Original Article

The Effects of Analgesic Prescription and Patient Adherence on Pain in a Dutch Outpatient Cancer Population

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Abstract
Insufficient awareness of cancer pain, including breakthrough pain, inadequate analgesic prescriptions, and nonadherence contribute to inadequate cancer pain management. There are insufficient data about the contribution of each of these factors. In a cross-sectional survey among 915 adult cancer outpatients, pain was assessed by the Brief Pain Inventory. Breakthrough pain was defined as a worst *pain intensity rated as "7 or more" and an* average *pain intensity rated as "6 or less" in patients on "around-the-clock" (ATC) analgesics. The Pain Management Index (PMI) was calculated to measure the quality of treatment. Adherence was considered inadequate when below 100% of the dose prescribed. Pain was present in 27% of patients. Worst pain was rated as moderate in 26%, and as severe in 54%. Breakthrough pain was present in 45% of patients with ATC medication. The PMI indicated inadequate treatment in 65% of patients. The proportions of patients adherent to ATC analgesics varied from 59% (tramadol) to 91% (Step 3 opioids). The management of cancer pain will benefit most from improving analgesic prescriptions and patient adherence.* J Pain Symptom Manage 2007;34:523–531. © *2007 U.S. Cancer Pain Relief Committee. Published by Elsevier Inc. All rights reserved.*

Key Words
Cancer pain, breakthrough pain, adherence, Pain Management Index, WHO analgesic ladder, outpatients

Introduction

Cancer pain management is complex and consists of anticancer treatment, analgesics, adjuvant analgesics (e.g., anti-epileptic drugs for neuropathic pain), and strategies to improve side effects.[1–4] The selection of the appropriate analgesic therapy is based on the intensity of the pain according to the three-step analgesic ladder of the World Health Organization (WHO).[5] Analgesics should be

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given around the clock (ATC). In addition, patients may need supplemental rescue doses for breakthrough pain.[4,5] Accurate knowledge of the prevalence of pain among cancer patients is vital to improve treatment of cancer pain. In the past 10 years, the Pain Management Index (PMI) was developed as a simple and objective tool for evaluating the quality of analgesic prescriptions, and breakthrough pain was recognized as a separate entity.[6,7]

The PMI is a composite measure computed by subtracting a patient's *worst* pain intensity from the rating of the most potent analgesic prescribed.[7] The PMI is considered a conservative estimate, since it does not take into consideration the doses of the analgesics used or the schedule (ATC or "as needed" [PRN]). The PMI is the single most often used outcome measure for quality of pain treatment.[7–21]

Breakthrough pain was originally described as a transitory exacerbation of pain to greater than moderate intensity that occurs in addition to otherwise stable persistent pain of moderate intensity or less among patients on stable doses of opioids.[1] The definition of breakthrough pain, however, differs between research groups.[6] Breakthrough pain is associated with greater functional impairment, and more pain-related hospitalizations and physician office visits.[22,23]

Even though health care providers mention nonadherence as one of the most common reasons for uncontrolled cancer pain, surprisingly little attention has been paid to this issue.[24] The few studies that measured adherence to analgesic regimens among cancer patients reported adherence rates for fixed-schedule opioids averaging 80%–90%.[25,26] Even fewer data are available about adherence to nonopioid drugs in cancer patients. Furthermore, it has been demonstrated outside the field of cancer pain that simple measures of adherence, e.g., patient's self-report, are useful since they correlate with clinical outcome.[27–29]

The present cross-sectional study was designed to determine the prevalence of pain, including breakthrough pain; to assess the quality of pain management; and to evaluate adherence to ATC analgesics in a cohort of outpatients treated in a tertiary cancer center in Rotterdam, The Netherlands.

Methods

Study Subjects

During one week, we studied 915 adult outpatients with cancer. All patients were treated in the Daniel den Hoed Cancer Center in Rotterdam, the 136-bed tertiary cancer center of the Erasmus Medical Center, Rotterdam, The Netherlands. The study was approved by the Medical Ethics Committee of the Erasmus Medical Center. All patients gave written informed consent.

Study Procedure

Sixteen advanced medical students were trained by two of the authors (RHE, WHO) to interview the patients. A pain questionnaire was developed for the purpose of this study. The following sociodemographic and medical variables were collected for all participating patients: age; gender; Eastern Cooperative Oncology Group (ECOG) Performance Status;[30] year and month of cancer diagnosis; type of cancer; tumor status (no evidence of disease [NED], locoregional, or distant metastases); current (previous six weeks) antitumor treatment; intent of current antitumor treatment (curative or palliative, according to the treating physician); and use of bisphosphonates. All data were checked by one of the authors (RHE). Subsequently, the interviewer asked the patients if they had experienced pain other than everyday kinds of pain in the past week. This represents the first question of the Brief Pain Inventory (BPI)-Dutch Language Version.[31] In addition, patients were asked if they had been prescribed any analgesic. All patients who had pain or were taking analgesics were asked to fill in the written part of the questionnaire. After completion, the questionnaire was checked and patients received additional questions about their analgesic use. If patients were unable to give details about current analgesic use, a telephone call was made in the following days to complete the questionnaire.

Measures

Pain, Pain Interference with Activities, and Breakthrough Pain. The questionnaire started with the BPI-Dutch Language Version.[31] Patients were asked to rate their present pain on an