral Vascular Disease		
Peptic Ulcer		
Inflammatory Bowel Disease		
Kidney Disease		
Asthma		
Chronic Bronchitis		
Diabetes Mellitus		
Thyroid Disease		
Cancer		
Stroke		
Parkinson's Disease		
Chronic Back Pain		
Musculoskeletal Trauma		
Fractures since Age 50		
Severe Osteoporosis		
Severe Osteoarthritis		
Infection Requiring Hospitalization		
Herpes Zoster/Shingles		
Fibromyalgia		
Psoriasis		
Cataracts		
Psychiatric Disease		
AIDS		
Alcoholism		

Other _____

RADIOGRAPH DATE (PA hands & wrists and feet):

SURGERIES:	Ever? "–" or "+"	If "+", Mo/Yr	Mo/Yr	Check If None ___ Mo/Yr
Carpal Tunnel				
Heart Bypass				
Back Surgery				
Cataract				

JT SURGERY/FRACTURE: Check If None ___
(A-Arthroscopy, S-Synovectomy, TJR-Replacement, JF-Fusion, JR-Reconstruction, F-Fracture)

R/L Hand(mo/yr)_____ R/L Elbow(mo/yr)_____
R/L Hip(mo/yr)_____ R/L Foot(mo/yr)_____
R/L Knee(mo/yr)_____ C-Spine(mo/yr)_____

Fig. 1. Clinical Lifetime Updateable Evaluation form for clinical features of RA– Onset features, classification criteria, extra-articular disease, surgeries, comorbidities, surgeries.

R731 – Standard protocol to assess rheumatoid arthritis (SPERA): Clinical Lifetime Updateable Evaluation (CLUE-RA) - RA Medications Page 2/3

Name _____ ID# _____ Date of Birth _____ Today's date _____

Please write below ALL pills taken over the last TWO WEEKS, with or without a prescription. Please include aspirin, birth control pills, pain pills, alternative therapy, health supplements and any pills sold in health food stores:

NAME OF DRUG, MEDICINE OR ALTERNATIVE THERAPY	DOSE (If known)	How Many per day or week?	NAME OF DRUG, MEDICINE OR ALTERNATIVE THERAPY	DOSE (If known)	How Many Per day or week?
1.			11.		
2.			12.		
3.			13.		
4.			14.		
5.			15.		
6.			16.		
7.			17.		
8.			18.		
9.			19.		
10.			20.		

Medication review – Additional drugs and/or other courses may be entered in blank spaces or cross-out names

	Ever —/+	Start date (mo/yr)	Stop date (mo/yr)	Or: How Many Years Taken	Toxicities ("None" or describe)	Reason to discontinue OR C=Continues to take now N=No efficacy, T=Toxicity(name) L=Loss of efficacy, O=Other(name)
PREDNISOLONE						
METHOTREXATE						
HYDROXYCHL'QUINE						
SULFASALAZINE						
IM GOLD						
CYCLOSPORINE						
AURANOFIN						
AZATHIOPRINE						
D-PENICILLAMINE						
CYCLOPHOSPHAMIDE						
LEFLUNOMIDE						
ETANERCEPT						
INFLIXIMAB						
ANAKINRA						
ADALIMUMAB						
Ibuprofen						
Naproxen						
Diclofenac						
Celecoxib						
Rofecoxib						

Fig. 2. Clinical Lifetime Updateable Evaluation form for medications taken for RA.

R731 – Standard protocol to assess rheumatoid arthritis (SPERA): Page3/3
Clinical Lifetime Updateable Evaluation (CLUE-RA) - Joint Count Examination

Name _____ ID#_____ Today's date _____ (day/month/yyyy)

Please record the following laboratory measures (may be recorded at other time than performing joint count):

WBC (thou/μL):	_____	ESR (mm/hr):	_____	CRP (mg/dL):	_____
RBC (thou/μL):	_____	Hgb (thou/μL):	_____	HCT (%):	_____
Platelet (thou/μL):	_____	SGOT/AST (U/L):	_____	Albumin (g/dL):	_____

Please mark below your assessment of the patient's current disease activity at same time as joint count:

NO ACTIVITY |———————————————————————| VERY ACTIVE

JOINT COUNT - SCORE EACH JOINT AS: "+" for positive or abnormal versus "- " for negative or normal

	If NORM, mark"-" & go to next jt	Tender or pain on motion	Swollen	Limited motion or de-formed	# Sur-ger-ies§		If NORM, mark"-" & go to next jt	Tender or pain on motion	Swollen	Limited motion or de-formed	# Sur-ger-ies§
R-PIP1						L-PIP1					
R-PIP2						L-PIP2					
R-PIP3						L-PIP3					
R-PIP4						L-PIP4					
R-PIP5						L-PIP5					
R-MCP1						L-MCP1					
R-MCP2						L-MCP2					
R-MCP3						L-MCP3					
R-MCP4						L-MCP4					
R-MCP5						L-MCP5					
R-WRIST						L-WRIST					
R-ELBOW						L-ELBOW					
R-SHLDR			XXX			L-SHLDR			XXX		
R-HIP			XXX			L-HIP			XXX		
R-KNEE						L-KNEE					
R-ANKLE						L-ANKLE					
R-MTP1						L-MTP1					
R-MTP2						L-MTP2					
R-MTP3						L-MTP3					
R-MTP4						L-MTP4					
R-MTP5						L-MTP5					

