

Pain and Treatment of Pain in Minority Patients with Cancer

The Eastern Cooperative Oncology Group Minority Outpatient Pain Study

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Background: Clinics that primarily see members of ethnic minority groups have been found to provide inadequate treatment of cancer-related pain. The extent of undertreatment of pain in these patients and the factors that contribute to undertreatment are not known.

Objectives: To evaluate the severity of cancer-related pain and the adequacy of prescribed analgesics in minority outpatients with cancer.

Design: Prospective clinical study.

Setting: Eastern Cooperative Oncology Group.

Patients: 281 minority outpatients with recurrent or metastatic cancer.

Measurements: Patients and physicians independently rated severity of pain, pain-related functional impairment, and pain relief obtained by taking analgesic drugs. Analgesic adequacy was determined on the basis of accepted guidelines.

Results: 77% of patients reported disease-related pain or took analgesics; 41% of patients reporting pain had severe pain. Sixty-five percent of minority patients did not receive guideline-recommended analgesic prescriptions compared with 50% of nonminority patients ($P < 0.001$). Hispanic patients in particular reported less pain relief and had less adequate analgesia.

Conclusions: The awareness that minority patients do not receive adequate pain control and that better assessment of pain is needed may improve control of cancer-related pain in this patient population.

Members of ethnic minority groups are likely to receive inadequate treatment of pain. In a multicenter study (1), we found that outpatients with cancer who went to clinics that served minority patients were three times more likely to be undermedicated with analgesics than were patients in other settings. Other studies (2, 3) found that Hispanic patients were half as likely as white non-Hispanic patients to receive analgesic drugs for fractures, and black patients were less likely to receive adequate opioids after surgery.

In the first study that we did for the Eastern Cooperative Oncology Group, we did not determine whether pain treatment in minority persons varied by treatment site, which factors might predict inadequate pain management in minority persons, or whether pain treatment differed among ethnic minority groups. We conducted the present study to answer these questions.

Methods

We limited eligibility to patients of Hispanic and nonwhite backgrounds and approached 325 outpatients with recurrent or metastatic cancer. Forty-four patients did not have time or refused to participate, were too ill, or were unable to complete the forms, leaving an effective sample size of 281 patients. Patients were drawn from 9 university cancer centers (26%), 17 community hospitals and practices (41%), and 4 centers that primarily treat minority patients (33%). Ethnicity was reported by the institution giving treatment and was determined on the basis of the nine-category U.S. Census Federal Government Classification of Minorities. Participants gave informed written consent, and the study was approved by the institutional review board of each participating institution.

Consecutive patients were enrolled at each site (maximum quota for each site, 30 patients). Pain severity was measured by using the Brief Pain Inventory (4) during a clinic appointment. On a scale of 0 to 10, patients rated their worst, average, and least severe pain during the previous week and at the time of the study. Patients also used a scale of 0 to 10 to report how their pain interfered with function, estimate the relief they received from pain treatment, and report concerns about taking analgesics. The Brief Pain Inventory has been shown to be relatively free of cultural and linguistic influences

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on severity ratings and response patterns (5, 6). On the basis of results from a previous study (5), we categorized a patient's reported worst pain as mild, moderate, or severe. Physicians described their patients' pain treatment and rated the severity of pain and interference with activity.

We estimated the adequacy of analgesic prescription by using the Pain Management Index (1, 4), a measure for prescribing analgesics and an approximate measure of good treatment of pain. This index is based on guidelines from the World Health Organization (7) and the Agency for Health Care Policy and Research (8). It compares the type of analgesic prescribed with the severity of a patient's reported worst pain by subtracting the rating of the most potent analgesic agent (none, nonsteroidal, codeine-type, or morphine-type) prescribed for either chronic or breakthrough pain from the patient's rating of worst pain (mild, moderate, or severe). Because poor pain assessment can lead to poor pain management (9), we computed the concordance between physician and patient regarding the extent to which pain interfered with the patient's activity. We compared treatment of pain in patients in this study with that in a subgroup of patients ($n = 627$) from a previous study (1) who received care in treatment settings in which less than 10% of patients were members of minority ethnic groups.

Patients were included in the analyses if they and their physicians responded to items for calculating the Pain Management Index and its predictors. Details about the methods used for model selection have been published elsewhere (1). In the current study, 14 candidate predictors of analgesic underprescription were identified, and we considered interaction terms between all predictor variables.

Backward selection and best subset selection yielded the same results. The Fisher exact test was used to compare proportions, and the exact Cochran–Armitage test (10, 11) was used to test trends in the proportions of pain relief between Hispanic persons and black persons. All tests were two sided.

