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Prevalence of breakthrough pain associated with chronic low back pain in Andalusia (COLUMBUS study)

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ABSTRACT

Introduction: Chronic low back pain is highly prevalent in industrialized countries, where it is one of the main causes of incapacity for work. Patients with chronic low back pain in treatment with opioids often experience episodes of breakthrough pain, but data on prevalence and treatment preferences is scarce. The prevalence, characteristics, and management of breakthrough pain in patients with chronic low back pain in Andalusia and Melilla are unknown.

Objectives: 1. Evaluation of the prevalence of breakthrough pain in patients with chronic pain secondary to chronic low back pain in Andalusia and Melilla (primary endpoin t). 2. Characterization of breakthrough pain in patients with chronic pain secondary to chronic low back pain based on etiology, pathology, and other clinical characteristics. 3. Assessment of the prevalence of each of the different causes of pain. 4. Identification of possible associations between different types of breakthrough pain and socio-demographic, clinical and healthcare factors.

Materials and methods: 1,868 patients participated in the study of breakthrough pain prevalence and 295 patients participated in the characterization study. In the prevalence study, the following variables were collected: presence of breakthrough pain, sex and age. In the characterization study, data was collected regarding the type and location of pain, treatment, compliance, and patient satisfaction.

Results: The prevalence of breakthrough pain in patients with chronic pain secondary to chronic low back pain is 37.5% (95 % CI: 35 .3-39.7%), and is similar in men and women. 75% of the patients were older than 50. The mean value of breakthrough pain was 84.4 points in a visual analog scale (VAS). Chronic low back pain is treated with a wide range of opiates. The preferred drug for patients who control breakthrough pain with opioids is fentanyl (78.3 %) and its most common route of administration is nasal (53.2 %). There is a high degree of compliance and 46.3 % of patients consider the control of their breakthrough pain to be very satisfactory.

Conclusions: Epidemiological data on breakthrough pain in Andalusia and Melilla generated by this study has allowed us to find out its prevalence and characteristics, as well as preferred treatments and patients' degree of satisfaction.

Key words: Chronic low back pain, low back pain, breakthrough pain, opioids, fentanyl.

RESUMEN

Introducción: El dolor lumbar crónico tiene una alta prevalencia en los países industrializados, donde es una de las principales causas de incapacidad laboral. Con frecuencia, los pacientes con dolor lumbar crónico en tratamiento con opiáceos sufren episodios de dolor irruptivo, pero los datos de prevalencia y preferencias de tratamiento son escasos. La prevalencia, características y manejo del dolor irruptivo de pacientes con dolor crónico de origen lumbar en Andalucía y Melilla es desconocida.

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Objetivos: l. Evaluación de la prevalencia del dolor irruptivo en pacientes con dolor crónico secundario a lumbalgia crónica en Andalucía y Melilla (objetivo primario). 2. Caracterización del dolor irruptivo en pacientes con dolor crónico secundario a lumbalgia crónica basado en la etiología, patología, así como en otras características clínicas. 3. Evaluación de la prevalencia de cada una de las diferentes causas de dolor. 4. Identificar las posibles asociaciones entre los diferentes tipos de dolor irruptivo y aspectos socio demográficos, clínicos y asistenciales.

Material y métodos: En el estudio de prevalencia del dolor irruptivo participaron 1.868 pacientes y en el de caracterización 295 pacientes. En el estudio de prevalencia se recogieron las siguientes variables: presencia de dolor irruptivo, sexo y edad. En el estudio de caracterización se recogieron datos relativos al tipo y localización del dolor, tratamiento, cumplimiento y satisfacción del paciente.

Resultados: La prevalencia del dolor irruptivo en pacientes con dolor crónico secundario a lumbalgia crónica es del 37,5 % (IC 95 %: 35,3-39 ,7 %), y es similar en hombres y mujeres. Un 75 % de los pacientes son mayores de 50 años. La media de dolor irruptivo fue de 84,4 puntos en la escala visual analógica (EVA). El tratamiento del dolor crónico es tratado con una amplia gama de opiáceos. El fármaco preferente de los pacientes que controla n el dolor irruptivo con opiáceos es fentanilo (78,3 %) y la forma de administración más común de este es la nasal (53,2 %). El grado de cumplimiento es alto y un 46,3 % de los pacientes consideran muy satisfactorio el control de su dolor irruptivo.

