

Adoptation of an evidence-based clinical practice guideline in cancer pain management by medical oncologists: a case vignette study

Nienke te Boveldt · Myrra Vernooij-Dassen · Kees Besse · Kris Vissers · Yvonne Engels

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Abstract

Purpose Pain is a major problem in all cancer stages. Cancer pain guidelines are developed to improve management of pain. It is unclear whether these recommendations are applied in daily practice. Therefore, the objective of this study was to assess medical oncologists' adherence to an evidence-based clinical practice guideline in cancer pain management and their confidence in treatment choices.

Methods A cross-sectional case vignette survey describing a patient with intractable pancreatic cancer and pain was sent to all 268 medical oncologists registered at the Netherlands Association of Internal Medicine. Descriptive statistics were conducted.

Results Sixty-three of 268 medical oncologists (24 %) completed the survey. Adherence to the different recommendations of the guideline ranged from 18 to 100 %. Confidence for treatment choice ranged from 5.6 to 9.5 on a Numeric Rating Scale (0–10). Most of the responding oncologists (94 %) adhered to prescribing paracetamol as first-line pain treatment, and all prescribed a laxative in combination with opioids to prevent constipation. However, only 24 % of the respondents adhered to the guideline when first-line treatment had insufficient effect. Additionally, only 35 % adhered to the recommendation for insomnia treatment providing psychosocial support or using a multidimensional pain questionnaire

besides pharmacological treatment. Finally, only 18 % adhered to the recommendation to perform a multidimensional pain assessment when disease worsens and pain increases.

Conclusions The recommendations of the guideline have been partly adopted in cancer pain practice by medical oncologists. Particularly, pain assessment is not applied in the recommended manner. Therefore, implementation strategies should focus on adequate pain assessment in patients with cancer.

Keywords CPG adherence · Cancer · Oncology · Pain management · Case vignette

Introduction

Pain prevalence in patients after curative treatment is 33 %, 59 % during curative treatment, and 64 % in patients with metastases or an advanced disease stage [1]. Pain is undertreated in 31 % [2] to 65 % [3] of these patients, although adequate pain relief is considered feasible in 86 % of patients with cancer [4]. These figures show that pain is a major problem in all cancer stages. Pain is one of the most frequently feared symptoms for patients [5, 6] and is associated with anxiety, depressed mood, and sleep disturbances [6–9]. For those reasons, pain in patients with cancer strongly hampers patients' daily activities [10] and decreases their quality of life [7–9]. It has been shown that treatment of pain in combination with treatment of anxiety, depression, and sleep disturbances related to pain was more effective than pain medication alone [11].

However, physicians tend to show lack of attention for and knowledge about pain management [12], do not systematically assess pain [13, 14], and inadequately communicate with patients about their pain [15]. Besides, for a variety of reasons, patients are reluctant to discuss pain with their doctor [12, 14,

N. te Boveldt (✉) · K. Besse · K. Vissers · Y. Engels
Department of Anesthesiology, Pain and Palliative Medicine,
Radboud university medical center (Radboudumc), PO Box 9101,
6500 HB Nijmegen, The Netherlands
e-mail: nienke.faber-teboveldt@radboudumc.nl

M. Vernooij-Dassen
Department of IQ Healthcare, Radboud university medical center
(Radboudumc), PO Box 9101, 6500 HB Nijmegen, The Netherlands

M. Vernooij-Dassen
Kalorama Foundation, Beek-Ubbergen, The Netherlands

16]. Some patients, for example, have concerns about addiction to pain medication, and others fear that reporting pain will distract the physician from cancer treatment [16].

Therefore, systematic screening and documentation of pain are essential. Clinical Practice Guidelines (CPGs) can be helpful to improve cancer pain management [11, 17, 18]. Systematic screening and documentation of pain are recommendations in the Dutch multidisciplinary evidence-based CPG “pain in patients with cancer,” one of the most recent CPGs on this topic in Europe and developed in 2008 [11]. This Dutch CPG has high quality regarding the process of development and the way of reporting [19]. It has been developed for all professional caregivers involved in cancer pain treatment, including medical oncologists. As medical oncologists play a key role in planning, delivering, and coordinating cancer care and pain management in these patients, it is important to assess whether they are familiar with this CPG and adhere to its recommendations.

For this reason, a case vignette including most important recommendations of the CPG has been developed. A case vignette is an accurate tool for measuring care practices [20]. The objective of the case vignette study was to assess whether medical oncologists in the Netherlands adhere to the evidence-based recommendations in the Dutch cancer pain CPG as well as their confidence with treatment choices.

Methods

A national cross-sectional case vignette survey describes a patient with intractable pancreatic cancer and pain.

