
Factors influencing dispensing of psychotropic medications to patients with asthma: a community pharmacy-based survey

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Background: To our knowledge, the use of psychotropic medications (antidepressant, anxiolytic, and hypnotic agents) in patients with asthma has not been extensively explored.

Objective: To identify factors associated with the use of these medications in patients with asthma.

Methods: Regular customers (aged 18–50 years) of 348 pharmacies in 9 French regions were consecutively recruited from November 2003 to June 2004. Patients with a prescription for an asthma medication were included. Patients completed a questionnaire, complemented by the computerized records of their therapy dispensed in the past 12 months. Asthma control was measured with the Asthma Control Test.

Results: Among 886 patients (mean age, 37.4 years; 55.0% female), during the 12 months before the survey, the proportions who received at least 1 U of anxiolytic, antidepressant, and hypnotic agents were 25.6%, 13.7%, and 13.0%, respectively. Higher dispensing levels of antidepressant, anxiolytic, and hypnotic agents were observed with decreasing asthma control ($P < .001$ for each drug class). Other correlates of receiving any of these classes included older age, female sex, smoking status, and dispensing of antireflux treatment ($P < .001$ for all). These results were confirmed in multivariate analyses.

Conclusions: Psychotropic drugs were commonly dispensed to patients with asthma, and correlates of receiving these drugs were identified in this population. The high use of psychotropic medication, particularly in patients with poorly controlled asthma, is of concern.

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INTRODUCTION

In major depressive disorder, the neuroendocrine and immune systems' interactions are impaired, with changes in the proinflammatory/anti-inflammatory T_H1/T_H2 cytokine balance, with higher levels of T_H2 cytokine.¹ On the other hand, T_H2 cytokine may play a role in asthma.² Psychological distress is common in asthma.^{3,4} Some paniclike symptoms are related to the occurrence of sudden onset of asthma and exacerbations.⁵ Depressive symptoms are common among patients with asthma and are related to poorer quality of life.⁶ Patients with asthma who experience psychological distress

deserve specific attention because they not only experience deteriorated health-related quality of life but are at increased risk of adverse outcomes, such as unscheduled medical visits or hospital admissions.^{7,8} The detrimental consequences of mental distress on patients' adherence to asthma controllers have been described.⁹

In this context, to our knowledge, the characteristics of patients with asthma who use psychotropic drugs have not been thoroughly explored. It is of interest to verify whether these patients differ from others on personal characteristics or factors related to asthma management. More particularly, it is unclear whether inadequate asthma control is a major predictive factor of receiving psychotropic therapy.

METHODS

Study Design and Study Population

The methods of the study have been described previously.¹⁰ Briefly, an observational study was conducted in 348 French pharmacies (November 2003 to June 2004). Pharmacists in community pharmacies invited consecutive patients with asthma to take part in the survey. Patients had to be regular users of the pharmacy, aged 18 to 50 years, and visiting the pharmacy to fill a prescription for an asthma medication (R03, Anatomical Therapeutic Chemical Classification). Only patients with 12 months of dispensing records available and at least 1 controller medication recorded were included in

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the present analysis. The protocol was approved by the Commission Nationale Informatique et Libertés, the French data privacy body.

Data Collected and Dispensing Data

Patients who met the inclusion criteria and who agreed to participate after receiving information on study purposes completed a questionnaire recording personal characteristics, recent asthma symptoms, and their past asthma-related medical resource use (except therapy).

Lists of medications dispensed before the survey were available through computerized pharmacy records. Asthma controller regimens were classified into 4 categories: isolated inhaled corticosteroids (ICSs), ICSs and long-acting β -agonists (LABAs) in 2 separate medications, ICS-LABA fixed combinations alone or combined with other controller medications, and other controller regimens. Nonasthma medications included nasal therapy (nasal corticosteroids and vasoconstrictor nasal therapy) and antireflux medication (antacid medications, proton pump inhibitors, and antihistamine H_2 -receptor antagonists). In our study, dispensing antireflux medication was considered a marker of a digestive comorbid diagnosis, as was dispensing nasal therapy for comorbid allergic rhinitis. Three categories of psychotropic drugs were studied: antidepressant, anxiolytic, and hypnotic agents.

