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Impact of anxiety and depression on respiratory symptoms

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Summary
Psychological factors such as anxiety and depression are prevalent in patients with asthma. The purpose of this study was to investigate the relationship between respiratory symptoms and psychological status and to estimate the importance of psychological status in comparison with other factors that are known to be associated with respiratory symptoms.

This study included 2270 subjects aged 20–44 (52% female) from Sweden, Iceland, and Norway. Each participant underwent a clinical interview including questions on respiratory symptoms. Spirometry and methacholine challenge were performed. Symptoms of depression and anxiety were measured using the Hospital Anxiety and Depression Scale (HADS).

Eighty-two percent of the subjects reported no anxiety or depression whatsoever, 11% reported anxiety, 2.5% depression and 4% reported both anxiety and depression. All respiratory symptoms, such as wheezing, breathlessness and nightly symptoms, were more common, at a

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statistically significant level, in participants who had depression and anxiety, even after adjusting for confounders (ORs 1.33—1.94). The HADS score was the most important determinant for nightly symptoms and attacks of breathlessness when at rest whereas bronchial responsiveness was the most important determinant for wheezing, and breathlessness when wheezing. The probability of respiratory symptoms related to HADS score increased with increasing HADS score for all respiratory symptoms.

In conclusion, there is a strong association between respiratory symptoms and psychological status. There is therefore a need for interventional studies designed to improve depression and anxiety in patients with respiratory symptoms.

Introduction

Respiratory symptoms are common. For instance the median prevalence of having had wheezing in the last 12 months was over 20% in a large international study of 20—44 year old adults [1]. Respiratory symptoms are often a manifestation of respiratory diseases such as asthma or Chronic Obstructive Pulmonary Disease (COPD), but can also exist in patient without any known respiratory disorder [2].

Respiratory symptoms are associated with bronchial responsiveness, allergy, obesity and exposures such as smoking and environmental factors [3]. Less is known about the association between psychological status and respiratory symptoms. Asthma has been associated with anxiety and depression [4]. But in one study having anxiety and depression was strongly associated with respiratory symptoms but not with asthma and bronchial responsiveness [5]. The nature of the relationship between psychological status and respiratory symptoms and the underlying mechanisms are still unknown [6]. In some studies, psychological symptoms have been related to a higher risk of developing asthma [7]. Other studies have indicated that badly controlled asthma and respiratory symptoms such as breathlessness may lead to anxiety disorder [8] another study showed there is an association between generalized anxiety disorder and poor asthma control [9]. Some studies show, however, that respiratory symptoms and psychological symptoms are only loosely related to each other [10,11]. There are also studies that indicate that the association between psychological health and lung function differs between men and women [12].

The purpose of this study was to investigate the relationship between respiratory symptoms, such as wheezing and breathlessness, and psychological factors using Hospital Anxiety Depression Scale (HADS), and also to estimate the importance of psychological status in comparison with other well-known factors that are associated with respiratory symptoms, such as low lung function, bronchial responsiveness, smoking, body mass index (BMI) and atopy.

Material and methods

Study design

European Community Respiratory Health Survey (ECRHS) I and II were designed to determine the prevalence, incidence and risk factors for asthma and allergic disease in young and middle-aged adults living in Europe and other parts of the world. ECRHS I [13] was a multicenter study performed in 48 study centers during 1990—1993. Each participant was sent a brief questionnaire (Stage 1) and a random sample of responders was selected to undergo a more detailed clinical examination (Stage 2). In addition, a 'symptomatic sample' reporting symptoms of waking with shortness of breath, asthma attacks or using asthma medication in stage 1, was also studied. ECRHS II was a follow-up study, performed in 29 centers in 14 countries during 1999—2002, and comprised the participants in the second stage of ECRHS. The analyses presented here included 2270 subjects from Sweden, Iceland, and Norway who participated in ECRHS II (Fig. 1).

Measures

Questionnaires

Structured clinical interview. The screening questionnaire and the questionnaire used in the structured interview were based on the International Union against Tuberculosis and Lung Disease (IUATLD) questionnaire [14]. Each participant underwent a structured clinical interview including questions on the presence of asthma,

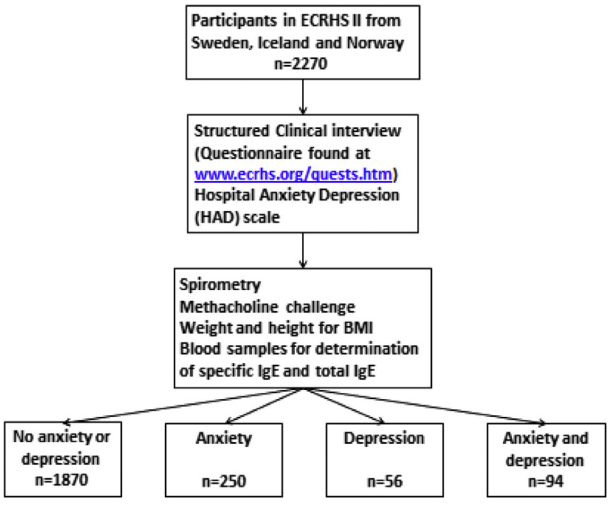

Figure 1 Study design.