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ORIGINAL REPORT

Medical Oncologists' Attitudes and Practice in Cancer Pain Management: A National Survey

Brenda Breuer, Stewart B. Fleishman, Ricardo A. Cruciani, and Russell K. Portenoy

See accompanying editorial on page 4742; listen to the podcast by Dr Bruera at www.jco.org/podcast

All authors: Beth Israel Medical Center, New York, NY.

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Corresponding author: Brenda Breuer, PhD, MPH, Beth Israel Medical Center, 120 East 16th St, 12th Floor, New York, NY 10003; e-mail: bbreuer@chpnet.org.

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ABSTRACT

Purpose
To evaluate the attitudes, knowledge, and practices of US medical oncologists that are related to management of cancer pain.

Methods
An anonymous survey was mailed to a geographically representative sample of medical oncologists randomly selected from the American Medical Association's Physician Master File.

Results
From a total of 2,000 oncologists, 354 responded to the original questionnaire and 256 responded to one of two subsequent shortened versions (overall response rate, 32%). Responders were demographically similar to all US medical oncologists. Using numeric rating scales of 0 to 10, oncologists rated their specialty highly for the ability to manage cancer pain (median, 7; interquartile range [IQR], 6 to 8) but rated their peers as more conservative prescribers than themselves (median, 3; IQR, 2 to 5). The quality of pain management training during medical school and residency was rated as 3 (IQR, 1 to 5) and 5 (IQR, 3 to 7), respectively. The most important barriers to pain management were poor assessment (median, 6; IQR, 4 to 7) and patient reluctance to take opioids (median, 6; IQR, 5 to 7) or report pain (median, 6; IQR, 4 to 7). Other barriers included physician reluctance to prescribe opioids (median, 5; IQR, 3 to 7) and perceived excessive regulation (median, 4; IQR, 2 to 7). In response to two vignettes describing challenging clinical scenarios, 60% and 87%, respectively, endorsed treatment decisions that would be considered unacceptable by pain specialists. Frequent referrals to pain or palliative care specialists were reported by only 14% and 16%, respectively.

Conclusion
These data suggest that, for more than 20 years, a focus on cancer pain has not adequately addressed the perception of treatment barriers or limitations in pain-related knowledge and practice within the oncology community. Additional efforts are needed to achieve meaningful progress.

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INTRODUCTION

The prevalence of chronic cancer pain varies with diagnosis and disease severity, ranging from 14% to 100%.[1-6] Although pain syndromes are heterogeneous,[7] there is international consensus that optimal pharmacotherapy can provide satisfactory relief to as many as 90% of patients.[8-10] Unfortunately, studies in many countries, including the United States, suggest that pain severity is commonly moderate or severe,[1,2,5,11-16] and adherence to accepted pain management guidelines is low.[17] Undertreatment appears to be common and has been ascribed to some combination of clinician-related and patient-related factors and system issues.[18-20]

Surveys of oncologists may help elucidate the barriers to the adoption of best practices in cancer pain management. In a 1990 survey of 1,800 oncologists participating in the Eastern Cooperative Oncology Group (ECOG),[21] only 51% believed that pain control in their own practice was good or very good, and a large majority expressed dissatisfaction with their training in pain management.

Remarkably, there has been no systematic effort to survey US oncologists since the ECOG survey 20 years ago. Since then, guidelines have been developed and disseminated,[8,9] pain-related continuing medical education (CME) has become commonplace, and access to both pain specialists and specialists in hospice and palliative medicine has increased.

These changes would be expected to temper the perception of treatment barriers and enhance the ability of oncologists to provide the standard of care in cancer pain management. A survey of oncologists may assess these outcomes directly.

The purpose of this study was to evaluate US medical oncologists in terms of attitudes, knowledge, and practices related to pain management. To the extent possible, data were sought that could be compared with the ECOG survey from two decades ago.[21]

METHODS

The study was approved by the institutional review board of the Beth Israel Medical Center in New York, NY. Data collection was completed in 2010.

Survey and Study Sample

The September 2009 update of the medical oncologist mailing list was acquired from J. Knipper and Company, a database licensee of the American Medical Association's (AMA's) Physician Master File. This list, which includes both AMA members and nonmembers, provided contact information for 5,511 US physicians who resided in the 50 US states and Washington DC and who reported their primary or secondary specialty as medical oncology. After excluding oncologists who were characterized as "administrative," "research," "medical teaching," or "inactive," or designated as "do not contact" or "address undeliverable," 4,427 oncologists remained.