Study procedure

Of all 304 medical oncologists registered at the Netherlands Association of Internal Medicine (NIV), 36 were excluded because they were retired ($n=7$), were working in a foreign practice ($n=11$), were not a medical oncologist ($n=4$), were not clinically active ($n=4$), or could not be linked to a hospital or practice ($n=10$) (Fig. 1). This information was obtained from hospital Web sites, secretaries, or from the oncologists themselves after having sent the vignette for the first time.

The remaining 268 medical oncologists were invited to participate in this study in October 2013. Nonrespondents received a reminder 3 weeks later and a second e-mail remainder 3 weeks after the first reminder. All questionnaires received before 1 February 2014 were included in the analysis.

Case vignette

According to Hughes and Huby “vignettes consist of text, images or other forms of stimuli to which research participants are asked to respond” [21]. The case vignette used, concerned a woman with pancreatic cancer and was developed by two anesthesiologists who, respectively, participated in and chaired the Dutch cancer pain CPG development group in 2008 (KB, KV). It was pilot tested in four pain physicians. The case vignette was divided in four consecutive parts, in which the disease stage worsens and the pain increases (see Appendix 1).

Part I concerns questions on first-line pain management; part II describes an adaptation of pain treatment; part III concerns how oncologists manage pain-related impairment; and Part IV relates to end-of-life pain management. The case vignette consisted of 14 questions reflecting the most important recommendations of the CPG.

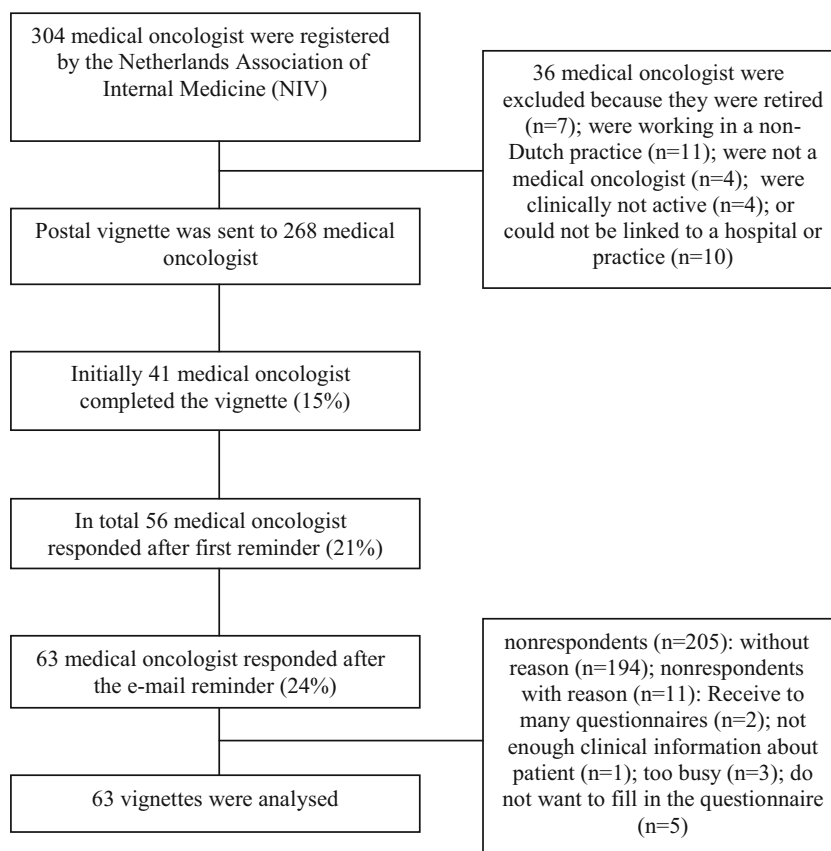
Additionally, demographic characteristics of the respondents were assessed (gender, date of birth, number of years of experience in clinical practice, working in an academic/nonacademic hospital), the number of patients with cancer on their yearly patient list, an estimation of the percentage of these patients in pain, and whether the respondents were familiar with the Dutch CPG pain in patients with cancer. Finally, we asked them to report per question how confident they were with their treatment choice. Confidence in treatment choice was assessed on a Numeric Rating Scale (NRS) with 0 being “not confident at all” and 10 being “completely confident.” Additionally, most common answers or combination of answers were shown.

Statistical analysis

Descriptive statistics were conducted. Percentages of medical oncologists adhering to the recommendations of the CPG were assessed. Statistical analyses were performed with SPSS 20.0 (IBM SPSS Statistics, Armonk, NY, USA).