Level of Asthma Control

The level of asthma control was measured with the Asthma Control Test.¹¹ The questionnaire covers frequency of symptoms, impairment of daily activities, need for rescue medication, and self-evaluation by patients of their level of control during the past 4 weeks. Each question included 5 items (a through e), classified according to decreasing level of asthma control. The last 3 items (c, d, and e) corresponded to an inadequate level of control. Our scoring method was derived from the sum of counts method.¹¹ When the patients never answered items c, d, or e for any of the 5 questions, their asthma was considered properly controlled. When items c, d, or e were checked for 1 or 2 questions, patients' asthma was considered "moderately uncontrolled." Otherwise, the asthma was considered "poorly controlled."

Analyses

Analyses were conducted in 886 patients with 12 months of dispensing computerized records available and at least 1 asthma controller recorded.

Dispensing levels of antidepressant, anxiolytic, and hypnotic agents according to the domains of the Asthma Control Test. First, the levels of dispensed antidepressant, anxiolytic, and hypnotic agents were compared according to each of the 5 domains of the Asthma Control Test, separately. The items a through e of each question were assigned the values of 1 through 5, respectively, according to decreasing control, separately. The Spearman rank test was used.

Correlates of receiving antidepressant, anxiolytic, and hypnotic agents and any of the 3 classes. Dispensing psychotropic medications was successively compared with the pa-

tients' characteristics, level of asthma control, and dispensing of asthma medication and nonasthma medications. Four separate analyses were conducted, 1 for each class separately and a global analysis with the 3 classes pooled together. First, univariate analyses were conducted, using χ^2 and Kruskal-Wallis tests. Then, the correlates of receiving antidepressant, anxiolytic, and hypnotic agents and any psychotropic medications were successively identified with multivariate logistic models. Models were systematically adjusted for age, sex, asthma control, and marker of severity. Severity was evaluated from the number of oral corticosteroid units dispensed during the past 12 months. Other correlates were included in multivariate models if they showed a univariate association ($P < .10$) with the studied variable.

RESULTS

Patients' Main Characteristics

Our study population was mostly female; their mean age was 37.4 years (SD, 9.7 years). Many patients were smokers (Table 1). Most patients were symptomatic, and the overall level of asthma control was inadequate. Most patients received ICSs as controller therapy, mostly combined with LABAs. In addition, many patients were treated with nasal therapy and antacid or antireflux therapy. Nearly a third of patients (32.3%) received at least 1 psychotropic drug during the 12 months preceding the survey, and 15.1% received at least 2 classes. The proportions of patients who received at least 1 U of anxiolytic, antidepressant, and hypnotic agents were 25.6%, 13.7%, and 13.0%, respectively (Table 1). Overall, the number of dispensed units of each class correlated significantly and inversely with asthma control level in the 5 domains of the Asthma Control Test (Table 2).

Correlates of Receiving Psychotropic Therapy

A significant association was identified between the level of asthma control and receiving the 3 classes (Table 3). Heavy smokers were dispensed significantly more psychotropic classes, as were patients older than 30 years. Females were more likely to receive antidepressant and anxiolytic agents than males, whereas the difference between the sexes was nearly significant for hypnotic agents (Table 3). A higher dispensing level of psychotropic therapy, more specifically antidepressant and anxiolytic agents, was observed in patients treated with antireflux therapy. In contrast, being treated with psychotropic therapy did not substantially vary with dispensing level of oral corticosteroids. Likewise, no significant influence of the type of asthma controller regimens was observed on dispensing psychotropic therapy. A similar conclusion could be drawn for nasal therapy (Table 3).

Multivariate Models

Multivariate models confirmed most univariate findings. Compared with patients with well-controlled asthma, significantly higher probabilities of receiving psychotropic drugs were observed in those whose asthma was poorly controlled, more specifically for antidepressant and hypnotic agents.

Table 1. Characteristics of the 886 Patients

Characteristic	No. (%) of Patients ^a
Age, y	
18–30	237 (26.7)
31–40	233 (26.3)
41–50	414 (46.7)
Missing data	2 (0.2)
Sex	
Female	486 (54.9)
Male	397 (44.8)
Missing data	3 (0.3)
Smoking, No. of cigarettes per day	
0	609 (68.7)
1–9	120 (13.5)
≥10	148 (16.7)
Missing data	9 (1.0)
Asthma controller regimens	
Isolated ICS	65 (7.3)
ICS plus LABA (separate medications)	139 (15.7)
Combination LABA-ICS	541 (61.1)
Other	141 (15.9)
Oral corticosteroids, No. of dispensed units per 12 mo	
0	476 (53.7)
1–2	258 (29.1)
>2	152 (17.2)
Level of asthma control	
Controlled	224 (25.3)
Moderately uncontrolled	309 (34.9)
Poorly controlled	313 (35.3)
Missing data	40 (4.5)
Antireflux/antacid therapy ^b	290 (32.7)
Nasal therapy ^c	446 (50.3)
Psychotropic medications	
Antidepressants	121 (13.7)
Anxiolytic agents	227 (25.6)
Hypnotic agents	115 (13.0)
Any medication of the 3 classes	286 (32.3)

Abbreviations: ICS, inhaled corticosteroid; LABA, long-acting β -agonist.