Sampling was stratified by geographic region—East, West, North, and South—and a Microsoft T-SQL program was used to select samples randomly from the set of active practitioners in each of the four strata. The samples drawn were proportional to the size of the strata. The final sample of 2,000 oncologists included eight (0.4%) palliative medicine specialists and no pain specialists.

Procedures

A cover letter explained that the survey questionnaire was anonymous and could not be linked to a particular respondent. There were four sequential mailings, with a between mailings interval of 1.5 to 2.5 months. To limit repeated mailings to nonresponders while maintaining anonymity, recipients were asked to return an enclosed reply postcard (which contained the respondent's identification number) separately from the completed questionnaire. This card was unnecessary for the fourth mailing, because no further contact was attempted. A $2 bill was included in the first two mailings as an incentive.

In an attempt to improve the response rate, the survey questionnaire was shortened for the third and fourth mailings. Two versions of the shortened questionnaire were created, each including approximately half the 46 questions in the original survey; the combined questions of the two surveys included all the questions of the original survey, and both shortened surveys included the original survey's items related to training and practice experience and demographics. The third mailing was sent to all those who did not respond to the first two mailings. A random half of the nonresponding oncologists received one version of the shorter questionnaire and the other half received the other version. The cover letter with the third mailing indicated that a returned survey would generate a contribution of $10 to one of three health-related charities.

The fourth mailing was sent to a random sample of 450 physicians from those who had not responded to a prior mailing. It was designed to both increase the response rate and simultaneously assess systematic nonresponder bias. Hence, these surveys were mailed via United Parcel Service 2-day airmail and provided a $10 incentive. We hoped that a larger number of previous nonresponders would respond to this mailing, allowing a comparison of this group's responses to responses from prior mailings to assess nonresponder bias.[22] A random half of these 450 oncologists received one of the shortened surveys, and the other half received the alternate. The subsamples for the third and fourth mailings were generated with the SAS Surveyselect procedure (SAS Institute, Cary, NC).

Questionnaire

The survey instrument was developed on the basis of a review of the literature,[19,20] including the earlier ECOG survey.[21] A review by three oncologists at the investigators' institution indicated that coverage was appropriate and language was understandable.

The full 46-item survey took 10 to 11 minutes to complete. The two shortened versions had 25 and 27 items, respectively, and took 6 to 7 minutes to complete. All the surveys acquired information about age, sex, years in practice, state location of practice, and the quality of training during medical school and residency. A series of numeric rating scales with ratings from 0 to 10 were used to assess attitudes and practices related to pain management. Other items queried frequency of referral to pain specialists or palliative medicine specialists and the number of pain-related CME hours during the past 3 years.

To assess potential deficiencies in knowledge related to opioid safety and efficacy, the survey included two vignettes about challenging clinical situations. The vignettes were designed by the physician investigators on the basis of clinical experience. The first vignette queried decision making when pain remained poorly controlled despite a relatively high dose of opioids (Table 1); it required the physician to understand that the proposed increase was too aggressive and also to understand the type of problem that would be likely to appear if an excessive dose were to be administered in this setting. There was one correct response from eight

Table 1. Vignette Related to Uncontrolled Cancer Pain Despite a Relatively High Dose of an Opioid (n = 482)*

Your colleague is treating a patient for painful malignant brachial plexopathy by using gabapentin and long-acting morphine at 300 mg twice daily plus short-acting morphine 30 mg up to every 2 hours, as needed. He tells you that the patient's pain is severe despite five to six rescues per day and that the patient appears to have no adverse effects. He proposes to increase the long-acting morphine to 600 mg twice daily plus short-acting morphine 90 mg up to every 2 hours, as needed. What do you say? (check all that apply)

Choices	Clinicians Who Checked Response	
	No.	%
a. Good idea	151	31.3
b. Not a good idea because of the risk of serious toxicity, particularly respiratory depression	144	29.9
c. Not a good idea because of the likelihood of adverse effects of somnolence and mental clouding†	153	31.7
d. Not a good idea because of the risk of drug abuse or addiction at the higher dose	2	0.41
e. Not a good idea because of more rapid tolerance leading to ineffective opioid therapy later	36	7.5
f. Not a good idea because of the phenomenon of opioid-induced hyperalgesia	54	11.2
g. Not a good idea because of the regulatory climate that puts doctors under scrutiny if relatively high doses are prescribed	14	2.9
h. No comment	48	10.0

NOTE. Because each responder was permitted to choose more than one answer, sums of percentages are greater than 100.