Conclusiones: Los datos epidemiológicos sobre el dolor irruptivo en Andalucía y Melilla generados por este estudio nos ha permitido conocer su prevalencia y características, así como los tratamientos preferidos y el grado de satisfacción de los pacientes.

Palabras clave: Dolor lumbar crónico, lumbalgia, dolor irruptivo, opiáceos, fentanilo.

INTRODUCTION

Pain located in the spinal column is highly frequent in the population and has enormous social, work-related and economic repercussions (1). Low back pain is the most common cause of work absenteeism in persons under 45 years old and the most expensive benign ailment in industrialized countries (2-4). Around 80% of the population's is known to suffer from low back pain during their lives and 15-20% will experience prolonged periods of pain (1,5). In Spain, low back pain causes over 2 million annual visits to Primary Health Care and is considered to be one of the work-related health problems that most often causes temporary incapacity for work (6).

Chronic low back pain is defined as pain located between the lower edge of the rib cage and the lower edge of the buttocks, which lasts more than 12 weeks Its intensity varies according to posture and physical activity, and it is usually accompanied by painful limitation to movement. Recurring low back pain is also considered chronic. The prevalence of low back pain in Europe is 25-45%, and its most frequent causes are degenerative or traumatic. Low back pain is more prevalent in industrialized countries, and there exist no differences as regards sex, although from aged 60 upward, it appears more frequently among women (7). Low back pain represents the main cause of public expenditure on care and work-related costs, and may generate an equivalent cost between 1.7% and 2.1% of a European country's gross domestic product. It is estimated that low back pain's prevalence may reach 10.2%, and it shows signs of growing rapidly (8-10).

Low back pain may be defined as acute when it lasts less than 12 weeks, after which it becomes chronic. Data on the prevalence of chronic low back pain is reported to vary from 8% to 23% (7). In Spain, the prevalence of chronic low back pain has been estimated at 20.5% (6).

Breakthrough pain is a passing exacerbation of the pain, which occurs either spontaneously, or in relation to a specific, predictable trigger or unpredictable despite a relatively stable, adequately controlled baseline pain (11). Episodes of breakthrough pain cause an increase in pain lasting approximately half an hour to one hour (11-14).

Previous studies have evaluated the prevalence of breakthrough pain in patients receiving opioids to control chronic back pain in specialized clinics, the results showing a prevalence of 74% (15), showing us that breakthrough pain in patients with chronic low back pain is a real problem and studies must be carried out in order to characterize it so that, by increasing our knowledge, we can find a solution for patients. We have no knowledge of prevalence in our environment, nor the mechanism of chronic low back pain, so it would be difficult to postulate breakthrough pain's mechanism or even its existence in patients with chronic low back pain. For these reasons, this regional study was carried out to estimate the prevalence of patients with breakthrough pain among patients with chronic low back pain in Andalusia and Melilla. The objective was to estimate the prevalence of breakthrough pain in patients with chronic low back pain attended in hospital services where patients with chronic low back pain are most often treated (Pain Units). At the same time, this study sought to obtain other data of interest, such as the prevalence of breakthrough pain in relation to the pain's origin, type and management. Evaluation and discussion of this information will help us better understand the pathology and improve management of this type of patient.

MATERIAL AND METHODS

This is an epidemiological, observational, cross-sectional study of breakthrough pain in patients with chronic pain secondary to chronic low back pain. The study was carried out in Pain Units in 20 hospitals in Andalusia and Melilla between July and December 2015.

The main objective was to evaluate the prevalence of breakthrough pain in patients with chronic pain secondary

to chronic low back pain.

The secondary objectives were: a) to characterize breakthrough pain in patients with chronic pain secondary to chronic low back pain based on etiology, pathology, and on other clinical characteristics (type of breakthrough pain, number of daily episodes, pain duration and intensity and pain management), and b) to evaluate the prevalence of each different cause of pain.

The study was positively evaluated by the Comité Coordinador de Ética de la Investigación Biomédica of Andalusia on 4 May 2015 (study code: ADD-DOL-2015-1).