Results

Initially, the response rate was 15 %. After the first reminder, it increased to 21 % and after the second reminder to 24 % (63 medical oncologists) (Fig. 1). Mean age of the medical oncologists was 45 ± 8.9 years (32–65 years). Oncologists estimated that 41 ± 21 % (5–90 %) of their patients with cancer have pain. Almost all respondents (94 %) reported to be familiar with the CPG (Table 1). Eleven of 205 nonrespondents reported a reason for not responding; five medical oncologists did not want to participate, two reported that they receive too many questionnaires and were not able to answer all, one

Fig. 1 Study flow diagram

reported that there was not enough clinical information given to answer the questions and finally, three reported that they were too busy.

Part I first-line pain management

Table 2 shows oncologists' adherence to the recommendations of the CPG. Sixty-five percent of the respondents adhered to the recommended first-line pain management strategy. This includes at least pharmacological treatment and assessment of pain with a one-dimensional or a multidimensional pain questionnaire. Ninety-four percent of the respondents reported to prescribe paracetamol (and an NSAID) and not codeine as first-line pharmacological treatment.

Figure 2 shows the most frequently reported answers or combination of answers. Most often, respondents (32 %) reported as first-line pain management strategy pharmacological treatment, pain assessment with a one-dimensional pain scale, and further diagnostics (Fig. 2a, Q1). Thirty-eight percent of the respondents reported to prescribe paracetamol as single first-line pharmacological treatment. In addition, 27 % of the respondents reported to prescribe paracetamol in combination with a strong opioid, which is recommended in the CPG as second step in pain management and not as first step. Finally, 10 % of respondents reported to prescribe paracetamol and NSAIDs (Fig. 2a, Q2).

Part II adaptation of pain treatment

In part II of the case vignette, patient's pain increases, and first-line pain treatment has insufficient effect. Adaptation of pain treatment is needed. Twenty-four percent of the respondents adhered to the recommendations of the CPG by at least adapting pharmacological treatment, conducting pain assessment with a one-dimensional pain scale, and discussing possibilities for invasive treatment with an anesthesiologist (Table 2, Q3).

Besides, much variation in answer or combination of answers existed for question 3 (choosing a strategy for adaptation of pain treatment) (Fig. 2B). Eighty-nine percent of the respondents, as recommended, would add a strong opioid to paracetamol (and NSAIDs), which was already prescribed in the previous treatment phase (Table 2, Q4), and all respondents prescribed a laxative to prevent constipation caused by opioids (Table 2, Q5).

The invasive treatment as part of the adapted pain management strategy should be a celiac plexus block and/or a splanchnic nerve block for patients with pain located in the upper abdomen, caused by primary tumor or metastases, which was chosen by 78 % of the respondents (Table 2, Q6).

Table 1 Participants and practice characteristics of survey respondents total $N=63$

Characteristics	Number (%)
Gender	
Man	26 (41.3)
Women	37 (58.7)
Age (years)	
30–45	33 (52.4)
45–60	23 (36.5)
≥ 60	7 (11.1)
Years of experience in practice	
<1	3 (4.8)
1–5	22 (34.9)
5–10	12 (19.0)
>10	26 (41.3)
Practice type	
Academic	19 (30.2)
Nonacademic	43 (68.3)
Other	1 (1.6)
Estimated number of patients per year consulted	
50–100	4 (6.3)
100–500	32 (50.8)
≥ 500	21 (33.3)
Missing	6 (9.5)
Estimated percentage of patients with cancer and pain	
<10 %	2 (3.2)
10–25 %	15 (23.8)
25–40 %	12 (19.0)
40–55 %	17 (27.0)
55–70 %	7 (11.1)
>70 %	8 (12.7)
Missing	2 (3.2)
Are you familiar with the CPG?	
Yes	59 (93.7)

Part III impairment of pain

In part III of the vignette, the patient has concerns about her children: How will they cope with the fact that she will die. The CPG recommends to consider psychosocial support, as this can also improve pain control. However, to whom the patient should be referred to for help is not specified in the CPG (Table 2, Q7).

The patient's pain intensity is decreased, but insomnia is still a problem. Thirty-five percent of the respondents adhered to the recommendations for insomnia treatment by adaptation of pharmacological treatment, pain assessment with a multidimensional pain questionnaire, and/or referral to a psychologist (Table 2, Q8). The recommendation to prescribe a benzodiazepine was followed by 73 % of the respondents (Table 2, Q9).

Despite this treatment, the patient still has sleeping problems and experiences severe anxiety for future suffering. Seventy-five percent of the respondents would discuss patient's problems in a multidisciplinary team meeting and/or refer the patient to a psychologist, as recommended by the CPG (Table 2, Q10).