*Of the 482 people who returned a survey containing this vignette, 354 received the original longer questionnaire that had been mailed in the first and second waves, and 128 received one of the two shorter versions mailed in the third and fourth waves. Because each shortened version had only one of the two vignettes, 128 of the 610 responders did not receive this vignette.

†Sixty-one responders (13%) provided the acceptable response by checking only this choice.

Table 2. Vignette Related to Poorly Controlled Cancer Pain That Tests Knowledge of Dose Titration and Use of a Medication for Breakthrough Pain (n = 482)*

A 40-year-old man with metastatic lung cancer reports that bone pain is steadily worsening despite treatment with long-acting oxycodone 160 mg twice daily. There are no adverse effects, and the patient continues to receive chemotherapy and is working part-time. What would you recommend? (check all that apply)

Choices	Clinicians Who Checked Response	
	No.	%
a. Increase the oxycodone to 160 mg three times daily	186	38.6
b. Add a rescue medication, specifically oxycodone 5 mg plus acetaminophen 325 mg, two tablets four or five times daily, as needed†	161	33.4
c. Add a short-acting opioid such as morphine	200	41.5
d. Add a rapid onset opioid such as oral transmucosal fentanyl citrate	50	10.4
e. Switch to the transdermal fentanyl patch, 50 μg/h, patch changed every 3 days†	45	9.3
f. Add pregabalin†	43	8.9
g. I would recommend something else	141	29.3

NOTE. Because each responder was permitted to choose more than one answer, sums of percentages are greater than 100.

*Of the 482 people who returned a survey containing this vignette, 354 received the original longer questionnaire that had been mailed in the first and second waves, and 128 received one of the two shorter versions mailed in the third and fourth waves. Because each shortened version had only one of the two vignettes, 128 of the 610 responders did not receive this vignette.

†Unacceptable responses were b, dose too low; e, dose too low and no reason for rotation; and f, no evidence of efficacy; 291 responders (60%) checked an unacceptable response.

Table 3. Comparison of the Physicians on the Mailing List of Randomly Selected Medical Oncologists With Those Who Returned Usable Questionnaires

Variable	Complete Random Sample of Medical Oncologists From AMA Master File (N = 2,000)		Responding Medical Oncologists (n = 610)	
	No.	%	No.	%
Age, years				
Median	57		56	
IQR	51-62		51-61	
Male	1,592*	80	472	80
Regional distribution†				
East	696	35	219	37
North	539	27	176	29
South	463	23	130	22
West	302	15	74	12

Abbreviation: AMA, American Medical Association; IQR, interquartile range.

*Because of missing data, sum of numbers may not equal sample size.

†None of the between-group differences was statistically significant.

choices. The second vignette described a similar situation and allowed the oncologist to choose as correct actions either dose titration and/or a trial of a drug for breakthrough pain (Table 2); four of the seven responses were correct and three would not reflect best practice.

Data Analysis

Unless otherwise noted, frequency data describing the responses to each question are expressed as medians with interquartile ranges (IQRs). SAS version 9.2 was used for statistical analyses. Bivariate analyses for categorical data were performed by using either χ^2 or Fisher's exact tests. Ordinal and continuous variables were analyzed with analysis of variance or nonparametric tests. The Loess procedure was used to generate scatterplots with overlaid local regression (loess) lines.

Since the study was a survey of a sample selected with a stratified sampling design, the Surveyreg and Surveylogistic procedures were used for linear (continuous or ordinal response) and logistic (dichotomous response) regression, respectively, to account for the survey design in the variance estimation. The NOMCAR (not missing completely at random) option was used to handle missing data.

In multivariable model building, we examined variables that intuitively could have had an impact on the outcome variable, regardless of their *P* values (eg, age, CME hours, sex, and region of practice in one model). We manually conducted stepwise selection until we obtained a model in which no variable had a *P* value greater than .05.

