Pain 91 (2001) 339–349

PAIN

www.elsevier.nl/locate/pain

The Amsterdam Pain Management Index compared to eight frequently used outcome measures to evaluate the adequacy of pain treatment in cancer patients with chronic pain

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Received 16 March 2000; received in revised form 17 October 2000; accepted 30 October 2000

Abstract

There is no 'gold standard' to assess the adequacy of pain treatment in cancer patients. The purpose of the study is to explore the Amsterdam Pain Management Index, a newly designed measure to evaluate the adequacy of cancer pain treatment, and to compare it with eight frequently used outcome measures. The Amsterdam Pain Management Index compares patients' Present Pain Intensity, Average Pain Intensity, and Worst Pain Intensity with a composite score of analgesics used, while correcting for what a patient considers as a tolerable level of pain. The eight frequently used outcome measure consisted of three Pain Intensity Markers, the Pain Relief Scale, the Patient Satisfaction Scale, and three Pain Management Indexes. In a randomized controlled trial, 313 cancer patients with a pain duration of at least 1 month were included and followed-up three times until 2 months postdischarge at home. The experimental group received a Pain Education Program, consisting of tailored pain information and instruction. Results showed that, except for the three Pain Management Indexes, the agreement between the measures was very low to moderate. The test of known-groups comparisons and equivalence between groups indicated that the Amsterdam Pain Management Index showed promising results. The Pain Intensity Markers and the Pain Relief Scale were limited in discriminating between groups, while the Patient Satisfaction Scale showed no differences between patient groups. Although it was possible for the Pain Management Indexes to distinguish between patient groups, the differences were not in the expected direction. The ability of the outcome measures to detect changes over time was clearly demonstrated by all outcome measures. Effects of the intervention were only found for the Amsterdam Pain Management Index and patients' Substantial Worst Pain score. Although support was provided for the use of the Amsterdam Pain Management Index, more research is warranted.

Keywords: Cancer pain; Quality of pain treatment; Adequacy of pain treatment; Pain management; Analgesics; Clinical trial; Pharmacological management

1. Introduction

Adequacy of pain treatment is most frequently evaluated by means of pain intensity, pain relief, patient satisfaction with the pain treatment, or composite pain management index scores (Jadad and Browman, 1995). According to the literature, the proportion of inadequately treated cancer pain patients ranges from 7 to 74% (Zelman et al., 1987; Dorrepaal, 1989; Ward et al., 1993; Ward and Hernandez, 1994; Larue et al., 1995; Lin and Ward, 1995; Cleeland et al., 1997). Plausible explanations for this wide range of results might be the heterogeneity of patient groups, or variability of treatment regimens. Diversity of measures used to evaluate pain treatment may be another explanation. Psychometric properties of the various measures to evaluate pain treatment, however, are hardly known (Cleeland, 1991; Dalton, 1995).

To address some limitations of the various frequently used measures, a new measure, the Amsterdam Pain Management Index, has been developed and evaluated in this study. The Amsterdam Pain Management Index was

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0304-3959/01/$20.00
PII: S0304-3959(00)00455-3

primarily based on the Pain Management Index as developed by Cleeland et al. (1994) and further extended. Based on the assumption that the goal of pain treatment is to allow patients to function at a level they choose, and to die relatively free of pain (Foley, 1985), cancer pain treatment is evaluated as inadequate when substantial pain persists, independent of the reason for this failure, e.g. insufficient pain medication, insufficient use of procedures, lack of patients' pain knowledge, or non-adherence.

Eight frequently used outcome measures to evaluate the adequacy of pain treatment were applied simultaneously together with the Amsterdam Pain Management Index in a randomized clinical study in which the effect of a Patient Education Program for cancer patients with chronic pain was examined. The Pain Education Program was developed to aim at empowering patients in the process of relieving pain (Spross et al., 1990; Ferrell and Rivera, 1997), and consists of enhancing patients' knowledge about pain and pain treatment, instructing patients in how to register their pain intensity in the home setting, and stimulating patients' help-seeking behavior. The purpose of this study was to compare the Amsterdam Pain Management Index with eight commonly used measures to evaluate the adequacy of pain treatment. The ability of the Amsterdam Pain Management Index to distinguish between subgroups (known-group comparisons), equivalence between subgroups, responsiveness to clinical changes, and responsiveness to change over time in comparison to the more traditional outcome measures was described.

2. Methods

2.1. Design and patient population

We studied the psychometric properties of the outcome measures to evaluate the adequacy of pain treatment by means of a prospective, randomized controlled trial, and studied the effectiveness of a Pain Education Program in cancer patients with chronic pain. An institutional review board approved this intervention project. After admission to the hospital, the purpose of the study was explained to the patients who provided informed consent to participate in the study. To be included in the study, patients had to meet the following inclusion criteria: (1) pain related to cancer, cancer therapy, or illness; (2) a pain duration of at least 1 month; (3) a life expectancy of at least 3 months as assessed by physicians; (4) able to read and speak Dutch; (5) accessible by telephone; and (6) not residing in a nursing home or retirement home. Patients were randomly assigned to either a control group or an intervention group while controlling for gender (males/females), age ($<$60 years/$\geq$60 years), and metastatic sites (yes/no/unknown). The experimental group received the Pain Education Program in the hospital and at 3 and 7 days postdischarge. The tailored intervention consisted of a multi-method approach in which verbal pain instruction, written pain materials, an audiocassette tape, and the use of a pain diary were combined to inform and instruct patients about pain and pain management. A detailed description of the Pain Education Program is given elsewhere (De Wit et al., 1997).

2.2. Procedure

All patients completed a pretest (T0) 2–4 days after hospital admission, including sociodemographic variables, medical variables, and variables related to pain and adequacy of pain treatment. After randomization, the experimental group patients received the Pain Education Program in the hospital in a face-to-face encounter with a specially trained nurse, and at 3 and 7 days postdischarge by telephone. All control and experimental group patients were followed-up at 2 (T1), 4 (T2), and 8 (T3) weeks postdischarge by telephone.

2.3. Measures

2.3.1. Sociodemographic and medical data

Sociodemographic characteristics included, e.g. gender, age, marital status, education. Medical variables consisted of diagnosis, time since diagnosis, tumor stage, metastatic sites, treatment, and adverse effects.

2.3.2. Pain intensity

Patients were asked on an 11-point numeric rating scale regarding their Present Pain Intensity, Average Pain Intensity during the last week, and Worst Pain Intensity. The validity and reliability of the numeric rating scale are well established (Kremer and Atkinson, 1981; Syrjala and Chapman, 1984; Jensen et al., 1986; McGuire, 1988). Patients' pain intensity scores were assessed at all four assessment points.

2.3.3. Pain treatment

Prescribed analgesics (name, dose, frequency, and routes of administration), and other pain treatment were collected both from the medical record and by patient interview at pretest. Postdischarge, patients were interviewed at 2, 4, and 8 weeks postdischarge about what pain medication was prescribed and what they had actually taken the day before.

The degree to which a patient voluntarily followed the medication regimen recommended by the physician (*adherence)* was assessed by means of patients' self-report. *Sleeping problems* assessed by means of the European Organization for Research and Treatment of Cancer Core Quality of Life Questionnaire (EORTC QLQ-C30 + 3) (Aaronson et al., 1993). Finally, whether a pain physician was consulted was registered.

2.4. The Amsterdam Pain Management Index

The Amsterdam Pain Management Index was originally based on Cleeland's Pain Management Index (Cleeland et