^a Percentages may not total 100 because of rounding data.

^b Antacid medication, proton pump inhibitors, or antihistamine H₂-receptor antagonists.

^c Nasal corticosteroids or nasal vasoconstrictors.

Receiving antacid or antireflux therapy was a significant predictive factor of the dispensing of anxiolytic and antidepressant agents. Being older than 30 years and smoking more than 10 cigarettes a day were significant predictive factors of receiving psychotropic therapy. In contrast, dispensing psychotropic therapy was not substantially related to dispensing oral corticosteroids and nasal therapy. Female sex was a predictive factor only for receiving anxiolytic agents; no significant relationships were identified with the 2 other classes (Table 4).

DISCUSSION

A survey on asthma management was performed in patients identified in community pharmacies. During the 12 months preceding the survey, psychotropic therapy was dispensed to nearly a third of patients with asthma (32.3%). The proportions of patients who received at least 1 U of anxiolytic, antidepressant, and hypnotic agents were 25.6%, 13.7%, and 13.0%, respectively. Dispensing of these classes was inversely related to the level of asthma control. Other major correlates of receiving psychotropic classes included age, heavy smoking, and being treated with antacid or antireflux therapy.

In our study, nearly a third of patients with asthma received psychotropic therapy. In a recent study¹² conducted on a representative sample of the overall French patients affiliated with the National Health System, anxiolytic, antidepressant, and hypnotic agents were dispensed to 17.4%, 9.4%, and 8.8% of these patients, respectively. Compared with these figures, our percentages were roughly increased by 50% for each class. The high dispensing level of psychotropic drugs identified in our study is consistent with the conclusions of previous studies. Asthma has been described as a major contributor to the burden of mental disease.^{3,13,14} In a Canadian study¹⁵ conducted on 406 patients with asthma, 34% of them experienced depression, panic disorders, anxiety, or phobia, which is close to the rate of patients receiving psychotropic drugs in our study.

Poor asthma control was an independent predictive factor for receiving these 3 classes, with dose-effect relationships. Nevertheless, this association was weaker for anxiolytic agents (Table 4). A poor level of control, as measured by the Asthma Control Questionnaire, has been observed in patients with mental disorders.¹⁵ Our results support this finding.

In addition, dispensing levels of these medications significantly correlated with all domains of the Asthma Control Test (Table 2). A high frequency of mental distress has also been observed in patients with asthma reporting limitations in activities and frequent sleeplessness.³

The relationship between mental health disorders and poor control may be viewed from 2 directions. First, inadequate asthma control and its consequences for patients' quality of life, such as limitation of activities and nocturnal awakenings, may have a substantial effect on mental health, notably depression.¹⁶ In addition, the fear of new subsequent asthma attacks may result in anxiety in patients with poorly controlled asthma.

On the other hand, psychological disorders may contribute to deteriorating asthma control. First, some changes in emotional state may trigger asthma attacks. Second, mental health may have a detrimental effect on patients' confidence in the management of their disease.¹⁷ Depression has been identified as a barrier to adherence to asthma therapy.^{5,18,19} A similar conclusion has been reached for anxiety.⁹ Last, patients with a depressive mood may be more likely to complain about symptoms. Observational studies such as ours do not

Table 2. Dispensing Levels of Antidepressant, Anxiolytic, and Hypnotic Agents According to the Different Domains of the Asthma Control Test^a