Patient selection

Selection criteria were: a) patients' age > 18 years old; b) patients with chronic pain secondary to baseline chronic low back pain controlled with opioids, reporting episodes of breakthrough pain (VAS 2: 5); c) patients with adequate oral and written comprehension, and d) patients' written informed consent.

This study carried out a cross-sectional collection of data for 3 months at each of the 20 participating centers. To determine sample size, the following considerations were taken into account: every day more than 20 patients are treated in each pain unit and each center had a recruitment period of 3 months; bearing in mind that the percentage of patients with chronic low back pain evaluated in pain units is around 20%, it was estimated that approximately 160 patients were interviewed regarding the prevalence of breakthrough pain in each center; that is, around 3,200 patients in the 20 centers included. This sample would allow us to detect the prevalence of breakthrough pain with a significance level of 0.05 and a precision of ±1.5%. To evaluate the secondary objective, that is, evaluation of the disease's characteristics and patient care, it was considered representative to detect common characteristics in our population in, at least, 10% of patients, which required the inclusion of 372 patients to detect such characteristics with a significance of 0.05 and a precision of ±3%.

The prevalence study included all data registered by the investigators on the prevalence forms during the established period (1,868 patients) (Table 1). The study of secondary objectives included all patients that complied with the selection criteria established in the protocol (295 patients). 12 patients were excluded from the breakthrough pain characterization analysis for not meeting the selection criteria.

TABLE I
PATIENTS INCLUDED IN THE PREVALENCE STUDY

	N	%
Hospital Carlos Haya	324	17.3
Hospital de Poniente	301	16.1
Hospital Virgen del Rocío	180	9.6
Hospital Ciudad de Jaén	160	8.6
Hospital Comarcal de Melilla	149	8.0
Hospital Virgen de la Victoria	143	7.7
Hospital Universitario Puerto Real	123	6.6
Hospital del SAS de Jerez	122	6.5
Hospital Alta Resolución de Guadix	101	5.4
Hospital Reina Sofía	78	4.2
Hospital Nuestra Señora de Valme	75	4.0
Hospital de Baza	63	3.4
Hospital Puerta del Mar	42	2.2
Hospital Torrecárdenas	5	0.3
Hospital Universitario Virgen Macarena	2	0.1
Total	1,868	100.0

Methodology

The prevalence study collected the following variables: presence of breakthrough pain (yes/no), sex and age. Breakthrough pain prevalence was calculated as the number of patients with breakthrough pain with respect to the total number of patients interviewed.

For a period of 3 months, each investigator identified patients with chronic pain secondary to chronic low back pain, in treatment with opioids, who visited the Pain Unit and were asked specifically about the presence of breakthrough pain. Of the patients who reported breakthrough pain, the first two patients of every day that complied with the inclusion criteria and granted their informed consent were included in the study, up to the mentioned sample size of 20 patients in each center. Accordingly, the cases that visited participating hospitals' pain units were evaluated. During a single visit, the investigator collected the study data and variables.

Data collection

This study carried out cross-sectional data collection for 3 months in each participating center. As it was observational, data was obtained from patients' clinical history and/or the patients themselves and in accordance with doctors' standard clinical practice. Pain intensity of patients with non-cancer breakthrough pain was evaluated by means of

a visual analog scale (VAS). Data collection was carried out by means of Data Collection Notebooks on paper. Data was stored in a relational database on a MySQL server. The database was protected by means of an SSL security certificate for adequate data encryption. The database was equipped with security margins and internal coherence standards to prevent the entry of incorrect data and anomalous or incoherent values.

Statistical analysis

All the patients who met the selection criteria and granted their informed consent were included in the study's statistical analysis. The prevalence of breakthrough pain with its respective confidence interval of 95% was calculated as the percentage of subjects who reported breakthrough pain among the number of patients with chronic pain secondary to chronic low back pain controlled with opioids, collected by each investigator on the patient Frequency Form over 3 months. This prevalence was also obtained as adjusted by age group and sex. Given the study's descriptive nature, the statistical methodology used was based fundamentally on an exploratory analysis of data by calculating descriptive parameters. Categorical variables were presented as absolute frequencies and relative frequencies. The possible relation between breakthrough pain intensity according to the VAS and the type of breakthrough pain (incidental or spontaneous) was analyzed using the t-Student test.