Results

Of the 281 patients in the study, 216 (77%) reported that in the 7 days before the study, they had had pain that differed from routine pain (such as headaches or sprains) or had taken analgesics on a daily basis. The 216 study patients comprised 106 black persons, 94 Hispanic persons, and 16 persons of other minority ethnicity. The 197 patients who reported having pain during the previous week constituted the sample for subsequent analyses. Ninety percent of these 197 patients had pain attributed by their physician to the disease process of cancer rather than to cancer treatment or causes not related to cancer. Of the 175 patients who reported having had pain in the preceding week and selected the "worst pain" item, 58 (33%) were categorized as having had mild pain, 46 (26%) as having had moderate pain, and 71 (41%) as having had severe pain (Table 1). These proportions did not differ according to the primary site of disease.

The Pain Management Index was computed for patients who reported pain. Sixty-five percent (110 of 168) of these patients had negative Pain Management Index values, which indicated inadequate analgesic orders. The proportion of patients who had pain and negative Pain Management Index scores differed significantly among the types of institutions. Patients who were treated at centers that primarily saw black persons, Hispanic persons, or both and patients who were treated at university centers were more likely to receive inadequate analgesia than were those who received treatment in nonminority community treatment settings (77% compared with 52%; $P = 0.003$). The proportion of men and women whose pain was underestimated did not differ (66% and 72%), although a trend for more women to be undermedicated was detected (57% and 71%; $P = 0.068$).

Patients with better performance status (that is, those who were rated as less ill) were twice as likely to receive inadequate pain management (68% compared with 50%; $P < 0.03$). Further analysis showed a significant sex-by-pain rating discrepancy interaction: Whereas most women were undermedicated regardless of the accuracy of physician assessment of pain (65% compared with 66%; not significant), men whose pain was underestimated by their physicians were six times more likely to be undermedi-

Table 1. Demographic and Pain-Related Variables among 197 Minority Patients with Recurrent or Metastatic Cancer and Cancer-Related Pain*

Variable	All Patients	Hispanic Patients	Black Patients
Women, <i>n/n</i> (%)	117/197 (59)	67/94 (71)	50/103 (49)
Mean age \pm SD, <i>y</i>	57 \pm 13	57 \pm 14	57 \pm 12.5
Poor performance status, <i>n/n</i> (%)†	65/197 (33)	27/94 (29)	38/103 (37)
Mean average pain \pm SD	4.2 \pm 2.6	4.5 \pm 2.4	4.0 \pm 2.6
Mean worst pain \pm SD	5.7 \pm 3	6.2 \pm 2.9	5.3 \pm 3
Severity of pain, <i>n/n</i> (%)‡			
Mild	58/175 (33)	16/79 (20)	42/96 (44)
Moderate	46/175 (26)	27/79 (34)	19/96 (20)
Severe	71/175 (41)	36/79 (46)	35/96 (36)
Received inadequate treatment of pain, <i>n/n</i> (%)§	110/168 (65)	56/76 (74)	54/92 (59)
Taking opioid analgesics, <i>n/n</i> (%)	67/180 (37)	29/85 (34)	38/95 (40)

* Not all information for every category was available for each patient.

† Patients were rated as having poor performance status if they scored 2 or more on the Eastern Oncology Group Performance Status evaluation (scale, 0 to 4).

‡ Patients who rated their worst pain from 1 through 4 were classified as having mild pain, those who rated their worst pain as 5 or 6 were classified as having moderate pain, and those who rated their worst pain from 7 through 10 were classified as having severe pain.

§ Measured by the Pain Management Index.

cated than men whose pain had been accurately assessed (66% compared with 29%; $P < 0.002$).

Using data from our previous study (1), we compared patients from nonminority settings and the patients in the current sample for Pain Management Index, assessment discrepancy rating, and a priori selected variables related to pain treatment. Many more minority patients than nonminority patients were undermedicated (65% and 50%; $P < 0.001$). More minority patients had the severity of their pain underestimated by their physicians ($P < 0.04$), reported that they needed stronger pain medication ($P < 0.001$), and felt that they needed to take more analgesics than their physicians had prescribed ($P < 0.001$). Compared with black patients, more Hispanic patients reported lower levels of pain relief ($P = 0.001$), and a trend for more Hispanic patients to be inadequately medicated was detected (54% and 69%; $P < 0.09$). More Hispanic persons reported concern that they were taking too much medication and needed more information about pain management ($P < 0.001$). A trend for Hispanic persons to be more worried about side effects was also seen (Table 2) ($P < 0.045$).

Discussion

In this study, 65% of minority patients who had pain received inadequate analgesic prescription compared with 50% of patients from nonminority settings. Minority patients received better pain management in community-based treatment settings than in settings designated predominantly for patients of minority ethnicity or in university settings.