Question asked	Antidepressants	Anxiolytic agents	Hypnotic agents
How much of the time did your asthma keep you from getting as much done at work or at home?			
a: None of the time	0.77 (3.61)	0.68 (2.74)	0.64 (3.42)
b: A little of the time	1.40 (5.55)	1.45 (5.28)	0.86 (4.37)
c: Some of the time	2.07 (6.63)	2.95 (7.68)	1.69 (5.89)
d: Most of the time	1.63 (5.02)	3.12 (7.25)	3.04 (7.94)
e: All of the time	2.40 (6.12)	4.75 (8.76)	4.85 (10.23)
Spearman rank test data	N = 883, $r = 0.15$, $P < .001$ N = 883, $r = 0.18$, $P < .001$ N = 882, $r = 0.18$, $P < .001$		
How often have you had shortness of breath?			
a: Not at all	0.85 (4.02)	0.84 (3.06)	1.08 (5.21)
b: 1–2 times a week	1.84 (6.88)	1.76 (5.83)	1.16 (4.67)
c: 3–6 times a week	1.35 (4.39)	1.87 (6.32)	1.27 (4.31)
d: Once a day	0.62 (2.98)	1.78 (5.92)	0.94 (4.98)
e: More than once a day	1.90 (5.00)	3.11 (7.21)	1.62 (5.28)
Spearman rank test data	N = 872, $r = 0.12$, $P < .001$ N = 872, $r = 0.10$, $P = .004$ N = 871, $r = 0.09$, $P = .01$		
How often did your asthma symptoms wake you up at night or earlier than usual in the morning? ^b			
a: Not at all	0.95 (4.49)	1.15 (4.16)	1.10 (4.94)
b: Once or twice	1.34 (4.91)	1.99 (6.67)	1.11 (4.43)
c: Once a week	1.44 (5.70)	1.66 (3.98)	1.49 (5.65)
d: 2–3 nights a week	2.61 (7.02)	3.80 (8.02)	1.27 (4.73)
e: ≥ 4 nights a week	2.25 (6.90)	2.16 (6.80)	1.75 (5.96)
Spearman rank test data	N = 875, $r = 0.15$, $P < .001$ N = 875, $r = 0.12$, $P = .003$ N = 874, $r = 0.12$, $P < .001$		
How often have you used your rescue inhaler or nebulizer medication (such as salbutamol)?			
a: Not at all	1.11 (4.55)	1.27 (3.94)	0.63 (3.25)
b: Once a week or less	1.04 (5.17)	1.14 (3.62)	1.05 (4.53)
c: A few times a week	2.12 (6.67)	2.75 (7.92)	1.42 (5.12)
d: 1–2 times per day	1.62 (5.77)	1.99 (5.52)	1.35 (6.04)
e: ≥ 3 times per day	1.39 (4.16)	2.59 (7.56)	2.21 (6.36)
Spearman rank test data	N = 869, $r = 0.10$, $P = .003$ N = 869, $r = 0.09$, $P = .006$ N = 868, $r = 0.16$, $P < .001$		
How would you rate your asthma control?			
a: Completely controlled	0.65 (3.44)	0.51 (2.33)	0.56 (3.24)
b: Well controlled	1.55 (5.86)	2.22 (6.48)	1.40 (5.43)
c: Somewhat controlled	1.50 (4.09)	2.45 (6.59)	2.23 (7.48)
d: Poorly controlled	2.14 (4.88)	1.43 (4.40)	0.68 (2.11)
e: Not controlled at all	3.28 (9.92)	5.15 (10.40)	2.15 (4.74)
Spearman rank test data	N = 880, $r = 0.17$, $P < .001$ N = 880, $r = 0.16$, $P < .001$ N = 879, $r = 0.14$, $P < .001$		

^a Data are given as mean (SD) unless otherwise indicated.

^b Asthma symptoms included wheezing, coughing, shortness of breath, chest tightness, or pain.

allow evaluation of the directionality between poor asthma control and mental disorders. Our data, however, confirm that these 2 adverse outcomes are closely related.

Asthma control was not the only major predictive factor. The higher dispensing level of psychotropic drugs observed in smokers was supported by a clear dose-effect pattern (Table 3). An association between smoking status and frequent mental distress has been reported,²⁰ notably in patients with asthma.³ Likewise, independently of asthma control, females used significantly more anxiolytic agents. This is in accordance with the conclusions of studies^{21,22} conducted in the general population. Similarly, younger patients were less likely to receive psychotropic therapy. A previous study²³ conducted among a representative sample of young adults,

specifically aged 26 years, reported lower use of antidepressant and anxiolytic agents, suggesting unrecognized or untreated mental disorders. A similar conclusion was reached in teenagers with asthma (aged 11–17 years).²⁴

