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Respiratory Medicine

journal homepage: www.elsevier.com/locate/rmed



Agoraphobic avoidance predicts emotional distress and increased physical concerns in chronic obstructive pulmonary disease



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ARTICLE INFO

Article history: Received 22 December 2016 Received in revised form 3 April 2017 Accepted 17 April 2017 Available online 21 April 2017

Keywords: Anxiety sensitivity Avoidance Agoraphobia Physical concerns COPD Panic

ABSTRACT

Background: Anxiety and panic attacks are more common in chronic obstructive pulmonary disease (COPD) than in the overall population. Individuals with panic attacks often attempt to avoid situations perceived as at risk of eliciting bodily sensations such as dyspnea, which paradoxically may lead to anxiety-related responsivity. Although there is some evidence that COPD individuals restrict their participation in various life activities because they fear that these may trigger breathlessness, little is known about agoraphobic avoidance and its impact on cognitions and emotional distress in this population. It was thus our aim to investigate the degree of agoraphobic avoidance in COPD individuals, its clinical concomitants and consequences.

Methods: A total of 48 patients with COPD and 48 matched controlled subjects completed measures of anxiety sensitivity, agoraphobic avoidance, anxiety and depression. Objective COPD severity was measured using forced expiratory volume in the first second.

Results: Patients showed significant impairment in respiratory functioning and psychological distress. Relative to the control, the COPD group exhibited greater depression, anxiety, physical symptom concerns and avoidance (alone and accompanied), irrespective of whether they were panickers or not. Patients with high avoidance showed more intense physical concerns when compared to those with low avoidance. Importantly, the level of avoidance predicted emotional distress and increased physical concerns in COPD.

Conclusions: Physical concerns scores in COPD patients are partially explained by avoidance in this group. The results of the study provide evidence for the importance of evaluating avoidance in COPD patients and implicate targeting this behavior in therapeutic interventions.

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1. Introduction

Chronic obstructive pulmonary disease (COPD) is a common, progressive and degenerative disorder that has been a major international cause of disability and death in older adults [1] [2]. Previous studies reported a high prevalence of panic attacks and panic disorder (PD) in COPD, which is estimated to be around 10 times higher than in the general population [3]. Panic-spectrum psychopathology comorbid with COPD is associated with worse

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quality of life [4], increased exacerbations [5], more severe dyspnea and increased rates and duration of hospitalization [6] [7].

Most of the previous studies applied the cognitive model of panic [8] and anxiety sensitivity construct [9] in order to explain the high comorbidity of panic and dyspnea-related fear in COPD. These models highlight the "catastrophic misinterpretation" of bodily sensations [8] or preexisting beliefs that bodily sensations have harmful consequences [10] as the core mechanisms involved in the onset and maintenance of PD. Indeed, several authors have reported elevated rates of catastrophic beliefs about somatic complaints in COPD patients with panic-spectrum psychopathology [11]. COPD individuals with panic symptoms exhibited significantly higher anxiety sensitivity (AS) than COPD patients without panic or

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healthy controls [12,13] and both catastrophic interpretations and AS were found to predict panic-spectrum psychopathology in COPD [14].

Studies have revealed that individuals with panic attacks often attempt to escape or avoid anxiety or bodily arousal, such as physical exercise or other situations perceived as at risk of eliciting bodily sensations [15]. Agoraphobic avoidance, which entails refusal to enter phobic situations (e.g. driving, being in a movie theater), often arises in PD individuals because they believe that this behavior will 'protect' them from a 'catastrophe' or panic attack [16]. Agoraphobic individuals not only avoid the situation but also the feared outcome; hence it is not the anxiety that is avoided nor the situation but the potential catastrophes that the person believes are about to happen [17].

Therefore, agoraphobia (AG) is a separate but very common complication of panic disorder that affects a majority of PD individuals [18]. Approximately 35–65% of subjects with PD meet the criteria for PD with agoraphobia, and rates for agoraphobia without a history of PD are typically found to be at least as high or even higher as those for PD [19]. It is well established that the degree of situational avoidance is associated with the range of disability and the negative impact on the severity and course of PD syndrome [19,20]. The findings further suggest that the degree of agoraphobia seems to be a more potent determinant of disability than the number and severity of panic attacks [21].

