American Pain Society
RESEARCH
EDUCATION
TREATMENT
ADVOCACY
PUBLISHED BY ELSEVIER

The Journal of Pain, Vol 15, No 1 (January), 2014: pp 59-67
Available online at www.jpain.org and www.sciencedirect.com

Comparisons of Patient and Physician Assessment of Pain-Related Domains in Cancer Pain Classification: Results From a Large International Multicenter Study

Cinzia Brunelli,[*,†] Stein Kaasa,[†,‡] Anne Kari Knudsen,[†,‡] Marianne Jensen Hjermstad,[†,§] Alessandra Pigni,[*,†] and Augusto Caraceni[*,†]

**Palliative Care, Pain Therapy and Rehabilitation Unit, Fondazione IRCCS Istituto Nazionale dei Tumori, Milano, Italy.*
[†]European Palliative Care Research Centre (PRC), Department of Cancer Research and Molecular Medicine, Faculty of Medicine, Norwegian University of Science and Technology (NTNU), Trondheim, Norway.
[‡]Cancer Clinic, St. Olavs Hospital, University Hospital of Trondheim, Trondheim, Norway.
[§]Regional Centre for Excellence in Palliative Care, Department of Oncology, Oslo University Hospital, Ulleval, Oslo, Norway.

Abstract: **The aim of the present study is to compare physician clinical assessment with patient-rated evaluations in the classification of cancer pain patients into groups with different pain levels, according to the presence of incident/breakthrough pain, neuropathic pain, and psychological distress. Average pain in the previous 24 hours was used as the dependent variable in multivariate linear regression models, and incident/breakthrough pain, neuropathic pain, and psychological distress were tested as regressors; in the assessment of regressors, physicians used the Edmonton Classification System for Cancer Pain, whereas patients used structured self-assessment questionnaires. The amount of variability in pain intensity scores explained by the 2 sets of regressors, physician and patient rated, was compared using R^2 values. When tested in 2 separate models, patient ratings explained 20.3% of variability (95% confidence interval [CI] = 15.2–25.3%), whereas physician ratings explained 6.1% (95% CI = 2.2–9.8%). The higher discriminative capability of patient ratings was still maintained when both regressor sets were introduced in the same model, with R^2 indices of 17.6% (95% CI = 13.0–22.2%) for patient ratings vs 3.4% (95% CI = .9–5.9%) for physician ratings. Patients' self-assessment of subjective symptoms should be integrated in future cancer pain classification systems.**

Perspective: ***Our results indicate that patient-structured assessment of incident/breakthrough pain, neuropathic pain, and psychological distress significantly contributes to the discrimination of cancer patients with different pain levels. The integration of patient self-assessment tools with more objective clinician assessments can improve the classification of cancer pain.***

Key words: *Cancer pain, pain assessment, pain classification, patient-reported outcomes, palliative care.*

Pain is still one of the most prevalent and feared symptom among cancer patients. A meta-analysis reported that 64% of cancer patients with advanced, metastatic, or terminal disease experienced pain.[36] Despite the availability of effective guidelines,[7,21] suboptimal pain management is still reported in about 42% of patients.[13]

Pain assessment and classification should be an integral part of the strategy to control cancer pain[26,27]; indeed, systematic pain assessment has been shown to improve analgesic treatment outcome.[12]

A systematic literature review identified the Edmonton Classification System for Cancer Pain (ECS-CP) as the most comprehensive and extensively studied cancer

Received April 24, 2013; Revised August 27, 2013; Accepted September 20, 2013.
This study was supported by the 6th framework programme of the EU, contract no. 037777, by the European Palliative Care Research Centre (PRC), the Floriani Foundation of Milan, and the Italian Association for Cancer Research (AIRC) (Grant IG 9347).
None of the authors declare any conflict of interest for the present study.
C.B. and S.K. are co-first authors.
Address reprint requests to Cinzia Brunelli, MSc, Palliative Care, Pain Therapy and Rehabilitation Unit, Fondazione IRCCS Istituto Nazionale dei Tumori, Via Venezian 1, 20133 Milano, Italy. E-mail: cinzia.brunelli@istitutotumori.mi.it
1526-5900/$36.00

http://dx.doi.org/10.1016/j.jpain.2013.09.011

pain classification system.[28] More recently, a panel of experts recommended the ECS-CP to be applied as the template for further development of an internationally accepted method for cancer pain classification.[26] The ECS-CP is completed by the physician and evaluates pain-related domains, including neuropathic pain, incident pain, and psychological distress, which are known to influence the analgesic efficacy of standard treatment according to clinical experience.[2,8] The presence of these domains was statistically associated with more severe pain in subsequent large clinical cancer trials,[16,29,30] but this association was unexpectedly weak[29,30]; cross-study comparisons are challenging because of different study designs, sampling frames, assessment measures, and pain outcomes; nonetheless, one of the reasons for unsatisfactory results of the application of the classification system could be the lack of standardization in the assessment methods of the relevant classification domains.[5,22,37,38]