Patients with asthma who were treated with antacid or antireflux therapy exhibited higher dispensing levels of psychotropic therapy (Table 3 and Table 4). Although esophageal reflux is not the unique indication of these therapies, this comorbid condition could explain these findings. Independent of asthma, higher rates of anxiety and depression have been described in patients experiencing esophageal reflux.²⁵ In addition, gastroesophageal reflux is an established trigger factor of asthma attacks.²⁶ More generally, the detailed reasons for the poorer psychological welfare of patients with

Table 3. Univariate Correlates of Dispensing Antidepressant, Anxiolytic, and Hypnotic Agents During the 12 Months Preceding the Survey in the 886 Patients

Variable	Antidepressants		Anxiolytic agents		Hypnotic agents		Any unit of the 3 classes	
	Patients, %	P value	Patients, %	P value	Patients, %	P value	Patients, %	P value
Overall	13.7	NA	25.6	NA	13.0	NA	32.3	NA
Age, y								
18–30	5.9	<.001	13.9	<.001	4.2	<.001	17.7	<.001
31–40	16.3		24.5		12.9		33.0	
41–50	16.7		32.6		18.1		39.9	
Female sex	16.0	.02	30.0	<.001	15.0	.05	37.0	<.001
Smoking, No. of cigarettes smoked per day								
0	11.0	<.001	22.0	<.001	10.2	<.001	28.6	<.001
1–9	13.3		24.2		13.3		32.5	
≥ 10	24.3		41.9		23.0		47.3	
Controller regimens								
Isolated ICS	7.7	.42	18.5	.14	15.4	.92	24.6	.15
ICS plus LABA (separate medications)	12.2		22.3		13.7		27.3	
Combination LABA-ICS (alone or with other regimen)	14.2		28.3		12.6		34.9	
Other	15.6		22.0		12.8		30.5	
Oral corticosteroids, No. of dispensed units per 12 mo								
0	13.0	.09	23.5	.10	12.2	.37	31.3	.23
1–2	11.7		25.6		12.4		30.6	
>2	19.1		32.2		16.4		38.2	
Level of asthma control								
Controlled	6.7	<.001	16.9	<.001	4.9	<.001	21.0	<.001
Moderately uncontrolled	11.0		21.4		12.3		28.2	
Poorly controlled	21.4		34.8		18.5		43.4	
Nasal therapy	15.5	.11	27.1	.30	14.3	.22	35.2	.06
Antireflux/antacid therapy	22.4	<.001	35.5	<.001	16.9	.01	45.5	<.001

Abbreviations: ICS, inhaled corticosteroid; LABA, long-acting β -agonist; NA, data not applicable.

Table 4. Logistic Models for Receiving Antidepressant, Hypnotic, and Anxiolytic Agents and Any of the 3 Classes During the 12 Months Preceding the Survey^a

Variable	Antidepressants	Anxiolytic agents	Hypnotic agents	Any of the drugs
Females vs males	1.41 (0.92–2.18)	1.47 (1.04–2.08)	1.17 (0.75–1.82)	1.40 (1.02–1.93)
Age, y				
31–40	2.52 (1.27–5.04)	1.68 (1.01–2.80)	3.95 (1.74–8.99)	1.98 (1.24–3.16)
41–50	2.67 (1.40–5.09)	2.67 (1.69–4.22)	5.34 (2.47–11.50)	2.88 (1.88–4.40)
Asthma control				
Moderate	1.43 (0.74–2.74)	1.06 (0.67–1.69)	2.30 (1.13–4.68)	1.22 (0.79–1.86)
Poor	2.46 (1.31–4.61)	1.66 (1.04–2.61)	2.86 (1.41–5.79)	1.95 (1.28–2.99)
Oral corticosteroids, No. of dispensed units per 12 mo				
1–2	0.76 (0.46–1.26)	0.91 (0.61–1.34)	0.88 (0.53–1.47)	0.76 (0.53–1.11)
>2	1.23 (0.72–2.09)	1.14 (0.73–1.80)	1.24 (0.71–2.17)	0.94 (0.61–1.46)
Smoking status, No. of cigarettes smoked per day				
1–9	1.28 (0.68–2.41)	1.19 (0.72–1.98)	1.36 (0.71–2.61)	1.30 (0.81–2.06)
≥ 10	2.18 (1.31–3.62)	2.54 (1.65–3.89)	2.35 (1.41–3.94)	2.14 (1.41–3.26)
Antireflux/antacid therapy	2.40 (1.57–3.67)	1.90 (1.35–2.69)	1.25 (0.80–1.94)	2.01 (1.45–2.79)
Nasal therapy	^b	^b	^b	1.32 (0.96–1.82)

^a Data are given as odds ratio (95% confidence interval). n = 835 for all models. For age, the reference group was those aged 18 to 30 years; for asthma control, the reference group was those with good control; for oral corticosteroids, the reference group was 0 U dispensed per 12 months; and for smoking status, the reference group was nonsmokers.