An analysis of covariance (ANCOVA) was carried out to analyze the differences in the VAS of breakthrough pain among the different types of breakthrough pain, controlling by number of episodes in the previous month (significant variable in the model).

RESULTS

This epidemiological, observational, cross-sectional study analyzed the prevalence of breakthrough pain in patients with chronic pain secondary to chronic low back pain who visited the Pain Unit of hospitals in Andalusia and the city of Melilla. 1,868 patients were included in total, of which 25% who visited were younger than 50 years old, 50% were between 50 and 71 years old, and 25% were older than 71 years old. 36.1% of patients included in the prevalence study were male and 63.9% were female. The breakthrough pain characterization study included a total of 295 patients whose mean age was 61.5 (45.1% men and 54.9% women).

We determined that the prevalence of breakthrough pain in patients with chronic pain secondary to chronic low back pain was 37.5% (95% CI: 35.3-39.7%). Prevalence among men and women was similar; 39.6 and 36.4%, respectively. There were no statistically significant differences between the presence or absence of breakthrough pain according to patients' gender (Fisher's exact test, p value = 0.178) and age (Student's t, p value = 0.95).

As regards the characteristics of baseline pain, 74% of patients had baseline chronic pain of mixed origin; 8% neuropathic and 18% somatic. The main causes of pain were radiated (53%) and evoked (21%). 26% of cases had no cause available.

61.4% of patients had breakthrough pain characterized as mixed, mainly located in the lumbar region (39.,0%) or in the lumbar region and lower limbs (34.2%) (Table 11). Mean breakthrough pain intensity was 84.4 points according to the visual analog scale (VAS).

TABLE II
CHARACTERISTICS OF BREAKTHROUGH PAIN

		N	%*
Type of breakthrough pain	Neuropathic	49	16.6
	Nociceptive	60	20.3
	Mixed	181	61.4
	Not available	5	1.7
Neuropathic[1]	Incidental	27	55.1
	Spontaneous	19	38.8
	Not available	3	6.1
Nociceptive[2]	Incidental	52	86.7
	Spontaneous	8	13.3
	Not available	O	0 .0
Location of the pain	Lumba regionr	115	39.0
	Lumbar region + lower limbs	101	34.2
	Lower limbs	29	9.8
	Lumbar + gluteal/hip region	11	3.7
	Lumbar + dorsal region	6	2.0
	Gluteal/hip region	4	1.4
	Lumbar region + upper limbs	2	0.7
	Other	10	3.4
	Not available	17	5.8

* Percentages calculated regarding the total number of patients anaslyzed (n = 295). [1]Percentages calculated regarding the total number of patients with neuropathic breakthrough pain (n = 49). [2]Percentages calculated regarding the total number of patients with nociceptive breakthrough pain (n = 6 0).

59.1% of patients analyzed had had more than 10 episodes of breakthrough pain in the month prior to data collection. Duration of crises was less than 45 minutes in 78.7% of patients, time until pain relief less than 15 minutes in 66.5% of cases, and 21.8% of patients suffered more than 5 crises daily (Table III).

To treat baseline chronic pain, 100.0% of patients used opioids and 50.5% took non-steroid anti-inflammatory drugs (Table IV). The most-used opioids were tapentadol (28.1%), oxicodone (17.3%), oxicodone/naloxone (17,3%), tramadol (15.9%) and fentanyl (13.9%). Other drugs for treating baseline chronic pain were anticonvulsants (62.9%), dual antidepressants (20.3%) and muscle relaxants (13.5%). 56.6% of patients used non-pharmacological treatments against chronic pain, of which the most common were injections (51.5%), blockage (38.9%), TENS (8.4%) and physiotherapy (6.0%) (Table IV).

With regard to breakthrough pain treatment, 81.4% of patients used opioids, mainly fentanyl (78.3%) and tramadol (12.9%) (Table V). Preferred route of administration for fentanyl was nasal (53.2%) (Table VI).