RESULTS

Response Rates and Sample Characteristics

In total, 67 questionnaires were undeliverable and five could not be used (four from nonmedical oncologists and one sent by the secretary of a deceased physician). Of the remaining 1,928 surveys delivered, 610 (32%) usable surveys were returned. For the first, second, and third mailings, the response rates were 12% (227 of 1,968 delivered), 7% (127 of 1,730), and 2% (34 of 1,683), respectively. Of the 450 oncologists included in the fourth mailing, 51% (222 of 434) responded. A comparison of the latter responders to all others revealed minimal differences: pain management training during medical school (median, 3; IQR, 2 to 6) compared with a median of 3 (IQR, 1 to 5; $P = .024$); pain management training during residency had a median of 5 (IQR, 3 to 7) compared with a median of 5(IQR, 2 to 7; $P = .049$). The similarity among all responders to the various mailings supported the representativeness of the sample and justified combining all responses. The representativeness of the 610 responders was further supported by their statistical similarity to the 2,000 oncologists randomly selected from the AMA Physician Master File (Table 3).

Of the 610 responders, 354 responded to the original (longer) questionnaire included in the first and second mailings, and 256 responded to one of the shortened versions included in the third and fourth mailings. Of the latter group, 128 responded to one version and 128 responded to the other. For all but three questions on all questionnaires, at least 90% of responders provided answers; the second vignette had the highest percentage of nonresponses (28%; 134 of 482).

The median age of the 610 responders was 56 years (IQR, 51 to 61 years). One hundred eighteen (20%) were female; 530 (89%) had 9 or more years of experience working in oncology; and the East, West, North, South distribution was 219 (37%), 74 (12%), 176 (29%), and 130 (22%), respectively (because of missing values, the data do not always add up to the total number of responders). Of the 482 who responded to questions about practice type, the numbers in a comprehensive cancer center, outpatient treatment setting, community hospital, or teaching hospital were 108 (23%), 240 (52%), 73 (16%), and 43 (9%), respectively. More than half (64%; n = 300) practiced in an institution that is a member of an NCI cooperative clinical trials group, and 369 (79%) had cared for more than 100 patients during the past 6 months.

Table 4. Responses Regarding Clinical Care, Attitudes, and Practices

Question	Median	25th Percentile	75th Percentile
1. How would you rate yourself as a prescriber of opioid drugs for cancer pain in relation to your peers? (higher numbers signify more conservative)	3	2	5
2. How well do medical oncologists do in relieving cancer pain? (higher numbers signify better)	7	6	8
3. How accurate do you believe patients' self-reports about their pain are? (higher numbers signify more accurate)	7	6	8
4. Rate the significance of the following potential barriers to optimal cancer pain management (higher numbers indicate greater barrier)			
a. Patient reluctance to report pain	6	4	7
b. Patient reluctance to take opioids because of fear of addiction	6	5	7
c. Patient reluctance to take opioids because of fear of adverse effects	6	5	7
d. Physician reluctance to prescribe opioids	5	3	7
e. Excessive regulation of opioid drugs	4	2	7
f. Inadequate assessment of pain by physicians and/or nurses	6	4	7
g. Lack of available pain or palliative medicine specialists	4	2	6
h. Patient inability to pay for services or analgesics	5	3	7
5. The following are possible reasons that medical oncologists may not refer to pain specialists. Please rank each of the following on a scale of 0 to 10 where 0 is "would not be an issue for me" and 10 is "a very significant issue for me" (higher numbers indicate more significant issue)			
a. Pain specialists are not available in my region	0	0	6
b. Pain specialists do not want to see patients with cancer	0	0	5
c. Appointments with pain specialists are hard to get	5	0	8
d. Pain specialists are too likely to recommend procedures for pain	3	0	6
e. Pain specialists do not understand oncology	2	0	7
6. Please rate your agreement with the following statements (higher numbers indicate greater degree of agreement)			
a. Opioid therapy is the first-line approach for the treatment of moderate to severe chronic pain in patients with cancer with active disease	8	7	10
b. Regularly scheduled opioid dosing is more effective than as needed dosing for chronic cancer pain	9	9	10
c. Opioids are less effective for neuropathic pain than other analgesics, such as certain anti-epileptics or anti-depressants	7	5	8
7. Please rate the following (higher numbers are better)			
a. The adequacy of your medical school training in cancer pain management	3	1	5
b. The adequacy of your residency training in cancer pain management	5	3	7
8. How many hours of CME devoted to pain management have you had during the past 3 years?*	4	1	10

