Joint Bone Spine 81 (2014) 235–239

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Original article

High pain catastrophizing scores in one-fourth of patients on biotherapy for spondylarthritis or rheumatoid arthritis

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ARTICLE INFO

Article history:
Accepted 16 September 2013
Available online 8 December 2013

Keywords:
Catastrophizing
Pain
Spondylarthritis
Spondyloarthritis
Rheumatoid arthritis
Biotherapy
TNF-blockers
TNF
Antagonists
Coping

ABSTRACT

Objectives: To measure catastrophizing scores in patients on biotherapy for spondyloarthritis (SpA) or rheumatoid arthritis (RA).
Methods: The first 140 outpatients or day-hospital patients seen at a teaching hospital rheumatology department for biotherapy administration completed the validated French version of the Pain Catastrophizing Scale (PCS, total score ranging from 0 to 52); a questionnaire on perceived support and past, current, and future disease activity; and a questionnaire on perceived understanding of their disease by family and co-workers.
Results: PCS scores were significantly higher in the 54 SpA patients than in the 86 RA patients (20.8 ± 12.1 versus 17.0 ± 13.6; $P = 0.08$), as a result of a higher helplessness subscore (10.0 ± 6.2 versus 7.8 ± 6.2; $P = 0.046$). The PCS score was ≥ 30 in 14/54 (26%) SpA patients and in 19/86 (22%) RA patients; physicians identified catastrophizing in only 17 of these 33 patients. PCS scores showed moderate correlations with the AS-DAS and DAS-28 and slightly stronger correlations with the overall pain score (Pearson, +0.431; $P = 0.0001$). SpA patients reported significantly worse understanding by their co-workers than did RA patients (33.9 ± 33.4 versus 53.9 ± 36.3; $P = 0.007$).
Conclusion: One-fourth of patients with SpA or RA had very high pain catastrophizing scores despite biotherapy. Pain catastrophizing was missed by the physicians in half the cases and was relatively independent from other follow-up parameters. Pain catastrophizing can jeopardize treatment outcomes and deserves specific management.

1. Introduction

Pain catastrophizing is a distortion in pain perception that involves both cognitive and emotional components and leads patients to expect only the worst. Catastrophizing can be viewed as the opposite of coping, which is the set of adaptive processes a patient uses to live well with pain [1–3]. Although catastrophizing is often related to pessimism, whether dispositional or transient, it should be distinguished from depression. For some pessimists, seeking refuge in their complaints may serve as protection against depression via exteriorization of the frustration and guilt induced by the disease [4]. Catastrophizers are often perceived as ambivalent, as they both ask for help and gradually discourage others by their ceaseless complaints directed even to relatives or healthcare professionals who have done their best to support them. Catastrophizers feel vindicated in maintaining this attitude because they perceive their disease as an injustice and, therefore, acceptance of the disease as a relinquishment of their right to reparation. Nevertheless, these patients often have sufficient awareness to perceive the growing weariness of their family and friends and may then develop a fear of abandonment that adds to their perceived helplessness and tendency to morbid rumination. Thus, catastrophizing constitutes a trap far more than a refuge, and patients should be helped to find a way out, first by acknowledging the mechanism then by explaining how it works. A validated questionnaire is available for measuring pain catastrophizing. This tool, known as the Pain Catastrophizing Scale (PCS), provides a total score of 0 to 52 obtained by summing three subscores, for helplessness, rumination, and magnification, respectively [5,6]. The international expert of the subject is Professor Michael John Sullivan from McGill University, Montreal (Canada).

Although pain catastrophizing has been fairly well studied in rheumatoid arthritis (RA) [1–3], no specific data from patients receiving biotherapies are available. Catastrophizing has not been measured in patients with spondyloarthritis (SpA). Biotherapies diminish the activity of both RA and SpA, and low catastrophizing scores might therefore be expected among patients receiving biotherapies. In addition, as patients with SpA are younger and have less structural damage than do patients with RA, they might be expected to have lower catastrophizing scores. Nevertheless, clinical experience with SpA patients suggests an often exaggeratedly pessimistic view of the present and future, even when the disease is

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1297-319X/$ – see front matter
doi:10.1016/j.jbspin.2013.10.004

under control. This view may jeopardize the expected benefits from biotherapy on both the individual and the social levels. Some young patients, for instance, may fail to return to work despite acceptable clinical outcomes. These adverse effects are particularly worthy of concern, as strong engagement in social and occupational activities considerably decreases the severity of catastrophizing [3].

Here, our objective was to compare PCS scores in patients with SpA and RA receiving biotherapies. We also collected their perceptions of the past, current, and future activity of their disease and of support and understanding from family and co-workers.

2. Methods

Consecutive patients with SpA or RA who were seen at a rheumatology department over a 3-month period for intravenous administration of a biological agent or outpatient renewal of a TNFα antagonist prescription by a single physician were asked to provide informed consent to study participation. They then completed the PCS (17 and 13 items, validated French version [5,6]). The total PCS score was computed, as well as the three subscores for pain magnification (items 6, 7, and 13), rumination (items 8 through 11), and helplessness (items 1 through 5 and 12).