Clinical examination carried out by the physician constitutes an important step in pain evaluation, but patient self-report is the preferred assessment approach for pain, as for other symptoms, and should not be disregarded in the evaluation process. Agreement between patients and physician ratings has been widely studied, and most of the evidence shows medium to low concordance regarding symptoms and treatment toxicity[3,4] and, more generally, quality of life.[25,34]

This study extends previous work conducted in the development of a pain classification system,[29,30] by incorporating patient self-report measures for the assessment of incident/breakthrough pain, neuropathic pain, and psychological distress.

The specific aim of the present analysis is to compare physician clinical assessment with patient-rated evaluations by standard instruments for the classification of cancer patients into groups with different pain levels, according to domains included in the ECS-CP.

Methods

Study Design and Patient Population

The European Palliative Care Research Collaborative–Computerized Symptom Assessment (EPCRC-CSA) study is a cross-sectional observational international survey carried out in Norway, United Kingdom, Austria, Germany, Switzerland, Italy, Canada, and Australia from October 2008 to December 2009 in 17 palliative care/oncology centers.[23] Cancer patients with metastatic or locally advanced disease, aged 18 years or older, who were able to comply with study procedures and who provided written informed consent were eligible for study participation. Patients were enrolled from palliative care in- and outpatient units, hospices, and general oncology and medical wards. Only patients with a defined pain syndrome, as evaluated by the physician on the first ECS-CP question on pain mechanism, were included in the present analysis. Ethical approval was obtained before the start of the study at each site.

Data Collection and Measurement Tools

Data collection consisted of one part to be filled in by health care professionals and the other by patients and is described in detail elsewhere.[23] According to the study protocol, the patient and physician assessments had to be performed on the same day. All registrations were directly entered on touch-sensitive computers by tapping directly on the screen with a stylus. The English-, German-, Italian-, and Norwegian-language versions, covering all national languages within the study, were programmed with a similar layout. All study coordinators were provided with an instruction booklet describing how to perform the registrations.

Patients reporting a worst pain intensity score in the previous 24 hours of 1 or above on the 0 to 10 numerical rating scale (NRS) answered a general section on pain features, whereas those scoring 0 were not given any further pain questions and were automatically scored 0/absent on those data.

Data assessed by the following instruments are used in the present analysis. The Brief Pain Inventory (BPI),[9] which is a patient self-evaluation multidimensional tool for cancer pain assessment, was used to collect data regarding the worst and average pain intensity in the last 24 hours (0–10 NRS). The BPI is widely used in cancer patients and has demonstrated good reliability and validity across cultures and languages. One of its items, average pain in the last 24 hours, was also used as an outcome measure in 2 previous studies aimed at exploring patient characteristics potentially associated to pain intensity.[29,30]

The ECS-CP—revised version[14,15] is a classification tool completed by the physician and based on his/her clinical assessment of the patient; the assessment is intended to include a clinical interview, review of patient-reported symptoms, objective measures, and collateral history. The ECS-CP comprises 5 discrete features or domains: 1) mechanism of pain, 2) incident pain, 3) psychological distress, 4) addictive behavior, and 5) cognitive function. Physicians involved in the study were given access to the full manual; definitions in the manual available at study date were the following:

Mechanism of pain could be classified into 3 categories: "1) no pain syndrome, 2) any nociceptive combination of visceral and/or bone or soft tissue pain, and 3) neuropathic pain syndrome with or without any combination of nociceptive pain." No definition of nociceptive pain or neuropathic pain was present in the manual available at study date.

Incident pain could be classified as "no incident pain" vs "incident pain present" and was defined as follows: "Pain can be defined as incident when a patient has background pain of no more than moderate intensity with intermittent episodes of moderate to severe pain, usually having a rapid onset and often a known trigger." The following note is also added:

> There are six key characteristics of incident pain: 1) Relationship with background pain: The intensity of incident pain is significantly greater than