Original paper

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Breakthrough pain in patients with chronic cancer pain followed by palliative care and pain clinic physicians — an observational study

Abstract

Background. Breakthrough pain (BtP) is common among patients suffering from cancer pain. The experience, knowledge and education of palliative care physicians or pain clinicans seems to be essential for proper diagnosis and treatment of breakthrough pain. Another key point is knowledge and behavior of patients suffering the breakthrough pain episodes. The aim of this study was to determine, whether patients suffering the cancer chronic pain are being informed by physicians working in palliative care outpatients and pain clinics about BtP occurrence and treatment, as well as how patients are utilizing the rescue medications.

Material and methods. Six hundred seventy eight patients participated in the study. The common demographic (age, sex), disease-related, background pain (including mode and effectiveness of treatment) data were collected. The information about breakthrough pain occurrence, number of episodes, BtP management, frequency of rescue medications dosing and effectiveness of these medications were also collected.

Results. Over 75% of them had been prescribed strong opioid and almost 25% of the patients — weak opioid. 58% had uncontrolled background pain. BtP was reported by 69,3% of these patients, most commonly one or two episodes per day. Only 3% of patients experienced more than 4 episodes a day. As a rescue medication patients usually used morphine, followed by nonsteroidal antiinflamatory drugs and paracetamol, but statistically not every time they experienced the BtP.

Conclusion. This study confirmed that patients followed by palliative care outpatients and pain clinics receive information about background and breakthrough pain, and are well orientated in pain medications. The problem emerges in proper utilization of rescue medications, most commonly prescribed as oral.

Key words: breakthrough pain, cancer pain, palliative care outpatient, pain clinic

Adv. Pall. Med. 2011; 10, 1: 29–34

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Advances in Palliative Medicine 2011, 10, 29–34

Introduction

The known data show, that around 25 millions people worldwide lives with cancer disease nowadays. 30–40% of them, in the time of cancer diagnose, are suffering of pain, with the number growing along with the course of the disease up to 70–90% patients in the end of life period [1]. Breakthrough pain (BtP) is a quite common phenomenon in a cancer patients population. Its incidence is being ranged up to 40–80% [2]. Breakthrough pain has been defined as a transitory exacerbation of pain that occurs either spontaneously or in relation to a trigger despite adequately controlled background pain. It is usually managed with short acting opioid drugs, known as rescue medications, added to routine analgesics administered "by the clock" [3]. Although BtP is not a seldom phenomenon, its diagnosis and treatment still leaves a lot to desired point. It seems that a crucial point deciding of proper management of breakthrough pain remains education and knowledge of palliative care physicians and pain clinicans. Another key point is knowledge and behavior of patients suffering the breakthrough pain episodes. From the literature references and our own experience, patients do not follow the doctors' prescriptions- do not take the right dose of rescue medication and not every time they experience the BtP episode [4–6]. The most common reasons for above situation are lack of drug effect, adverse events or concerns about them, difficulties in taking the medication and lack of knowledge about certain medication [5, 6]. The aim of this study was to determine, whether patients suffering the cancer chronic pain are being informed by physicians working in palliative care outpatients and pain clinics about BtP occurrence and treatment, as well as how patients are utilizing the rescue medications.

Material and methods

The study was conducted among the patients of palliative care outpatients and pain clinics in Poland (11 and 34 clinics respectively). The patients aged 18 and over, with diagnose of cancer disease and suffering of cancer pain were recruited to the study. The only exclusion criterion for the study was patients' cognitive impairment.

Patients, during the outpatient visits, were accomplished the anonymous questionnaires in the period of two months of 2010 y. The questionnaire consisted of 12 questions. The common demographic (age, sex), disease-related, background pain (including mode and effectiveness of treatment) data were collected. The information about breakthrough pain occurrence, number of episodes, pain management, frequency of rescue medications dosing and effectiveness of these medications were also collected.

The quantitative data from the questionnaires has been analyzed and the percentage values of patients declared answers were shown. Tables were drawn using the graphic computer programs.

Results

Six hundred seventy eight patients participated in the study (347 males, 331 females). The median age was 63 years (range 25–86 years). All of the patients were receiving analgesic drugs for their background pain. Over 75% of them had been prescribed strong opioid (mainly morphine, fentanyl and buprenorphine), and almost 25% of the patients — weak opioid (tramadol, dihydrocodeine and codeine). Additionally more than 60% of the patients were receiving co-analgesic drugs like nonsteroidal antiinflamatory drugs (NSAIDs) or paracetamol (Table 1). 37.52% of the patients reported mean intensity of their background pain in last 24 hours between 4 and 6 in a 11-point numeric rating scale (NRS, 0-10), while 21.3% of them had pain intensity of 7 and more.