Figure 2C Q7 shows that most frequently, the respondents would refer the patient to a psychologist, social worker, or pastoral worker (14 %). Figure 2C Q8 shows that the most commonly chosen strategy for insomnia treatment (29 %) was to adapt the pharmacological treatment without conducting pain assessment or referring the patient to a psychologist. Additionally, Fig. 2C Q10 shows that most respondents would treat this patient for anxiety/depression with treatments categorized as "other" (16 %). For example, the respondents described strategies as talking with the patient about his/her concerns or discussing the medical status of the patient with the general practitioner or with the palliative care team.

Part IV impairment of pain

The patient's pain intensity increases and the disease progresses. Eighteen percent of the respondents adhered to the recommendation of the CPG to adapt pharmacological treatment and to conduct pain assessment with a multidimensional pain questionnaire (Table 2, Q11). Sixty-five percent of the respondents suggest opioid rotation if pain reduction is not sufficient (Table 2, Q12). Besides, 43 % of the respondents chose for spinal opioid administration as invasive pain treatment. If oral and transdermal opioids have insufficient effect or too many side effects, spinal opioid administration should be considered (Table 2, Q13). At home, the subcutaneous route of an opioid is recommended, to which 71 % of the respondents adhered (Table 2, Q14).

Figure 2D Q11 shows that most respondents (25 %) would treat the pain with adaptation of pharmacological treatment and discuss possible invasive treatment with an anesthesiologist (Fig. 2D, Q11).

Confidence in treatment choices

Respondents were asked to report per question how confident they were with their answer, which ranged from 5.6 to 9.5 on an NRS. The confidence figures did not differ between respondents who adhered to the CPG and those who did not, except for confidence with the strategy for depression treatment (question 10). Regarding this question, respondents who did not adhere to the recommendation of the CPG appeared more confident with the treatment choice than respondents who did not ($p=0.043$, two-tailed).

Table 2 Adherence to CPG and summaries of CPG recommendations

Questions	Recommendation	Answer	% adherence ^a
Part I first line pain management			
<i>Q1 Strategy of pain management</i>	Use a one-dimensional scale or multi-dimensional pain questionnaire for pain assessment. ^{1–4} (Page 26–27)	Pharmacological treatment and pain assessment with a one-dimensional scale OR pharmacological treatment and a multi-dimensional questionnaire.	65 %
<i>Q2 Treatment of pain</i>	Prescription of paracetamol as first step in pain treatment. ^{5, 6} (Page 69)	Paracetamol OR paracetamol and NSAID	94 %
Part II adaptation of pain treatment			
<i>Q3 Strategy of pain management</i>	Use a one-dimensional pain scale or multi-dimensional pain questionnaire for pain assessment. ^{1–4} (Page 26–27)	Adaptation of pharmacological treatment and assessment of pain with a one-dimensional pain scale and discuss possible invasive treatment with anaesthesiologist.	24 %
<i>Q4 Treatment of pain</i>	Use NSAIDS in combination with paracetamol or opioids if these have insufficient effect. (Page 73)	Depends on answer Q2. Paracetamol (and NSAID) are given as first-line treatment, here a strong opioid should be added.	89 %
<i>Q5 Prevention of side effect</i>	Prescription of a laxative to prevent constipation and an anti-emetic drug if persistent nausea is present. ^{7–9} (Page 104–105)	At least prescribe a laxative.	100 %
<i>Q6 Choice of invasive treatment</i>	Celiac plexus block is recommended for patients with pain localized in upper abdomen as a result of metastasis. ¹⁰ (Page 147)	Celiac plexus block OR splanchnic nerve block ^b OR celiac plexus block and splanchnic nerve block ^b	78 %
Part III Impairment of pain			
<i>Q7 Mourning management</i>	Psychosocial support can improve pain treatment and should be considered (Page 139–140). Pain treatment needs to be multidimensional. (Page 125)	Not specified in CPG.	n/a
<i>Q8 Strategy of insomnia treatment</i>	Use a multi-dimensional pain questionnaire for pain assessment. ^{1–4} (Page 26–27) Psychosocial support can improve pain treatment and should be considered. (Page 139–140)	Adaptation of pharmacological treatment and pain assessment with a multi-dimensional pain questionnaire OR adaptation of pharmacological treatment and refer to psychologist OR adaptation of pharmacological treatment and pain assessment with a multi-dimensional pain questionnaire and refer to psychologist	35 %
<i>Q9 Treatment of insomnia</i>	Prescribe a drug against insomnia: benzodiazepine or tricycle antidepressant. (Page 125) Pain treatment needs to be multidimensional. (Page 125) Treating insomnia can also reduce pain or pain experience. (Page 124)	Benzodiazepine	73 %
<i>Q10 Strategy of depression management</i>	Psychosocial support can improve pain treatment and should be considered. (Page 139–140) Pain treatment needs to be multidimensional. (Page 125)	Discussing patient in multidisciplinary team meeting OR refer to psychologist OR discussing patient in multidisciplinary team meeting and refer to psychologist	75 %
Part IV pain management in end of life			
<i>Q11 Strategy of pain management</i>	Thorough history and physical examination; further investigation on indication. (Page 27) Use a one-dimensional pain scale or multi-dimensional pain questionnaire for pain assessment. ^{1–4} (Page 26–27) Consider invasive treatment if adaptation of pharmacological treatment will not be effective to further reduce pain. (Page 145–147)	Adaptation of pharmacological treatment and use a multi-dimensional pain questionnaire OR adaptation of pharmacological treatment and use a multi-dimensional pain questionnaire and discuss possible invasive treatment with anesthesiologist	
<i>Q12 Treatment of pain management</i>	If pain reduction is not sufficient by using opioids, opioid-rotation is recommended, titration is necessary. ^{11–15} (Page 90)	Opioid-rotation	65 %
<i>Q13 Choice of invasive treatment</i>	If oral and transdermal opioids have insufficient effect or to reduce their side effects, spinal opioid administration should be considered. (Page 144)	Spinal opioid administration	43 %
<i>Q14 Choice of administration route</i>	Change opioid administration route (oral, transdermal, subcutaneous or intravenous). (Page 95–96)	Subcutaneous	71 %