NOTE. Each of these questions was asked on the original longer version of the questionnaire that was mailed in the first two waves (n = 354). The questions also appeared on one of the two shortened versions. Because 128 oncologists received only one of the two shortened versions, each question was asked of a total of 482 oncologists. Responses are on a numeric rating scale of 0 to 10.
Abbreviation: CME, continuing medical education.
*The response to the final questions is not on a numeric rating scale of 0 to 10.

Attitudes and Training

Oncologists believed that patient self-reports about pain are accurate (Question 3 [Q3]: rated 7; IQR, 6 to 8; Table 4). Although they generally believed that medical oncologists are effective in relieving pain (Q2: rated 7; IQR, 6 to 8), they described themselves as less conservative in prescribing opioids than their peers. With higher numbers reflecting greater barriers to optimal pain management, the most important perceived barriers were poor pain assessment (Q4f: rated 6; IQR, 4 to 7), patient reluctance to take opioids (Q4b/c: rated 6; IQR, 5 to 7), and patient reluctance to report pain (Q4a: rated 6; IQR, 4 to 7). Other barriers included physician reluctance to prescribe opioids (Q4d: rated 5; IQR, 3 to 7) and perceived excessive regulation (Q4e: rated 4; IQR, 2 to 7).

Quality of pain management training during medical school (Q7a) was rated 3 (IQR, 1 to 5), and perceived quality during residency (Q7b) was rated 5 (IQR, 3 to 7). Among those who were age 50 years or younger, medical school training was rated 3 (IQR, 2 to 6); the rating among older oncologists was 3 (IQR, 1 to 5; $P = .01$). The corresponding ratings for residency training were 6 (IQR, 4 to 8) versus 5 (IQR, 2 to 7; $P < .001$).

Of all the survey items, the number of CME hours during the prior 3 years was significantly related only to the ratings of pain management training in medical school and of physician reluctance to

Table 5. Survey Items That Were Significantly Related to No. of CME Hours of Pain Management Over the Past 3 Years (n = 482)

Variable	ρ	P
Rating of barrier to optimal cancer pain management posed by physician reluctance to prescribe opioids (higher numbers indicate greater barrier)	0.1	.03
Rating of adequacy of medical school training in cancer pain management (higher numbers are better)	0.1	.03

Abbreviation: CME, continuing medical education.

Table 6. Survey Items That Were Significantly Related to Region of Practice (n = 482)

Variable	Median	IQR	Respondents		*P*
			No.	%	
No. of CME hours in pain management over the past 3 years					< .001
East	4	1-10			
North	3	0-10			
South	3	0-6			
West	12	5-16			
Lack of available pain or palliative medicine specialists as a barrier to optimal cancer pain management (ratings on a 0-10 scale, where higher numbers indicate greater barrier)					.009
East	4	2-6			
North	4	2-6			
South	3	1-6			
West	6	3-7			
Primary treatment setting					.03
Comprehensive cancer center					
East			35	21	
North			39	28	
South			23	23	
West			10	18	
Outpatient					
East			83	50	
North			69	50	
South			56	57	
West			29	52	
Community hospital					
East			24	14	
North			21	15	
South			11	11	
West			15	27	
Teaching hospital					
East			25	15	
North			8	6	
South			8	8	
West			2	4	
Practice in institution that is a member of an NCI cooperative clinical trials group					< .001
East			105	62	
North			111	79	
South			53	54	
West			26	46	

NOTE. Region of practice designated by East, North, South, and West. Because of missing data, numbers may not add up to sample size.
Abbreviations: CME, continuing medical education; IQR, interquartile range; NCI, National Cancer Institute.

prescribe opioids as a barrier to optimal cancer pain management (Table 5) and the region of practice (Table 6). The five states in the West that had the highest median number of CME hours included two of the four states that require pain management CME (California, Michigan, Oregon, and West Virginia). Oncologists in the North were most likely to practice in an institution that is a member of an NCI cooperative clinical trials group ($P < .001$).