§ - S = Synovectomy J = Total Joint Replacement (TJR) O = Other

Description only - not in formal joint count:

NECK	___	_____	FEET	___	_____
BACK	___	_____	OTHER	___	_____

Fig. 3. A 42-joint count, which includes 10 proximal interphalangeal (PIP) joints of the hand, 10 metacarpophalangeal (MCP) joints of the hand, 2 wrists, 2 elbows, 2 shoulders, 2 hips, 2 knees, 2 ankles and 10 metatarsophalangeal (MTP) joints (hips and shoulders are not scored for swelling). All joints are scored for tenderness, swelling (except hips and shoulders), limited motion, and surgery, with a space to indicate that a joint is normal.

the gathering of such information. A standard format will require consensus from various rheumatology centers, extending the concept of the uniform clinical database for rheumatic diseases proposed by Fries in the 1970s (4). A database such as the SPERA could be used at baseline for all clinical trials as well as in standard care to facilitate analyses of the long term outcomes of rheumatic diseases.

The first 2 pages of the SPERA protocol are designated as Clinical Lifetime Updateable Evaluation (CLUE) forms. They are designed to indicate a negative response by a (–), which may then be amended to a (+). The 3 pages assess:

1. Clinical features – Onset of RA, classification criteria, extra-articular disease, surgeries, comorbidities, surgeries (Fig. 1);
2. Medications taken for RA (Fig. 2);
3. A 42-joint count, which includes 10 proximal interphalangeal (PIP) joints of the hand, 10 metacarpophalangeal (MCP) joints of the hand, 2 wrists, 2 elbows, 2 shoulders, 2 hips, 2 knees, 2 ankles and 10 metatarsophalangeal (MTP) joints (hips and shoulders are not scored for swelling). All joints are scored for tenderness, swelling (except hips and shoulders), limited motion, and surgery, with a space to indicate that a joint is normal (Fig. 3).

Two additional pages are incorporated into a comprehensive assessment:

4. A patient self-report Health Assessment Questionnaire (HAQ) (5) or derivative such as a multi-dimensional HAQ (MDHAQ) to assess functional status, pain, global status, psychological distress, fatigue, minutes of morning stiffness, and other measures (6).
5. Radiographic scoring sheet for quantitative Sharp or Larsen scores.

Access software is available to record and store these data, although computerization is needed only if analyses are conducted of patients in groups. The two pages of clinical features (Fig. 1) and medications (Fig. 2) may be kept in a designated position in the patient record, generally on color-coded paper, for updating in standard care.

The SPERA incorporates the 5 core domains listed in a consensus for long-term observational studies from an Outcome Measures in Rheumatoid Arthritis Clinical Trials (OMERACT) conference in 1998: health status, disease process, damage, mortality, and toxicity/ adverse reactions (7). The format has proven useful to collect data in clinical research concerning the prognosis and monitoring of patients, including development of a 28-joint count (8), observation of radiographic damage in most patients within the first 2 years of disease (9), recognition that patient questionnaires are correlated significantly with joint counts, radiographic scores and laboratory tests (10), although they are better predictors of work disability (11) and mortality (2,12) than traditional measures, and the relatively small proportion of patients were eligible for clinical trials in contemporary care of RA(13,14). Recently, the SPERA format was used to document that all patients with RAseen by the author in 2000 had considerably better status than all patients seen in 1985 in the same clinical setting (6).

We emphasize again that the SPERA format described here is not advocated as the optimal format for the rheumatology community. A consensus of various rheumatology centers toward a uniform standardized assessment methodology would appear desirable. A similar format could be incorporated into clinical trials and long-term observational research, so the clinical trial could provide baseline information for the observation of long-term outcomes. A standard format to list comorbidities could perform, like an ESR or pain visual analog scale, to facilitate comparisons in different clinical settings or different countries with different treatments over time. Although several scales are available for the assessment of comorbidities (15-18), they generally are not used in rheumatology clinical research or in standard clinical care. Such data could enhance analyses of questions such as whether anti-TNF therapy might reduce the prevalence of subsequent comorbidities.

Although it may appear that the process of recording data in a standardized format requires considerable extra time on the part of the rheumatologist and detracts from efficiency in clinical care, ironically within a very short time the opposite is generally true. A standardized format in clinical care can provide information at a glance which may otherwise require 5-10 times as long to collect, as has been seen with patient questionnaire data concerning physical function, pain or global status. A standard format concerning comorbidities, medications, etc. could have a similar benefit. Obviously, certain changes are needed in the collection and recording of information, no differently from entering information into a computer rather than writing it on a piece of paper. The information on the computer will always be available even if the paper is misplaced or lost and must be written again. Similarly, a standard format facilitates efficient clinical research and standard clinical care.

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