^a Adherence to CPG=percentage of respondents who treated the patient in adherence with the recommendations of the CPG, including respondents who also included other answer categories in their answer besides what has been recommended

^b Shows much similarity with the celiac plexus block

^{1–15} See Appendix 2 additional references Table 2

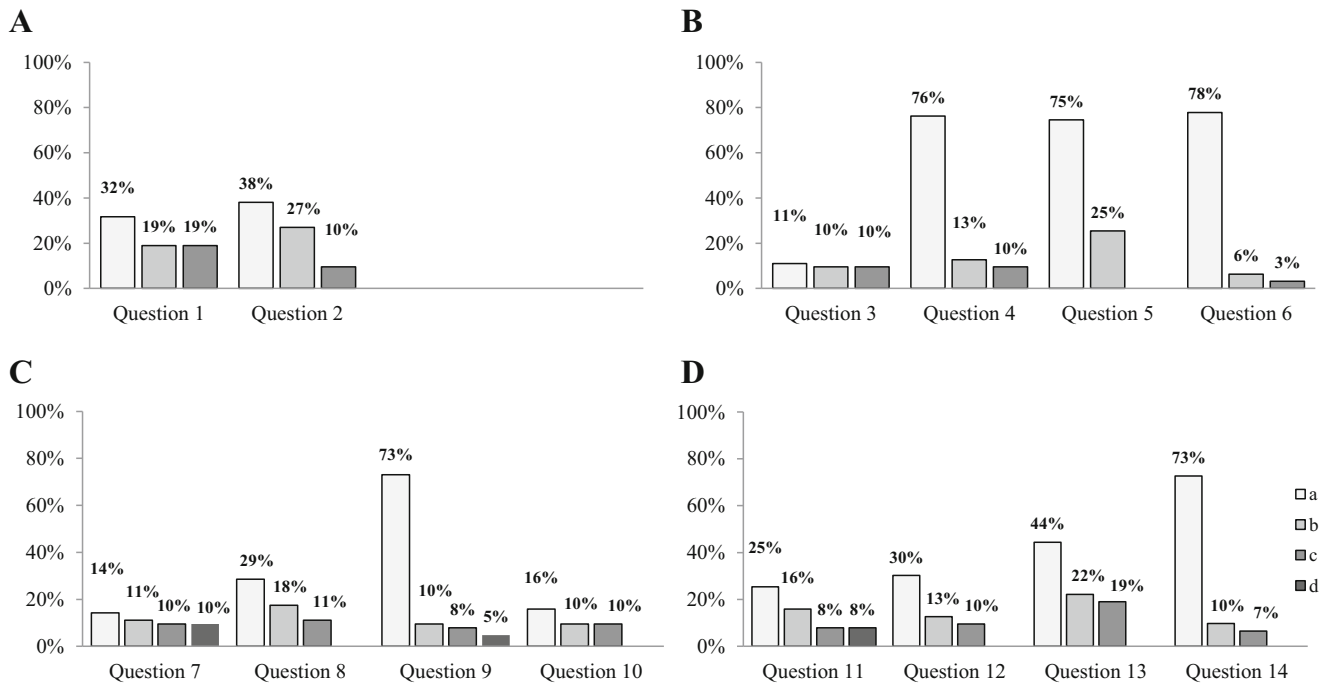


Fig. 2 Most common answers or combinations of answers. **a** First-line pain treatment: *Q1 Strategy of first-line pain management*: A = pharmacological treatment, one-dimensional pain measurement and further diagnostics; B = pharmacological treatment and one-dimensional pain measurement; C = pharmacological treatment. *Q2 Treatment of pain*: A = paracetamol; B = paracetamol and strong opioid; C = paracetamol and NSAIDs. **b** Adaptation of pain treatment: *Q3 Diagnose/characteristics of pain*: A = pharmacological treatment and asking about constipation and one-dimensional pain measurement; B = pharmacological treatment and asking about constipation and further diagnostics and one-dimensional pain measurement and contact anesthesiologist for invasive treatment; C = pharmacological treatment and asking about constipation. *Q4 Treatment of pain*: A = strong opioid; B = NSAID and strong opioid; C = NSAID. *Q5 Prevention of side effects*: A = a laxative; B = a laxative and anti-emetic. *Q6 Choice of invasive treatment*: A = celiac plexus block; B = celiac plexus block and spinal administration of opioid; C = celiac plexus block and splanchnic nerve block. **c** Impairment of pain: *Q7 Mourning management*: A = psychologist and social worker and pastoral worker; B = psychologist; C = psychologist and pastoral worker; D =

other. *Q8 Strategy of insomnia treatment*: A = adaptation pharmacological treatment; B = adaptation pharmacological treatment and consultation psychologist; C = other. *Q9 Treatment of insomnia*: A = benzodiazepine; B = benzodiazepine and other; C = other; D = benzodiazepine and antidepressant. *Q10 Strategy of depression management*: A = other; B = referral to clinical psychologist; C = multidisciplinary team meeting. **d** Pain management in end of life: *Q11 Strategy of pain management*: A = adaptation of the pharmacological treatment and discuss with anesthesiologist for invasive pain treatment; B = discuss with anesthesiologist for invasive pain treatment; C = adaptation of the pharmacological treatment and one-dimensional pain measurement and discuss with anesthesiologist for invasive pain treatment; D = adaptation of the pharmacological treatment and one-dimensional pain measurement. *Q12 Treatment of pain management*: A = opioid rotation; B = further increase of opioid dose; C = parenteral administration of opioids. *Q13 Choice of invasive treatment*: A = celiac plexus block; B = spinal opioid administration; C = celiac plexus block and spinal opioid administration. *Q14 Choice of administration route*: A = subcutaneous; B = transdermal; C = subcutaneous and transdermal