The patients and referral hospital rheumatologist completed a questionnaire on their assessments of past, current, and future disease activity, using 0–10 visual analog scales (VASs). The physicians were asked whether they identified catastrophizing in the patient and recorded past treatments for depression or abnormal anxiety. Patients used VASs to answer three questions on perceived support from family and friends and on perceived ability of their family and co-workers to understand their disease (Appendix 1). To decrease the risk of refusal or incomplete total questionnaire completion, we did not determine Hospital Anxiety and Depression scale scores or coping scores. Administration of the questionnaires was approved before study initiation by our local ethics committee (*Groupe Nantais d'Éthique dans le Domaine de la Santé*, GNEDS). Analyses of scores on the 17-item and 13-item versions of the PCS produced closely similar results and, consequently, only the results obtained with the 13-item questionnaire are reported here. The total score can range from 0 to 52 and a score of 30 or greater has been established to indicate catastrophizing [5,6].

2.1. Statistics

The data were anonymized then entered into an electronic database. Statistical tests were done using SPSS 12.0. (IBM SPSS Inc., Chicago, IL, USA). The SpA and RA groups, and other mean values, were compared using the *t*-test for independent samples and unequal variances. Correlations between the PCS score and other parameters were assessed based on the bivariate Pearson correlation (with a two-sided significance test). Linear regression was performed with the PCS score as the dependent variable and all quantitative data as explanatory variables: patient age; disease duration; duration of exposure to the ongoing biotherapy; number of biotherapies used; physicians' assessments of past, current, and future disease activities; patients' assessments of past, current, and future disease activities; pain intensity on a 0–10 VAS; patients' assessment of biotherapy effectiveness; and patients' perceptions of support from family and friends, being understood by family members, and being understood by co-workers.

3. Results

3.1. Main patient characteristics

The SpA group comprised 54 patients (37 [69%] male and 27 [31%] female) with a mean disease duration of 11.3 ± 7.4 years and a mean AS-DAS of 1.89 ± 1.00 (Table 1). The RA group had 86 patients (59 female [69%] and 27 male [31%]) with a mean disease duration of 15.5 ± 9.1 years and a mean DAS-28 of 3.24 ± 1.37. All patients with SpA were receiving TNFα antagonist therapy (infliximab, 70%; etanercept, 20%; and adalimumab, 10%). Mean number of previous TNFα antagonists was 0.55 ± 0.83 per patient. The high proportion of patients on infliximab is ascribable to the preferential recruitment of day-hospital patients (72% of the 54 SpA patients). The distribution of TNFα antagonists used in the RA patients was as follows: tocilizumab, 36%; infliximab, 26%; rituximab, 14%; abatacept, 13%; and others (including infliximab), 11%. Mean number of previous TNFα antagonists was 1.23 ± 1.3 per patient.

Table 1
Main characteristics of the patients who completed the Pain Catastrophizing Scale. All patients were receiving biotherapy.

	54 SpA	86 RA
Males/Females	37 M/17 F	27 M/59 F
Age in years, mean ± SD	42.7 ± 10.1	59.4 ± 13.7
Disease duration in years, mean ± SD	11.3 ± 7.4	15.5 ± 9.1
Biotherapy duration in months, mean ± SD	34.4 ± 36.1	33.8 ± 35.4
Pain score, mean ± SD	37.7 ± 27.0	33.7 ± 23.9
AS-DAS, mean ± SD	1.89 ± 1.00	
DAS-28, mean ± SD		3.24 ± 1.37

3.2. Widely variable PCS scores – frequently high values despite biotherapy – slightly higher values in SpA than in RA patients

The PCS scores were higher in the SpA group than in the RA group, although the difference was not statistically significant (20.8 ± 12.1 versus 17.0 ± 13.6; $P = 0.08$) (Fig. 1A and B). PCS scores greater than 30 were found in 14/54 (26%) SpA patients and in 19/86 (22%) RA patients, whereas PCS scores were lower than 10 in only 9/54 (17%) SpA patients and in 34/86 (40%) RA patients. Fewer patients with SpA than RA had PCS score values of 0 (2/54, 4% versus 18/86, 21%).

Analysis of the PCS subscores for magnification, rumination, and helplessness indicated that the higher total PCS scores in the SpA group were chiefly ascribable to significantly higher helplessness scores (10.0 ± 6.2 versus 7.8 ± 6.2; $P = 0.046$). Similar values were found in the two groups for the magnification subscore (4.5 ± 2.7 in SpA versus 4.1 ± 3.3 in RA, $P = 0.55$) and the rumination subscore (6.33 ± 4.2 versus 5.0 ± 4.8; $P = 0.1$).

3.3. Fairly weak correlations between PCS scores and other parameters

Although the PCS score values correlated with a number of other parameters, the correlations were often fairly weak. Patient perceptions that correlated negatively with PCS scores were sufficient support from family and friends (Pearson, −0.332, $P = 0.0001$); effectiveness of the biotherapy (Pearson, −0.310; $P = 0.0001$); being understood by co-workers (Pearson, −0.243; $P = 0.019$; for the overall population); and being understood by family and friends (Pearson, −0.170; $P = 0.044$); in addition, a negative correlation was found for time since biotherapy initiation (Pearson, −0.202; $P = 0.017$).

Parameters that correlated positively with the PCS score values were the VAS score for current pain intensity (Pearson, +0.431; $P = 0.0001$); patient assessment of current disease activity (Pearson, +0.428; $P = 0.0001$); AS-DAS (in the 54 SpA patients only; Pearson, +0.427; $P = 0.002$); DAS-28 (in the 86 RA patients only; Pearson, +0.333; $P = 0.002$); physician assessment of current disease activity (Pearson, +0.322; $P = 0.0001$); physician assessment of future disease activity (Pearson, +0.230; $P = 0.007$); previous treatment for anxiety (Pearson, +0.203; $P = 0.016$); and previous treatment for depression (Pearson, +0.189; $P = 0.026$).