Practices

On three items that assessed agreement with commonly accepted clinical practices, the oncologists' ratings were largely consistent with the standard of care. When oncologists were asked whether opioid therapy is first-line for the treatment of moderate to severe chronic pain in patients with cancer who have active disease (Table 4, Q6a), the median score was 8 (IQR, 7 to 10), and when asked whether regular administration of an opioid was more effective than as needed administration when pain is chronic (Q6b), the score was 9 (IQR, 9 to 10). They were less certain about the role of adjuvant analgesics in neuropathic pain (Q6c; score of 7; IQR, 5 to 8).

In contrast, there was less agreement in the responses to the clinical vignettes. The first vignette described a scenario of uncontrolled pain despite a relatively high dose of an opioid (Table 1). Although a 100% dose increase may be acceptable if pain is very severe,[23] it is typically considered the upper boundary for dose escalation, and the combination of this increment in the regularly scheduled

dose plus access to a much larger supplemental dose would increase the risk of somnolence or mental clouding. The only correct response indicated that the proposed dose increase was too high and the most likely attendant risk was cognitive impairment (choice "c"); 421 (87%) checked unacceptable responses (ie, responses other than choice "c," which was the only correct choice). The only question significantly correlated with the selection of only the correct response was the rating of "patient reluctance to take opioids because of fear of addiction" as a barrier to pain management ($r = -0.110$; $P = .02$). Multivariable analysis of several models was no more informative than the bivariate analyses.

The second vignette examined the response to poorly controlled pain that might be addressed in any one of several ways, including titration of the current long-acting drug and addition of a short-acting drug for breakthrough pain (Table 2). Although breakthrough pain was not mentioned in the vignette, the concurrent prescription of a drug for breakthrough pain is a best practice, particularly when patients have a type of pain such as the bone pain described in the vignette that is commonly episodic.[23] Although multiple responses were considered acceptable, fully 291 responders (60%) failed to select any correct choice. Selecting an acceptable choice was positively associated with agreement that (1) opioid therapy is the first-line approach for the treatment of moderate to severe chronic pain in patients with cancer who have active disease ($P < .001$) and (2) regularly scheduled opioid dosing is more effective than as needed dosing for chronic cancer pain ($P = .02$). Again, multivariable analysis was not more informative than the bivariate analyses. Although oncologists in the West had taken significantly more hours of CME than those in other regions, they were not more likely to provide acceptable responses to either of the two vignettes.

Although each of the two shortened surveys included only one of these vignettes, both were presented on the longer original questionnaire. In the subgroup that received this questionnaire, answering one vignette correctly was completely unrelated to answering the other one correctly (standardized Cronbach $\alpha = -.13$).

Sixteen of the oncologists (3%) never referred patients to pain specialists, 390 (83%) referred patients rarely or occasionally, and 66 (14%) referred patients frequently. The corresponding values for referral to palliative medicine specialists were 76 (16%), 323 (68%), and 73 (16%). Of several explanations for limited referral to pain specialists, the highest rated item was difficulty in obtaining appointments (Q5c: rated 5; IQR, 0 to 8; Table 5).

DISCUSSION

Although US medical oncologists gave a high rating to their discipline's ability to manage pain (median of 7 on a scale of 0 to 10), there are numerous concerns. They acknowledge the importance of barriers to optimal care and consider the quality of pain management training that they have received to be only fair. Although most agreed with basic precepts, such as the importance of opioid therapy, the majority responded to challenging clinical scenarios with answers that suggest a high prevalence of deficits in knowledge about opioids among medical oncologists. With epidemiologic data showing that moderate to severe cancer pain is common[24] despite the potential effectiveness of guideline-based therapy,[25] as well as data showing that prescribers commonly neglect well-accepted guidelines for drug treatment of cancer pain,[17] the results of this survey suggest that better practices in pain management are necessary to address a substantial clinical need. The data suggest that this need cannot be met through increased CME hours on pain management nor can it be managed through referral to specialists, which is seldom done by oncologists, partly because of limited access.[26,27]

Items in this survey that can be compared with items in the 1990 survey of Von Roenn et al[21] suggest that many issues remain unresolved. Oncologists continue to perceive that the most significant barriers to adequate pain management are poor pain assessment, patient reluctance to report pain, and patient reluctance to take analgesics. Poor ratings of pain management training have barely changed. The better ratings of the younger oncologists suggest that the quality of pain management training during medical school and residency is improving but at a modest rate.