Discussion

The results of this national case vignette survey to assess medical oncologists' adherence to evidence-based CPGs show that adherence to the recommendations of the CPG ranged from 18 to 100 %. Feeling confident with the chosen treatment ranged from 5.6 to 9.5 on an NRS. Particularly, pain assessment was not applied in the recommended manner. As medical oncologists play a key role in planning, delivering, and coordinating cancer care and pain management, it is important that they systematically assess pain. Therefore, we recommend to implement a quality indicator for assessing cancer pain, in order to facilitate diagnosis, evaluation, and

documentation of cancer pain [22]. A quality indicator for standardized postoperative pain assessment is already implemented in Dutch practice [23].

In our study, adherence to the recommendations appeared somewhat higher than that in an equal case vignette study with pain specialists in France [24]. This study by Piano et al. showed that half of the respondents adhered to the recommendations of a French CPG for neuropathic pain in patients with cancer [24]. Although overall adherence in our study was higher than in the French study, adherence to 4 out of 13 recommendations was very low. Besides, much variation in answer or combination of answers existed in question 3 (choosing a strategy for adaptation of pain treatment).

Probably, this question was not well formulated which might have influenced adherence.

Especially, adherence to pain assessment appeared to be low. An Australian survey among oncologists to identify barriers and facilitators to cancer pain assessment and management showed that only 22 % of the respondents reported to use pain CPGs [25]. In agreement with our findings, they addressed that particular attention should be paid to promoting the use of validated pain assessment scales [25]. Additionally, another survey on attitudes of oncologists regarding cancer pain management showed that poor assessment is a key barrier in cancer pain management. Besides, they also addressed the reluctance of patients to talk about opioids or to report pain as another key barrier in cancer pain management [14].

Adherence to the recommendations regarding pain assessment appeared low as compared to the recommendations on pain treatment. A possible explanation might be that in the Dutch CPG, the recommendations for pain assessment are not specified: when, why, and how pain should be assessed. A substantial part of the recommendations of evidence-based CPGs is based on consensus opinion. If systematic reviews or large prospective studies are not available, evidence-based guidelines use expert opinion. In the Dutch CPG, the recommendation whether or not paracetamol should be continued when an opioid is prescribed is one of these recommendations (see Table 2, Appendix 2). That might explain why opioids were prescribed early on for this scenario by 27 % of the respondents.