TABLE III
BREAKTHROUGH PAIN CRISES

		N	%
Número de episodios último mes[1]	1-5 crisis	46	15.7
	5-10 crisis	74	25.3
	10-15 crisis	65	22.2
	> 15 crisis	108	36.9
Tiempo duración crisis[1]	1-14 min	56	19.1
	15-29 min	80	27.3
	30-45 min	95	32.4
	> 45 min	62	21.2
Tiempo hasta alivio del dolor2	1-5 min	30	10.3
	6-lümin	99	33.9
	11-15 min	65	22.3
	16-30 min	49	16.8
	> 30min	49	16.8
Número de crisis al día'	O crisis/día	23	7.8
	1-5 crisis día	206	70.3
	e!: 5 crisis/día	64	21.8

[1]Percentages calculated regarding the total number of patients with information available (n = 293). [2] Percentages calculated regarding the total number of patients with information available (n = 292).

Compliance with treatment for both baseline chronic pain and for breakthrough pain was always high and above 90%. In the case of baseline chronic pain, medication was generally or always taken by the patient in 98.3% of cases (Table VII), and in the case of breakthrough pain treatment the answer "generally"

TABLE IV
TREATMENTS FOR BASELINE CHRONIC PAIN

	N	%
Non-steroid anti-inflammatory drugs	149	50.5
Opioid[1]	295	100.0
Tapentadol	83	28.1
Oxicodone	51	17.3
Oxicodone/Naloxone	51	17.3
Tramadol	47	15.9
Fentanyl	41	13.9
Buprenorphine	17	5.8
Morphine	14	4.7
Codeine	2	0.7
Hydromorphone	1	0.3
Other pain therapy drugs	251	85.1
Anticonvulsants	158	62.9
Dual antidepressants	51	20.3
Muscle relaxants	34	13.5
Tricyclic antidepressants	19	7.6
Neuroleptics	17	6.8
Corticosteroids	12	4.8
Biphosphonates	10	4.0
Calcitonin	1	0.4
Antispasmodics	1	0.4
Others	62	24.7
Non-drug treatment[3]	167	56.6
Acupunture	3	1.8
Blockage	65	38.9
TENS	14	8.4
Physiotherapy	10	6.0
Infiltrations	86	51.5
Spinal chord stimulation	3	1.8
Others	25	15.0

Note: patients may receive more than one treatment.
[1]Percentages calculated regarding the total number of patients (n = 295).
[2]Percentages calculated regarding the total number of patients with pharmacological treatments for baseline pain (n = 251).
[3]Percentages calculated regarding the total number of patients with non-pharmacological treatment for baseline pain.

TABLE V
TREATMENTS FOR BREAKTHROUGH PAIN

	N	%
Opioids[1]	240	81.4
Morphine[2]	13	5.4
Fentanyl	188	78.3
Oxicodone	17	7.1
Tramadol	31	12.9
Other opioids	2	0.8
Oxicodone/Naloxone	1	50.0
Tapentadol	1	50.0
Other pain therapy drugs[1]:	60	20.3
Metamizole	26	43.3
Paracetamol	13	21.7
Lbuprofen	6	10.0
Dexketoprofen	5	8.3
Nolotil	2	3.3
Metamizole	2	3.3
Lidocaine	2	3.3
Others	11	18.7

*Note: patients can receive more than one treatment.
[1]Percentages calculated regarding the total number of patients (n = 295).
[2]Percentages calculated regarding the total number of patients treated with opioides for breakthrough pain (n = 240).
[3]Percentages calculated regarding the total number of patients treated with other pain therapy drugs for breakthrough pain (n = 60).

TABLE VI
ROUTE OF ADMINISTRATION FOR OPIOIDS (BREAKTHROUGH PAIN)

		N	%
Morphine route	Oral (rapid)	11	84.6
	Nasal	1	7.7
	Oral (delayed)	1	7.7
Fentanyl route[1]	Nasal	99	53.2
	Sublingual	52	28
	Transmucosal	23	12.4
	Oral (rapid)	9	4.8
	Intrathecal	2	1.1
	Transdermal	1	0.5
Oxicodone route[2]	Oral (rapid)	13	81.3
	Oral (delayed)	3	18.8
Tramado[route[3]	Oral (rapid)	26	86.7
	Oral (delayed)	4	13.3

[1] Patients 5014 and 13019 do not have the fentanyl administration route available.
[2] Patient 13015 does have the oxicodone administration route available.
[3] Patient 13015 does not have the tramadol administation route available.