Four hundred seventy (69.3%) of the patients had breakthrough pain episodes. More than half patients of this group declared 1 or 2 episodes of BtP in last 24 hours — 32% and 34% respectively. One fifth of the patients had three episodes of breakthrough pain, twice as much as ones having 4 episodes. 3% of respondents declared more than 4 episodes of BtP per day (Table 2). 29% of *the* patients used the rescue medication twice in the last 24 hours and almost the same percentage of patients used it once. Three and four times per day used the rescue medication 14.2% and 10% of the respondents respectively, and over four times — 8% of them. Almost 12% of the patients declared the different patterns of rescue medication utilization, like "once a day for three months" (Table 2). Of the patients experiencing BtP, as a main rescue medication, 70% had declared morphine, 20% — NSAIDs, 15.4% — paracetamol and 11.3% — tramadol (Table 3). Most of the patients evaluated efficacy of used rescue medications in controlling episodes of breakthrough pain very well: 38.9% of the

Table 1. Drugs used by patients to control background pain (more than one answer was possible)

Analgesic used	Number of answers	Percentage of answers
Paracetamol	298	24
NSAIDs	508	41
Codeine	12	1
Dihydrocodeine	37	3
Tramadol	285	23
Morphine	670	54
Fentanyl	211	17
Buprenorphine	87	7
Methadone	0	0
Oxycodone	0	0

Table 2. Number of BtP episodes and rescue medication utilization for last 24 hours before questionnaire (group of patients experiencing any BtP episode)

Number of BtP episodes	Number of patients	Percentage of patients	Number of rescue medication utilization	Number of patients	Percentage of patients
1	150	32	1 ×	126	26.8
2	160	34	2 ×	136	29
3	94	20	3 ×	67	14.2
4	52	11	4 ×	47	10
> 4	14	3	> 4 ×	38	8
			Another answer	56	12
Sum	470	100	Sum	470	100

Table 3. Drugs used by patients to control BtP episodes (more than one answer was possible)

Analgesic used	Number of answers	Percentage of answers
Paracetamol	105	15.4
NSAIDs	136	20
Codeine	7	1
Dihydrocodeine	2	0.3
Tramadol	77	11.3
Morphine	477	70
Fentanyl	2	0.3
Buprenorphine	3	0.5
Methadone	1	0.1
Oxycodone	0	0
Other	7	1

patients evaluated these drugs as efficacious and 15.1% as completely efficacious. Only 5.4% of the patients declared the BtP therapy as ineffective (Table 4).

Discussion

Few hundreds patients cured by palliative care outpatients and pain clinics physicians due to chronic

Table 4. Patients' evaluation of BtP management efficacy

Evaluation of BtP management efficacy	Number of patients	Percentage of patients
Ineffective	25	5.4
Moderately efficacious	191	40.6
Efficacious	183	38.9
Completely efficacious	71	15.1
Sum	470	100

cancer pain had participated in the study. All of the patients had been prescribed opioid drugs as background medication, both the strong (mostly) and weak ones. Unfortunately, almost 60% of the patients had uncontrolled background pain (as mean NRS pain intensity score for last 24 hours was 4 and more). Due to design of the questionnaire, we can not precisely explain the cause of that situation, nonetheless prescription of the improper drugs or improper doses might be the answer. It is very likely that patients with uncontrolled background pain may have significantly higher incidence of BtP episodes [7–10].

Almost 70% of respondents had episodes of BtP during last 24 hours before fulfilling the questionnaire. This is much higher percentage than shown in Spanish or Italian surveys on palliative care home and inpatient populations [7, 11]. On the other hand, similar number of patients suffering of breakthrough pain episodes may be found in British and American studies, where the percentage of patients with uncontrolled background pain was also significantly higher [6, 12, 13].

Most of the patients had declared one or at most two episodes of BtP a day. Only 15 patients had over four episodes. This highly variable number of episodes of BtP per day, so typical as a feature of that pain, is reflected in literature [7, 11]. In case of this study the question is whether the relatively small number of per day episodes of BtP in comparison with relatively poor control of background pain is not caused by patients' problems with recognizing and distinguishing the episodes from background pain.

The most common rescue medication prescribed to the patients was morphine. Another opioids used in management of BtP was tramadol and only individual patients chose fentanyl, codeine and buprenorphine. Interestingly, a number of patients (over 35%) were using formulations of NSAIDs and paracetamol as rescue medications. As answering the question about rescue medication, patients may have chosen few options, it is possible that physicians prescribed NSAID or paracetamol additionally to the opioid rescue medication or the patients used them without any doctors prescription. Actually, when analyzing that answers, it is reasonably to assume that great number of patients use only the analgesic ladder step one drugs as rescue medication despite having prescribed opioids to manage the background pain. This may be caused by lack of physicians' precise knowledge of BtP phenomenon or inappropriate prescriptions or drugs dosing.

Another problem is how patients are following the doctors' prescriptions. The results of the study clearly confirmed that patients do not take rescue medication every time they experience the BtP episode. Among the most common reasons for not taking rescue medication is the fact that pain improved before the drug started to work (this has obvious justification in BtP characteristics and using mainly oral breakthrough medications) and low pain intensity [6, 14]. Especially this second one may be the most common reason for not taking the rescue medication or using non – opioid drugs. Moreover, the majority of patients mentioned, that their management of breakthrough pain is effective.

Summarizing, it seems that patients followed by palliative care outpatients and pain clinics receive information about background and breakthrough pain, and are well orientated in pain medications. The problem emerges in proper utilization of rescue medications, most commonly prescribed as oral. Maybe introduction of novel products, given by the different routes, will improve the situation [14–17]. Nevertheless, these aims will only be successful, when both physicians and patients will receive proper, targeted education about the management of breakthrough pain.

Acknowledgments

Authors would like to thank Mundipharma Polska Sp. z o. o. for assistance in preparing and performing of this study.

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