This recommendation on pain assessment should contain information on how and how often pain needs to be assessed. It should also mention when to make use of a one-dimensional pain scale and when to add a multidimensional pain questionnaire. Besides, structured registration of the results of the pain assessment in the medical record needs to be mentioned in CPGs as an essential part of the recommendation [26]. Second, publishing a CPG is not enough [27]. Implementation efforts are needed to improve cancer pain management, and examples should be given. Moreover, the CPG revision should focus on cancer pain management barriers, especially on ineffective patient -specialist communication. Additionally, the CPG recommends that psychosocial support should be considered as an essential part of the pain management strategy, because it can improve pain control. However, to whom the patient should be referred to for this support is not specified in the CPG. Finally, a previously conducted study to assess how pain has been registered in medical records of patients with cancer by medical oncologists shows

that pain was not systematically registered in their medical records and only in one out of 987 visits at the outpatient clinic pain was registered with an NRS or Visual Analogue Scale (VAS) [26]. Therefore, recommendations for pain registration in medical records should be included and specified in the CPG: how pain should be registered and who is responsible for registration.

The present study has several strengths. This is the first study to assess medical oncologists' adherence to evidence-based cancer pain CPGs. Additionally, we asked all medical oncologists registered at the Netherlands Association of Internal Medicine (NIV) to participate. Another strength of this study is that the use of a case vignette is an accurate tool for measuring care practices and it gives more information than retrospective analysis of medical records to assess adherence to CPGs [20].

Several limitations of this study should also be considered in the interpretation of the findings. The overall response rate of 24 % is low. However, other recently conducted surveys on cancer pain in medical oncologists also showed low response rates between 15 and 33 % [14, 24, 25, 28]. This relatively low response rate raises concerns whether the results can be generalized to the Dutch medical oncologists' population. The responding medical oncologists probably were more interested in cancer pain management than nonrespondents, which might have caused higher adherence rates. For this reason, the low response rate will not have influenced our conclusion that pain assessment needs further implementation.

This national case vignette survey to assess whether medical oncologists adhere to an evidence-based CPG shows that the recommendations of the CPG have not been well adopted, especially the recommendation for conducting pain assessment. Additionally, the CPG should advise whether an anesthesiologist is needed in a more advanced stage of the disease. We would encourage other case vignette studies to report most common answers, besides adherence, to be able to discuss the quality of the questions included.

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Conflict of interest Authors have no conflict of interest.

Author contributions NtB was principal investigator. All authors contributed to the conception and design of the study. NtB was responsible for data collection and for analysis and data interpretation. All authors were responsible for writing the manuscript. All authors approved the final manuscript. Medical writers were involved (KV, KB).

Appendix 1: case vignette

Ms. A is 45-years old. She is married and has two children (12 and 15 years old). After she developed a silent icterus, an intractable pancreatic cancer was diagnosed. The family has been informed about her poor prognosis. The bile flow was restored using a stent. The patient is in good condition and has a good appetite. Ms. A is treated with chemotherapy.

A few weeks after hospital discharge, Ms. A visits the outpatient clinic because she has pain in her upper abdomen with varying intensity.

1. You decide to treat the patient with the following strategy (more than one answer is possible):

- Pharmacological treatment
- Pain assessment with an one-dimensional pain scale (pain intensity)
- Pain assessment with a multidimensional pain questionnaire
- Further diagnostics, namely...

Please report how confident you are that this strategy is correct (please circle what applies)

Being not confident at all 0 1 2 3 4 5 6 7 8 9 10 Being completely confident

2. The pharmacological treatment includes (more than one answer is possible):

- Paracetamol
- Codeine
- NSAID
- Strong opioid
- Other, namely....
- N/A

Please report how confident you are that this treatment is correct (please circle what applies)

Being not confident at all 0 1 2 3 4 5 6 7 8 9 10 Being completely confident

The pain is acceptable for a couple of weeks. Then the pain increases. Ms. A experiences pain in her upper abdomen, especially during the night and she wakes up early in the morning because of her pain.

3. You decide to treat the patient with the following strategy (more than one answer is possible):

- Adaptation of the pharmacological treatment
- Ask about possible constipation problems
- Pain assessment with an one-dimensional pain scale (pain intensity)
- Pain assessment with a multidimensional pain questionnaire
- Contact an anesthesiologist for possible invasive treatment
- Further diagnostics, namely....