^b Not included in the model given the absence of significant univariate association with the corresponding dependent variable ($P > .10$).

asthma receiving antacid or antireflux therapy deserve further investigations.

Conversely, the type of dispensed controller regimen and asthma severity, as measured by dispensing level of oral corticosteroids, had a limited influence on the dispensing of these drugs. Mixed results have been reported regarding the association between mood disorders and asthma severity, more specifically when evaluated by objective measures, such as forced expiratory volume in 1 second, whereas higher rates of mental disorders have been observed with subjective markers of severity.¹⁶ Interestingly, we found significant associations between dispensing levels of psychotropic drugs and perceived asthma control, supported by a clear dose-effect pattern (Table 2). Nevertheless, our data need confirmation in that regard. No clear association was observed between receiving psychotropic drugs and dispensing nasal therapy (Table 3 and Table 4). Unfortunately, the absence of documented data on environmental allergens, skin prick test results, or food allergy prevented us from detailed investigation of the potential association between the presence of allergy and the use of psychotropic drugs in asthma.

Our study had some other limitations. The design of this retrospective observational study did not enable us to draw conclusions as to any direction or causal relationship, notably between asthma symptoms and the dispensing level of psychotropic therapy. The actual use of therapy by patients was unknown because only dispensing data were available in our study. Patients' socioeconomic status was not documented in our study. The higher use of psychotropic medications in patients with a lower socioeconomic level has, however, been described.²⁷

In this study, we focused on 3 different classes with specific indications for each of them. Nevertheless, our analyses make sense because these drugs are often used together, as exemplified in our data. Patients' psychological disorders were not evaluated clinically. Some patients with asthma experiencing psychological troubles may not be treated, whereas others may receive psychotropic therapy without appropriate indication. We had no details as to the reason for prescribing psychotropic therapy. Our scoring of the Asthma Control Test was derived from the sum of counts method, to construct 3 classes of control. This enabled us to highlight a clear dose-effect pattern. When the sum score method¹¹ was used instead, with 2 categories of control, the significant influence of control persisted for antidepressants (odds ratio [OR], 1.71; 95% confidence interval [CI], 1.07–2.74), anxiolytic agents (OR, 1.61; 95% CI, 1.13–2.30), and hypnotic agents (OR, 2.50; 95% CI, 1.49–4.17). This supports the robustness of our findings.

Our results have clinical implications. We identified many patients treated by psychotropic therapy, notably in symptomatic patients, suggesting that psychological distress is common in this population, possibly increasing the risk of asthma-related adverse outcomes.

The common use of hypnotic and anxiolytic agents may be of concern because of their respiratory depressant effects:

according to the guidelines, these drugs should be avoided during exacerbations.²⁸ In addition, patients with asthma who use major tranquilizers seem to be at an increased risk of death or near death from asthma.²⁹

The consequences of mental health problems on the quality of life⁷ and asthma care,⁹ notably in those with severe asthma,³⁰ have already been mentioned. Caregivers should pay more attention to the psychological welfare of patients with asthma, more particularly in the case of inadequate asthma control. Other predictive factors of mental distress, such as age, female sex, heavy smoking, and concomitant antacid or antireflux therapy, should not be overlooked either.

Psychological support may improve the quality of asthma care and patients' involvement in the management of their disease, notably adherence to asthma therapy. This may also contribute to limit the common use of psychotropic drugs. The beneficial effect of psychoeducational interventions conducted in patients with difficult asthma on the occurrence of asthma-related hospital admissions has been reported.³¹ Conversely, because some psychological disorders may be caused by asthma symptoms, better disease control may improve patients' mental welfare.

Pharmacists who regularly see the patients and with whom they often have a relationship of confidence could help to detect in patients with asthma the basic signs of psychological distress, in addition to asthma symptoms.

In conclusion, the high level of dispensed psychotropic drugs is of concern in this population of patients with asthma, particularly when control is inadequate. Patients with psychological disorders require specific attention from caregivers. The reasons for the high use of psychotropic drugs by patients with asthma need urgent investigation.

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