

Psychological and self-management factors in near-fatal asthma[☆]

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Abstract

Background: Several studies that have analyzed differences in psychological and self-management variables between patients with a near-fatal asthma (NFA) attack and asthmatics without a NFA attack (non-NFA) have shown conflicting results, probably due to the heterogeneity of the events studied and the selection of comparison groups. **Objective:** To determine whether NFA patients, in stable situation, have greater psychological morbidity and worse self-management behavior than non-NFA patients with similar sociodemographic and clinical characteristics. **Methods:** A sample of 44 NFA patients (mean=5.65 years after the NFA episode) and 44 non-NFA patients matched for age, sex, and asthma severity was assessed. All patients were in clinical stable situation. Information about sociodemographic, clinical, functional, and morbidity variables was collected for each patient, and the Cognitive Depression Inventory, the Trait-Anxiety Scale, the Toronto Alexithymia Scale, the Practical Knowledge of Self-

management questionnaire, and the Medication Adherence scale were administered. **Results:** In comparison with non-NFA patients, NFA patients showed higher levels of trait-anxiety (23.84 vs. 16.86; $P=.001$) and more difficulties describing and communicating feelings (11.36 vs. 8.90; $P=.002$). NFA and non-NFA patients did not differ in self-management variables. After adjustment in multivariate logistic regression analysis for age, sex, and asthma severity, significant differences were observed between NFA and control group patients in marital status [odds ratio (OR)=0.26; $P=.017$; 95% confidence interval (CI)=0.09–0.78], prescribed dose of inhaled corticoids (OR=4.48; $P=.006$; 95% CI=1.53–13.09), and trait-anxiety (OR=1.071; $P=.025$; 95% CI=1.01–1.14). **Conclusions:** NFA patients show higher psychological morbidity than non-NFA, even years after the NFA episode.

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Abbreviations: CDI, Cognitive Depression Index; CG, control group; NFA, near-fatal asthma; STAI-T, Trait-Anxiety Scale; TAS-20, Toronto Alexithymia Scale of 20 items.

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Introduction

Near-fatal asthma (NFA) is a clinical condition that has aroused a great interest in recent research because NFA greatly outnumbers asthma deaths [1] and constitutes a disproportionate source of subsequent asthma morbidity and health care costs [2], even though it is numerically rather small.

The first studies that have analyzed factors implied in asthma deaths and reports of case series with NFA patients

have emphasized the role of several psychological variables on the bad prognosis of bronchial asthma [3–7]. However, it must be considered that information was collected retrospectively and data about psychological characteristics of the patients were obtained from hospital records, physicians' notes and reports from relatives, and what significantly compromises their reliability and validity. Moreover, the lack of an adequate control group means that it is not possible to determine whether the reported prevalence of psychological factors is specifically associated with NFA or merely due to severe asthma [8].

Studies that have tried to solve these methodological limitations, using a control group and standardized instruments to assess psychological characteristics, are scarce and their results do not always support an association between psychological factors and NFA [9]. Some studies did not find differences between NFA patients and non-NFA patients in depression or anxiety [10–12], knowledge about illness management [13,14], or adherence to pharmacological treatment [13,15], whereas other investigations showed a higher prevalence of anxiety [8] and alexithymia [16,17], and lower levels of medication adherence [18] in NFA patients. Different factors could be involved in these discrepant results. On the one hand, the small sample size in some studies [10–12] could have prevented the presence of statistically significant differences. On the other hand, in studies in which significant differences between NFA and non-NFA were obtained [8,17], patients were assessed shortly after the acute NFA attack, so the experience of a recent attack could have been an important mediator of psychological status [19], and differences might be temporary. Furthermore, and maybe more important, in the major part of these studies, no matching criteria of age, sex, and illness severity were established in order to select the control group [8,10–12].

The objective of the present study was to determine if, in stable situation, NFA patients differ in psychological variables (depression, anxiety, and alexithymia) and illness management variables (practical knowledge of self-management and report of medication adherence) from asthmatic patients of similar sociodemographic and asthma severity characteristics but without experience of previous near-fatal crises.

Methods and materials

The sample was selected from patients diagnosed with bronchial asthma following the definition provided by the American Thoracic Society [20] who were receiving ambulatory treatment in the Pneumology Department of the Hospital Juan Canalejo (A Coruña, Spain). Inclusion criteria were age older than 18, no diagnosis of other physical illnesses, and being in clinical stable situation (with no experience of an exacerbation that required medical management) during the last 4 weeks.

The NFA group was composed of patients who had previously suffered a NFA episode. A NFA episode was defined as a severe asthma exacerbation presenting with at least one of the following: (1) respiratory arrest, (2) requirement for mechanical ventilation, and (3) hypercapnia with partial pressure of carbon dioxide >6.0 kPa and/or acidosis with pH <7.30 [8]. Amongst the 72 patients who fulfilled inclusion/exclusion criteria, six could not be located, 10 have died (four of them due to an asthma attack), and two refused to participate. Another 10 patients were rejected due to the absence of complete clinical data, obtaining a final sample of 44 patients. No significant differences were found in age, sex, and the most recent records of pulmonary function between the 44 participants and the 28 nonparticipants.

Asthma patients of similar age, sex, and level of asthma severity according to the Global Initiative for Asthma guidelines [21], but without a prior history of NFA episodes, were consecutively included in the control group (CG).

At enrolment, each selected patient performed spirometric tests, and the pneumologist collected information about his clinical and asthma morbidity characteristics. A psychologist carried out interviews in order to collect information about sociodemographic characteristics and to administer the following questionnaires:

1. Cognitive Depression Index (CDI) [22], subscale of the Beck Depression Inventory (BDI) [23], composed of 15 of its 21 items (excluding somatic items): the use of the cognitive BDI items as a separate index was due to the need for a measure of depression in chronic patients relatively free of the possible confounding effects of illness and treatment symptoms. These 15 items, as all BDI items, are answered on a four-point Likert-type scale (0=absence of the problem, 3=extreme problem; total score range 0–45).
2. Trait-Anxiety Scale (STAI-T) [24] of State-Trait Anxiety Inventory, which assesses the relatively stable tendency to perceive situations as threatening and consequently increase the state of anxiety: it is comprised by 20 items answered on a four-point Likert-type scale (0=no such feeling, 3=strong feeling; total score range 0–60).
3. Toronto Alexithymia Scale of 20 items (TAS-20) [25]: it consists of 20 items scored on a five-point Likert-type scale according to the level of agreement with each item (1=totally disagree; 5=totally agree). It assesses three dimensions: difficulty identifying feelings (seven items), difficulty describing feelings to others (five items), and a pattern of externally oriented thinking, with concern about details and external events (eight items).
4. Hypothetical Scenarios of Practical Knowledge of Self-Management [26]: they assess the practical

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