TABLE VII
EVALUATION OF COMPLIANCE (BASELINE PAIN)

General/baseline pain		*N[1]*	%2
Investigator: Overall level of compliance with medication	Always	211	72.8
	Generally	71	24.5
	Sometimes	6	2.1
	Never	1	0.3
	Not available	1	0.3
Patient: Takes the medication as prescribed for their pain?	Always	240	82.8
	Generally	45	15.5
	Sometimes	5	1.7
	Never	0	0.0
Reason why medication was not taken	Forgetfulness	19	38.0
	Side effects	17	34.0
	Difficult to administer	2	4.0
	Others	1	2.0
	Not available	11	22.0
Takes medication other than as prescribed by their doctor	**No**	234	80.7
	Not available	23	7.9
	Yes:[3]	33	11.4
	Paracetamol	8	24.2
	Metamizole	4	12.1
	NSAID	4	12.1
	Ibuprofen	3	9.1
	Others	12	36.0

[1] 5 patients do not have an evaluation of compliance with baseline/general pain therapy available: 6015, 7002, 7017,12002 and 12004.
[2] Percentages calculated regarding the total number of patients with an evaluation of compliance (n = 290).
[3] Two patients (13016 and 23007) report that they take medication other than the one prescribed by their doctor but they do not say which medication.

or "always" was given in 91.2% of cases (Table VIII). The most frequent causes for patients not taking medication for chronic pain were forgetfulness (38.0%) and side-effects of the medication (34.0%), while lack of compliance by 8.5% of patients with breakthrough pain was due mainly to side-effects of the medication (35.5%) and forgetfulness (20.4%) (Table VIII).

As regards evaluation of the level of satisfaction with the treatment, the answer "very satisfactory" was greater than 40% for the treatment of both baseline pain and breakthrough pain, though slightly higher in the latter

TABLE VIII
EVALUATION OF COMPLIANCE (BREAKTHROUGH PAIN)

Breakthrough pain		*N*[1]	*%2*
Investigator: Overall level of compliance with medication	Always	165	58.3
	Generally	90	31.8
	Sometimes	19	6.7
	Never	8	2.8
	Not available	1	0.4
Patient: Takes the medication as prescribed for their pain?	Always	189	66.8
	Generally	69	24.4
	Sometimes	15	5.3
	Never	9	3.2
	Not available	1	0.4
Reason why medication was not taken	Side effects	33	35.5
	Not available	24	25.8
	Forgetfulness	19	20.4
	Difficult to administer	5	5.4
	Others	12	12.9
Takes medication other than as prescribed by their doctor	No	253	89.4
	Not available	9	3.2
	Yes:	21	7.4
	Metamizole	7	33.3
	Paracetamol	4	19.0
	Metamizole Paracetamol	3	14.3
	Others	7	33.6

[1]12 patients do not have an evaluation of compliance with breakthrough pain therapy available: 2015, 18013, 2002, 2012, 2013, 2014, 2020, 2018, 6015, 7002, 7017 and 12004.
[2]Percentages calculated regarding the total number of patients with evaluation of compliance with breakthrough pain therapy (n = 283).

TABLE IX

ASSESSMENT OF SATISFACTION WITH TREATMENT

		N	%
*Satisfaction treatment baseline general pain**	Very satisfactory	120	41.2
	Quite satisfactory	135	46.4
	Quite unsatisfactory	32	11.0
	Very unsatisfactory	4	1.4
*Satisfaction treatment breakthrough pain**	Very satisfactory	131	46.3
	Quite satisfactory	103	36.4
	Quite unsatisfactoyo	32	11.3
	Very unsatisfactory	17	6.0

* Percentages calculated regarding the total number of patients with assessment of satisfaction with treatment (assessment general baseline pain n = 291, assessment breakthrough pain n = 283).

(46.3%). Nevertheless, the answer was "quite unsatisfactory" or "very unsatisfactory" in 12,4% for the treatment of chronic pain and in 17.3% for the treatment of breakthrough pain (Table IX). Our results show that both compliance and patient satisfaction are very high, suggesting that care quality in treatment for breakthrough pain seems adequate in the geographical area studied.

