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Review article

Assessment of depression in patients with chronic obstructive pulmonary disease

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ARTICLE INFO

Article history:
Received 14 May 2014
Received in revised form
17 June 2014
Accepted 11 August 2014
Available online 6 September 2014

Keywords:
Chronic obstructive pulmonary disease
Depression
Anxiety
Quality of life

ABSTRACT

Chronic obstructive pulmonary disease is one of the most common chronic lung diseases today and is a serious health, economic and social problem. It is characterized by a progressively worsening airway obstruction leading to respiratory insufficiency, even to death. Co-morbid mental disorders such as depression and anxiety are very common in patients with this condition and are associated with increased morbidity. Although they generally impair quality of life, they are rarely examined in the context of the clinical treatment of such patients. Studies indicate that the prevalence of clinically significant depressive symptoms and anxiety is around 50%. This study deals with the prevalence of depression in patients with chronic obstructive pulmonary disease, and gives an overview of the instruments used for assessing the extent of such depression.

Introduction

Depression is extensively researched and its negative impact on chronic obstructive pulmonary disease (COPD) has been established [1–3], but, although depression is often diagnosed in COPD, its exact prevalence and mechanisms are unclear. Around 40% of such patients are affected by severe depressive symptoms, but it is not easy to diagnose depression in COPD patients because of overlapping symptoms between COPD and depression [4].

The prevalence of depressive symptoms in COPD patients varies considerably. Mikkelsen et al. [5] found an incidence ranging from 6% to 57%, and Van Ede et al. [6] from 6% to 42%, whereas recent studies have found a range of 42–57% [7–9].

Yohannes et al. [10] also point out that the quality of life in COPD patients correlates more with the presence of depressive symptoms than with the severity of COPD, measured by the

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http://dx.doi.org/10.1016/j.kontakt.2014.08.001

volume of air expired in the first second of a forced expiration (FEV 1). This phenomenon was also demonstrated by Kim et al. [11].

For the literature search, we used Medline/PubMed, Scopus, Proquest Central and Science Direct databases. We used the keywords 'chronic obstructive pulmonary disease', 'depression', 'anxiety' and 'quality of life'. More searches were carried out by the ''related articles'' link in the above mentioned databases.

Chronic obstructive pulmonary disease

Chronic obstructive pulmonary disease (COPD) is a common treatable and preventable disease, although it has some significant extrapulmonary effects. Pulmonary manifestations of COPD are characterized by an airflow limitation that is not fully reversible. It is usually progressive and often associated with an abnormal inflammatory response of the lungs to noxious particles or gases [12,13]. It is a respiratory disorder that is currently one of the leading causes of chronic morbidity and mortality [14], and is characterized by progressive and irreversible pulmonary obstruction with breathlessness [15].

GOLD (Global Initiative for Chronic Obstructive Lung Disease) classification of COPD

According to GOLD, complete and combined assessments of individual factors (i.e. symptoms, pulmonary function tests and exacerbation risk within the year) are needed for assessment and understanding of the impact of COPD on an individual patient [12]. After summarization of the individually evaluated categories, patients are classified according to GOLD into four main groups A, B, C, and D (Fig. 1).

COPD is becoming a major medical and social problem. It is a highly heterogeneous disease, with clinical symptoms, variability, frequency of exacerbation, variable impact on quality of life, exercise tolerance, and a high prevalence of comorbidities, as well as increasing mortality. The knowledge required for a new multidimensional classification of COPD was presented in GOLD 2011 and more recently in GOLD 2013, and it has brought a combined assessment of COPD which besides lung functions also emphasizes other parameters that are important indicators of the prognosis and mortality rate of this disease. This combined assessment helps to specify treatment for a particular patient [16,17].

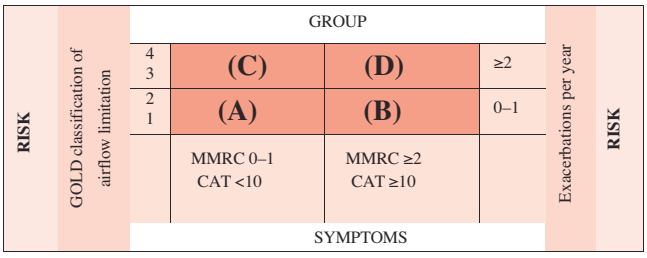

Fig. 1 – Combined assessment of COPD according to GOLD [12,13].

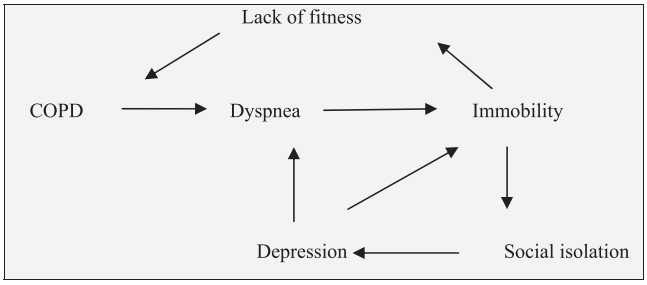

Fig. 2 – The cycle of physical and psychosocial consequences of COPD [19].

GOLD points out the complexity of the problems – the so-called vicious cycle (Fig. 2) in COPD – which cannot be interrupted by interventions using medication [18].

Prevalence of comorbidities in COPD

Data from DIALOG 2011 [20] indicates that there is a high prevalence of comorbidities among patients with COPD (even in Slovakia). There are up to 66% of patients with arterial hypertension, 45% with coronary artery disease and 16% with diabetes mellitus type 2. The prevalence of comorbidities increases with the degree of severity of the disease, and only in 16% of patients is there no diagnosis of other major co-morbid diseases.

However, co-morbidities have a significant impact on quality of life, and they increase the CAT score (COPD Assessment Test) on average by 4.8 points, which is clinically and statistically highly significant. There is some evidence that aggressive treatment of co-morbidities significantly improves the prognosis of patients with COPD [21]. Systemic manifestations of COPD, particularly in patients with severe disease, include cachexia, increased risk of cardiovascular disease, anemia, osteoporosis, and depression [22].

Prevalence of depression in patients with COPD

Fritzsch [23] points out that depression is a highly prevalent co-morbidity in patients with COPD and its other associated negative aspects in the course of the disease. It contributes significantly to the social and economic burden of patients. Other studies also indicate that there is a high prevalence of anxiety and depression in patients with COPD (44.1%) [1].

Patients with COPD, particularly those with an advanced condition, often suffer from differing degrees of depression, which is seen as a reaction to an unfavorable health status, an increased degree of immobility and dependence on others, and to a worsening quality of life. In general, the overall psychosocial status of patients plays an important role in the development of depression which, when major, is said to occur in 19–42% of cases [24,25].

A study by Maurer et al. [26] points out that co-morbidities such as depression, depressive symptoms and anxiety are associated with a worsening quality of life in patients with