



Anxiety, depression and personality traits in severe, prednisone-dependent asthma

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Summary

Background: Anxiety and depression are prevalent in patients with asthma, and associated with more exacerbations and increased health care utilization. Since psychiatric intervention might improve asthma control, we examined whether patients with severe, prednisone-dependent asthma are at higher risk of these disorders than patients with severe non-prednisone dependent asthma or mild-moderate asthma, and whether they exhibit different personality traits.

Methods: Sixty-seven adults with severe prednisone-dependent asthma, 47 with severe non-prednisone dependent and 73 patients with mild-moderate asthma completed the HADS depression and anxiety subscale and the NEO-FFI for personality traits. In addition, asthma duration, body mass index and FEV₁ were measured.

Results: The prevalence of clinically significant depressive symptoms (9% vs. 0 vs. 0%; $p = 0.009$) and anxiety symptoms (19% vs. 6.4 vs. 5.5%; $p = 0.01$), was higher in patients with severe, prednisone-dependent asthma than in patients with severe non-prednisone dependent or mild-moderate asthma. Patients with prednisone-dependent asthma were respectively 3.4

List of abbreviations: FEV₁, forced expiratory volume in one second; HADS, hospital anxiety and depression scale; HADS-A, hospital anxiety and depression scale anxiety; HADS-D, hospital anxiety and depression scale depression; NEO-FFI, NEO-Five-Factor Inventory; BMI, body mass index; OR, odd ratio; SD, standard deviation; OCS, oral corticosteroids; CS, inhaled corticosteroids; LABA, long acting beta agonist.

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(95%CI: 1.0–10.8 $p = 0.04$) and 3.5 (95%CI: 1.3–9.6 $p = 0.01$) times more likely to have significant depression symptoms and 1.6 (95%CI: 0.7–3.7, $p = 0.2$) and 2.5 (95%CI: 0.1–5.5, $p = 0.02$) times more likely to have symptoms of anxiety than patients with severe non-prednisone dependent or mild-moderate asthma. There were no differences found in personality traits between the 3 groups.

Conclusion: Patients with severe, prednisone-dependent asthma have more often psychological distress as compared to patients with severe non-prednisone dependent or mild-moderate asthma.

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Introduction

Mental disorders, including anxiety and depression are more prevalent in asthma as compared to the general population [1–8]. Although there is a clear relationship between anxiety, depression and asthma, the association with asthma severity is controversial. Some studies have shown significant differences in anxiety [9] and depression [10] in patients with severe asthma as compared to those with milder disease, while other studies did not find such differences [11–13].

Although these results are inconsistent, it has been clearly demonstrated that psychiatric morbidity in asthma is associated with reduced adherence to treatment [14], loss of asthma control [10,15], increased medical consumption [16] and increased exacerbations requiring bursts of oral corticosteroids [17,18]. Moreover, it has been shown that depression in chronic diseases such as asthma, has a greater effect on general health than depression or asthma alone [7].

Patients who use chronic oral corticosteroids are at higher risk of developing psychiatric comorbidities [19,20]. In patients with severe, prednisone-dependent asthma this may be bi-directional. On the one hand, the use of oral corticosteroids in severe asthma may lead to higher levels of anxiety and depression; while on the other hand, the underlying psychopathology may lead to less asthma control and thereby more prednisone dependence. Patients with steroid-dependent asthma seem therefore to be at highest risk of developing depression and anxiety disorders, and might benefit most from psychiatric interventions that contribute to asthma control.

In addition to anxiety and depression, specific personality traits have been associated with disease severity and poor outcome. Patients with near-fatal asthma have been shown to have less adaptive personality characteristics [15], and patients with severe asthma according to ATS criteria [21] appeared to have maladaptive coping styles [13] as compared to patients with milder disease. There are no reports comparing other personality traits between patients with mild-moderate and severe asthma.

Therefore, the aim of the present study was to investigate the prevalence of anxiety and depression symptoms in patients with severe, prednisone-dependent asthma and to investigate whether these patients have elevated dysfunctional personality traits as compared to patients with severe, non-prednisone dependent and mild-moderate disease. If so, this might have important implications for the management of patients with this disabling disease.

Methods

Patients

Adult patients (18–80 yr) were recruited from the outpatient departments of 2 academic and 3 non-academic teaching hospitals in The Netherlands. Patients with mild-moderate asthma had to have a history of episodic dyspnea and wheezing, a documented reversibility in forced expiratory volume in 1 s (FEV_1) of $>12\%$ predicted [22] or hyperresponsiveness to histamine ($PC_{20} < 8$ mg/ml) [23]. Patient with severe asthma and prednisone-dependent and non-prednisone-dependent asthma had to meet the ATS criteria of severe asthma [21]. In addition, patients with prednisone dependent asthma were on maintenance therapy with prednisone (≥ 2.5 mg/day) for at least three months. Current smokers and patients with a smoking history of more than 15 packyears were excluded. The study was approved by the Leiden University Medical Centre Hospital Medical Ethics Committee and all patients gave written informed consent (P06.191).

Design

In this cross-sectional study all patients with asthma were asked to participate at their visit to the pulmonary outpatient clinics for a regular doctor's appointment.

In one visit, patients' characteristics were documented according to a structured questionnaire. Then the patients completed the 2 self-report questionnaires on psychological functioning. Finally, postbronchodilator FEV_1 was assessed using a handheld spirometer (Ferraris Respiratory Piko-1) according to ERS criteria [22].

Psychological questionnaires

The Hospital Anxiety and Depression Scale (HADS) is a widely used screening questionnaire to identify possible and probable cases [24] of depression (HADS-D) and anxiety (HADS-A) [25], which is reliable in patient and healthy populations [24]. The questionnaire contains 7 anxiety and 7 depression questions, each scoring 0–3 points. A cut off score of ≥ 11 points was used to define a probable case of anxiety or depression [26].

The NEO-Five-Factor Inventory (NEO-FFI) contains 60 multiple choice questions with a score ranging 1–5 for each answer. The questionnaire measures the 5 leading dimensions of the Big Five-model [27], neuroticism

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