A limitation of our study is that the data were collected immediately after data on a nonminority comparison group had been collected (1). A preliminary report of the earlier study had been made to the Eastern Cooperative Oncology Group; this may have sensitized members of the group to pain management. In addition, our study did not consider reluctance on the part of the patient or family to report pain or take analgesics or the patient's ability to pay for treatment, factors that may influence physician prescribing (9, 12). Finally, individual patient-level data on ethnicity were not available for the comparison group.

Inadequate prescribing of analgesics for minority patients may result from many factors, including concern about potential drug abuse in minority patients, fewer resources with which to pay for analgesics, greater difficulty in accessing care and in filling analgesic prescriptions, and greater difficulty for the physician in assessing pain in minority patients because of differences in language and cultural background (13). Inadequate treatment may

Table 2. Comparison of Hispanic Persons and Black Persons on Variables Related to Pain Management*

Variable	Hispanic Persons	Black Persons	P value
	n/N (%)		
Concerned about taking too much analgesic medication	25/66 (38)	7/75 (9)	<0.001
Concerned about analgesic side effects	16/60 (27)	9/73 (12)	0.045
Need more information about pain treatment	40/63 (64)	29/76 (38)	<0.001
Pain underestimated by physician	52/67 (78)	48/78 (61)	0.048

* Not all information for every category was available for each patient.

also result from the patient's fear of aggressive treatment, the patient's lack of assertiveness in seeking care, or a lack of expertise at the sites that treat patients belonging to ethnic minority groups (14-17). Our findings suggest that differences in sex, language, and culture may have made assessment of pain and monitoring of treatment effectiveness more difficult for the physicians who saw these patients. An awareness of the increased risk for poor pain management in minority patients may, in itself, lead to improved pain assessment and care for these groups.

Differences in pain management were also associated with specific minority heritage. Hispanic persons reported less adequate pain relief than did black persons; this was consistent with the trend for Hispanic persons to receive less adequate analgesic treatment. Although differences in English fluency may contribute to greater difficulty in assessment (8), Hispanic persons also reported more concern about taking too many analgesics and were more concerned than black persons about analgesic side effects. These concerns may make Hispanic persons more reluctant to report pain and to accept strong analgesics, such as morphine. Differences in the concerns of Hispanic and black patients suggest the need for patient education programs targeted to persons of specific ethnic minority groups.

Appendix

The following institutions and Community Clinical Oncology Programs are members of the Eastern Cooperative Oncology Group (Robert L. Comis, MD, *Chair*): Albany Medical College, Albany, New York; Johns Hopkins University, Baltimore, Maryland; Mayo Clinic, Rochester, Minnesota; University of Rochester, Rochester, New York; Rush-Presbyterian-St. Luke's Medical Center, Chicago, Illinois; University of Pretoria, Pretoria, South Africa; Tufts University-New England Medical Center, Boston, Massachusetts; Albert Einstein College, Bronx, New York; Case Western-MetroHealth Medical Center, Cleveland, Ohio; Fox Chase Cancer Center, Philadelphia,

Pennsylvania; University of Pennsylvania, Philadelphia, Pennsylvania; New York University Medical Center, New York, New York; Northwestern University, Chicago, Illinois; St. Francis Hospital, Tulsa, Oklahoma; University of Wisconsin, Madison, Wisconsin; Medical College of Ohio, Toledo, Ohio; Vermont Regional Cancer Center, Burlington, Vermont; Medical College of Wisconsin, Milwaukee, Wisconsin; North New Jersey Community Clinical Oncology Programs, Hackensack, New Jersey; Twin Tiers Community Clinical Oncology Programs-Our Lady of Lourdes Hospital, Binghamton, New York; Indiana University Medical Center, Indianapolis, Indiana; University of Florida, Gainesville, Florida; Vanderbilt University, Nashville, Tennessee; Mercy Hospital Community Clinical Oncology Programs, Scranton, Pennsylvania; Bay Area Tumor Institute Community Clinical Oncology Programs, Oakland, California; Marshfield Clinic, Marshfield, Wisconsin; Stanford University, Stanford, California; Methodist Hospital Community Clinical Oncology Programs, Indianapolis, Indiana; Grady Memorial Hospital Community Clinical Oncology Programs, Atlanta, Georgia; Newark ICMB Community Clinical Oncology Programs-University Hospital, Newark, New Jersey; Abbot-Northwestern Hospital, Minneapolis, MN; Brooklyn Community Clinical Oncology Programs; Methodist Hospital, Brooklyn, New York; and University of Miami, Miami, Florida.

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