There have been no other surveys of US oncologists. Physician surveys in Israel,[28] China,[29] France,[13] Greece,[30] and Canada[31] suggest that the concerns identified by this survey also occur in other countries.

Several limitations of the study methods must be noted and should be considered in the interpretation of the findings. The overall response rate of 32% is relatively low and raises concern about the generalizability of the results to the larger oncology community. Support for generalizability, however, comes from the similarity of responses to the fourth mailing to those of the prior mailings, and the similarity in age, sex, and location between responders and those on the original mailing list. Although the comparison to the 1990 survey may be compromised by differences in age distribution (median age of 56 years in this survey compared with median age of 42 years in the earlier one), our comparisons of younger oncologists with older ones mitigates that limitation. The questions assessing factual information in this survey, including the vignettes, were not validated as measures of knowledge, and many factors that could relate to attitudes, knowledge, or practices could not be evaluated because of the need to minimize respondent burden.

These limitations notwithstanding, the results of this nationwide survey suggest that medical oncologists continue to perceive barriers to best practices in pain management and continue to reflect negatively on their training in a manner similar to that of survey respondents 20 years ago. Limitations in oncologists' knowledge and practices relating to pain management may be contributing to a substantial unmet need in populations with cancer. The longstanding acceptance of pain management as a best practice in oncology provides a foundation for renewed efforts to educate in this critical area. Conventional didactics now have the potential to be combined with guideline-based quality improvement activities and practice supports, including repeated screening and suggestions built into electronic health records to drive change.[32] This physician survey highlights the timeliness and necessity of these efforts.

AUTHORS' DISCLOSURES OF POTENTIAL CONFLICTS OF INTEREST

The author(s) indicated no potential conflicts of interest.

AUTHOR CONTRIBUTIONS

Conception and design: All authors
Collection and assembly of data: Brenda Breuer, Stewart B. Fleishman
Data analysis and interpretation: Brenda Breuer, Stewart B. Fleishman, Russell K. Portenoy
Manuscript writing: All authors
Final approval of manuscript: All authors

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Medical oncologists' attitudes and practice in cancer pain management: a national survey. J Clin Oncol. 2011; 29: 4769-4775.Â Minority patients had twice as much difficulty: in this national study of 6 academic and 32 community practices, the chances of a white patient getting inadequate pain prescription was half that of a minority patient (odds ratio, 0.51; 95% CI, 0.37-0.70; P=.002). Of 2700 patients followed up for symptoms, one-third had improvement after consultation with the oncologist, but one-fifth had worsening of their pain. Health and Medical Research National Institute, Research Unit 379, â€œSocial Sciences Applied to Medical Innovation,â€ Institut Paoli Calmettes, Marseilles, France Department of Economics, University of Aix-Marseilles II, Marseilles, France. The south-eastern france palliative care group. AffiliationÂ Medical Oncologists' Attitudes and Practice in Cancer Pain Management: A National Survey. Journal of Clinical Oncology, Vol. 29, Issue. 36, p. 4769. To evaluate the attitudes, knowledge, and practices of US medical oncologists that are related to management of cancer pain. An anonymous survey was mailed to a geographically representative sample of medical oncologists randomly selected from the American Medical Association's Physician Master File. From a total of 2,000 oncologists, 354 responded to the original questionnaire and 256 responded to one of two subsequent shortened versions (overall response rate, 32%). Medical oncologistsâ€™ attitudes and practice in cancer pain management: a national survey. J Clin Oncol, 29, 4769-75. Fairchild A (2010).Â Assessment of cancer pain management knowledge in Southwest China: a survey of 259 physicians from small city and county hospitals. J Palliat Med, 16, 692-5. Machira G, Kariuki H, Martindale L (2013). Impact of an educational pain management programme on nursesâ€™ pain knowledge and attitudes in Kenya. Int J Palliat Nurs, 19, 341-6. Murinson BB, Nenortas E, Mayer RS, et al (2011).