Please report how confident you are that this strategy is correct (please circle what applies)

Being not confident at all 0 1 2 3 4 5 6 7 8 9 10 Being completely confident

4. The adaptation of the pharmacological treatment includes:
- Add paracetamol
 - Add NSAID
 - Add or increase codeine
 - Add or increase a strong opioid
 - N/A

Please report how confident you are that this treatment is correct (please circle what applies)

Being not confident at all 0 1 2 3 4 5 6 7 8 9 10 Being completely confident

5. To treat or avoid possible side effects of strong opioids you prescribe the following medication:
- A laxative
 - An anti-emetic
 - Medication or treatment to treat drowsiness

Please report how confident you are that this strategy is correct (please circle what applies)

Being not confident at all 0 1 2 3 4 5 6 7 8 9 10 Being completely confident

6. A possible invasive pain treatment:
- Cordotomy
 - Celiac plexus block
 - Splanchnic nerve block
 - Hypogastric nerve block
 - Lower end block
 - Spinal administration of an opioid
 - Other, namely
 - N/A

Please report how confident you are that this treatment is correct (please circle what applies)

Being not confident at all 0 1 2 3 4 5 6 7 8 9 10 Being completely confident

Ms. A worries about her children's reaction concerning her future death.

7. You suggest to contact additional help can be provided by:
- Foundation "de Einder"
 - Foundation "Achter de Regenboog"
 - A psychologist
 - A social worker
 - A pastoral worker
 - Other, namely.....

The pain decreases because of treatment, however insomnia remains a problem.

8. You decide to treat the patient with the following strategy (more than one answer is possible):

- Adaptation of pharmacological treatment
- Pain assessment with an one-dimensional pain scale (pain intensity)
- Pain assessment with a multidimensional pain questionnaire
- Psychological consultation
- Other, namely.....

Please report how confident you are that this strategy is correct (please circle what applies)

Being not confident at all 0 1 2 3 4 5 6 7 8 9 10 Being completely confident

9. The adaptation of pharmacological treatment includes:

- Add a benzodiazepine
- Add an antidepressant drug
- Add methylphenidate
- Other, namely.....

Please report how confident you are that this treatment is correct (please circle what applies)

Being not confident at all 0 1 2 3 4 5 6 7 8 9 10 Being completely confident

Ms. A still suffers from insomnia after your treatment and tells you about her concerns for future suffering.

10. You decide to treat the patient with the following strategy (more than one answer is possible):

- Discuss this patient in a multidisciplinary team meeting
- Refer the patient to a clinical psychologist
- Advice to contact a pastoral worker
- Refer the patient to a nurse specialized in oncology
- Prescribe an antidepressant drug
- Other, namely.....

Please report how confident you are that this strategy is correct (please circle what applies)

Being not confident at all 0 1 2 3 4 5 6 7 8 9 10 Being completely confident

After a short period of time the pain worsens and is localized in the whole abdomen. Illness progresses and the chemotherapy should be cancelled.

11. You decide to treat the patient with the following strategy (more than one answer is possible):

- Adaptation of the pharmacological treatment
- Pain assessment with an one-dimensional pain scale (pain intensity)
- Pain assessment with a multidimensional pain questionnaire
- Contact anesthesiologist for possible invasive treatment
- Other, namely...

Please report how confident you are that this strategy is correct (please circle what applies)

Being not confident at all 0 1 2 3 4 5 6 7 8 9 10 Being completely confident

12. Despite optimal titration of the strong opioid the pain increases; which adaptation of the pharmacological treatment can be proposed?

- Further increase of the opioid dose
- Opioid rotation
- Parenteral administration of opioids
- Adjuvant treatment, namely...
- N/A

Please report how confident you are that this treatment is correct (please circle what applies)

Being not confident at all 0 1 2 3 4 5 6 7 8 9 10 Being completely confident

13. The possible invasive treatment is?

- Cordotomy
- Celiac plexus block
- Splanchnic nerve block
- Hypogastric nerve block
- Lower end block
- Spinal administration of an opioid

Please report how confident you are that this treatment is correct (please circle what applies)

Being not confident at all 0 1 2 3 4 5 6 7 8 9 10 Being completely confident

The patient wants no invasive pain treatment anymore. The disease is complicated by a pelvic venous thrombosis, which is treated with acenocoumarol. After a few weeks her situation further deteriorates. She is very tired and unable to eat and drink. The patient can't swallow the opioids. Her life expectancy is estimated one to two weeks.

14. What is the most suitable way of giving strong opioids at home?

- Intraspinal
- Subcutaneous
- Transdermal
- Intravenous

Please report how confident you are that this treatment is correct (please circle what applies)

Being not confident at all 0 1 2 3 4 5 6 7 8 9 10 Being completely confident

Appendix 2 additional references Table 2

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