DISCUSSION

This epidemiological study's main objective has been to determine the prevalence of breakthrough pain associated with chronic low back pain in patients that visited Pain Units of hospitals in Andalusia. We have determined that the prevalence of this type of pain is 37.5% (95% CI: 35.3-39.7%). Furthermore, we have characterized the type of pain and its treatment in the region. This study has let us find out and quantify the level of patients' compliance and satisfaction with respect to the treatment against pain, thus facilitating future therapeutic interventions and better management of the problem.

The prevalence of breakthrough pain in cancer patients has been extensively described and varies between 33% and 89% (16,17). In our country, the prevalence, characteristics, implications and treatment modalities of breakthrough pain have been described for chronic cancer pain in Catalonia (12), showing that 41% of these patients suffered episodes of breakthrough pain. Nevertheless, the literature for non-cancer breakthrough pain in chronic diseases has barely been studied and continues to be a matter of debate (13,18). Studies of non-cancer-related breakthrough pain in different populations have shown degrees of prevalence that vary between 48% and 74% (14,17,19,20). A more recent study of patients treated with opioids in the United States showed that up to 80% suffered regular episodes of breakthrough pain (21). These studies clearly suggest that the phenomenon of breakthrough pain is highly prevalent in all populations of patients in chronic treatment with opioids.

Chronic low back pain is very often associated with pain crises characterized as being of high intensity and intermediate duration (breakthrough pain). These breakthrough pain crises interfere in the quality of patients' lives as well as in their functional capacity (19). An appropriate evaluation of breakthrough pain should include the frequency and duration of episodes, the intensity and type of pain, triggering factors, prior medication and the effectiveness of rescue treatment. Adequate management of breakthrough pain should be based on three aspects: prevention, anticipation and use of appropriate medication. When there is no clear

etiological reference, that is, in non-specific low back pain, treatment is a failure that is unable to control this epidemic of chronic disability that has arisen in industrialized countries. This fact is highlighted by the high economic cost and by the social and labor-related impact that industrialized societies support as a result (2,3,19,21).

Opioids are helpful drugs that can be used in the long term treatment of low back pain, though carefully controlling their dosage and monitoring the appearance of adverse effects such as constipation, nausea, itching, dizziness, drowsiness and tolerance. Doses usually remain stable at low levels for years, minimizing the fear of a growing tolerance in their chronic use. Treatment of chronic low back pain does not only have the objective of adequately controlling pain, but also that such relief is translated into a reduction in the limitation of everyday tasks it generates, thus encouraging a return to social and labor-related activities. In our study, compliance with the treatment of chronic pain stood at around 98%. When the medication was not taken, the most frequent reasons were forgetfulness (38.0%) and side-effects (34.0%). Compliance with breakthrough pain treatment was equally high (90.0%) but in this case the main reason for not taking the medication was side-effects (35.0%).

Strategies for treating breakthrough pain may be non-pharmacological (such as educational measures to change habits or postures that reduce the risk of breakthrough pain episodes) or pharmacological (analgesic treatment) (15,22). By controlling breakthrough pain, observing its evolution and treating it rapidly, we can avert its negative effect on patients' functionality and mood, as well as on their quality of life (22). Most patients in our study treated their breakthrough pain with opioids (81.4%) and, of these, 78.3% did so with fentanyl. The preferred route of administration is nasal (53,2%). A recent comparative review of routes of fentanyl administration showed that nasally administered fentanyl generates faster analgesia than oral or transmucosal administration (23). In cancer patients, both oral transmucosal and nasal fentanyl has proven to be an effective treatment due to its powerful analgesic results, rapid action and sustained effect (24).

The study's limitations arise from its design, as a cross-sectional study where the frequency of patients with breakthrough pain associated with chronic pain secondary to chronic low back pain who visit the pain units may not be representative of the general population. This would be the case if only certain patients go to these units and not everyone who suffers from chronic low back pain and/or breakthrough pain.

Furthermore, there exists a limitation in extrapolating the results to the national population, as the study was geographically restricted to certain centers in the Autonomous Community of Andalusia and Melilla.

The COLUMBUS study has given us a valid estimation of the population visiting Pain Units of hospitals in Andalusia and Melilla. The epidemiological data generated regarding breakthrough pain has let us find out its prevalence and characteristics, as well as preferred treatments and patient satisfaction levels. These parameters will certainly help in the evaluation of pain management in this patient group and the possible improvement of future therapeutic interventions.

CONFLICT OF INTEREST

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