Despite considerable research documenting the incidence and consequences of PD in COPD [7] and the deleterious effects of agoraphobia on patients' disability [20], very little is known about agoraphobic avoidance behavior and its impact on bodily perceptions and emotional response in COPD individuals. A better understanding of this phenomenon would help improve the effectiveness of psychological interventions for COPD on symptoms including dyspnea and comorbid anxiety. Therefore, the primary aim of the present study was to investigate the prevalence, clinical characteristics, and correlates of agoraphobic behavior in COPD individuals in comparison to healthy controls. We hypothesized that the patients would show higher avoidance levels than the controls and that high avoidance would be associated with higher anxiety, increased anxiety sensitivity and its subscale of physical symptoms concerns, and elevated depression scores.

Furthermore, we aimed to examine the bidirectional relationship of phobic avoidance with catastrophic beliefs (physical symptoms concerns) and emotional reactivity in COPD individuals. Guided by the findings that the AS total score predicted greater dyspnea-related avoidance [22] and that physical concerns (subscale of AS) predicted unique variance in self-reported agoraphobia [18], we expected that the avoidance level would be predicted by AS. However, basing on the literature showing that anxious individuals tend to infer danger on the basis of safety-seeking behaviors [23,24], we also wanted to check the intriguing reverse possibility that avoidance contributes to elevation of catastrophic cognitions and emotional distress.

2. Materials and methods

2.1. Participants

A total of 48 hospitalized patients with COPD were investigated. Diagnosis of COPD and classification of disease severity were established in accordance with the GOLD guidelines [25]. The FEV₁%FVC was below 0.7 in all patients; the reversibility test was negative. The percent predicted forced expiratory volume in the first second (FEV1%) was used as an indicator of disease severity. Indication for hospitalization was COPD exacerbation, but the current investigation and spirometry tests were undertaken when

clinical stabilization was achieved. In addition, 48 people — nonsmokers with no history of COPD or other chronic pulmonary diseases — were recruited from the community with the snowball sampling method to serve as the control group.

2.2. Procedure

All COPD participants were assessed during hospitalization in the Department of Internal Medicine, Pneumonology and Allergology Department. Eligible subjects with COPD were asked to participate in the study and those who agreed completed the questionnaires. If the patient had vision or language problems, the coordinator read the questionnaire out loud to him or her. Data on demographic and clinical variables were also collected. In addition, a comparable number of people with no history of pulmonary diseases was recruited from the community to serve as the controls.

The study was approved by the Ethics Committee of the Warsaw Medical University. All subjects gave informed consent to take part in the study.

2.3. Measures

The Hospital Anxiety and Depression Scale (HADS) [26] is a onedimensional measure of anxiety and depression designed for use with medically ill populations. It has good psychometric properties and is widely used in medical settings [27].

Anxiety Sensitivity Index-3 (ASI-3) [28,29] is an 18-item self-reported measure of anxiety sensitivity and fear of anxiety-related symptoms based on beliefs about their potential harmful consequences (e.g. "Unusual body sensations scare me"). The ASI-3 consists of one higher-order factor (ASI Total Score) and three lower-order factors: Physical, Cognitive, and Social Concerns. This questionnaire has good test—retest reliability and validity in the Polish adaptation [30].

Mobility Inventory (MI) [31,32] consists of 27 items assessing the tendency to avoid the most common agoraphobic situations (e.g. theaters) on a 5-point scale (I never avoid it (1), I always avoid it). For each situation the participants are asked to rate the avoidance tendency when they are alone ("Avoidance When Alone"; MI alone) or when accompanied by other people ("Avoidance When Accompanied by Someone", MI accompanied). Both MI subscales showed a high internal consistency in the present non-clinical and clinical samples (Cronbach alpha rs=0.89-0.96). The MI also includes two items questioning the occurrence of panic attacks: during the last week and during the last 3 weeks. In addition, there is an analog scale (from 1 to 5) for self-assessment of panic attack intensity.

Medical Research Council Dyspnea Scale (MRC) is a short 5-point scale invented for measuring perceived breathlessness [33]. A higher score on the MRC scale indicates higher levels of impairment connected to feeling of breathlessness. Participants are asked to rate their grade of breathlessness on a 5-point scale, ranging from "I only get breathless from strenuous exercise" (1) to "I am too breathless to leave the house" (5).

2.4. Statistical analyses

The analyses were performed using IBM SPSS Statistics, version 22 for Windows software. The COPD and healthy control group mean scores on the tests and MRC scales were compared using independent-sample t-tests. Similarly, we compared low- and high-avoidance COPD individuals split by the median MI scores using independent-sample t-tests to test if the group differ in the emotional reactivity and dyspnea measures. Next, multivariate analyses were conducted in order to evaluate the bidirectional

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