Depression in patients with bronchial asthma
Problem depresji u chorych na astmę oskrzelową

All costs related to the preparation of this publication were covered by the Chair and Department of Internal Diseases, Geriatrics, and Allergology, Medical Academy, Wrocław.

Abstract

Introduction: The aim of this study was to analyse depressive disorders of various degrees in patients with diagnosis of bronchial asthma of different intensity.

Materials and methods: The study population included 120 subjects, of which 80 patients had diagnosis of bronchial asthma of different duration and intensity of symptoms and were hospitalized between 2008 and 2010 in the Department of Internal Diseases, Geriatrics, and Allergology, Medical Academy (study group). The remaining 40 subjects had no chronic respiratory diseases (control group). Each patient underwent clinical examination including disease history collection and physical examination, followed by resting spirometry. The degree of depressive disorder was assessed using Beck Depression Inventory (BDI) in all subjects.

Results: The intensity of depressive disorder correlated with the degree of bronchial asthma. Men presented depression significantly more often in the analysed population.

Conclusions: The occurrence of depression and its symptoms of varying intensity in patients with bronchial asthma may pose a problem for patient compliance, at times necessitating psychiatric consultation and adequate therapy. Depressive disorders may also manifest worsening of asthma control and decreased quality of life in these patients.

Key words: decreased mood, depressive disorders, bronchial asthma


Introduction

Psychical conditions in humans are subjects of interest to both psychiatry and psychology. These also include patients with depression. Depressive disorders are heterogeneous and fluctuant in character, presenting different grades of intensity and variegated influence on the patient’s somatic status, also affecting his/her spiritual, psychical, and emotional condition [1]. Each person’s condition remains under the influence of both biological factors but is also dependent on the person’s subjective feelings, which can be related to experiences of having a chronic disease (e.g. bronchial asthma) and having problems adjusting to it. A certain influence can also be expected from the patient’s family environment and his/her social status, both of which can have either a beneficial or a detrimental effect on the patient’s health [2, 3]. Psychical traumas from childhood as well as dramatic experiences later in life have also become of special interest to current psychiatrists since these experiences most often play a major role in a person’s psychical formation, resulting in either immunity or insufficient adaptation to various psychical conditions and somatic diseases [4, 5].
There are reports on the role of past psychical trauma in the emergence and intensity of anxiety disorders and depression, which in turn influence the severity and possibility to control symptoms of bronchial asthma [6–10]. The adaptation process is another issue of importance as it can result from a chronic disease, sometimes proving difficult for the patient to deal with [2].

Published data concerning patients with depression unequivocally show the influence of somatic diseases, mainly those manifested with persistent pain, sleep deprivation, dependence on other persons, decreased independence (including obstructive lung diseases), upon emergence or increasing intensity of uncertainty, decreased mood, and fear [11–16]. There are, however, few publications concerning theories on the correlation between bronchial asthma and depression. Therefore, the current study, representing a psychosomatic approach, was aimed to analyse depressive disorders of various intensity in patients with diagnosed bronchial asthma of variegated severity.

Materials and methods

The study population included 120 adults, hospitalized between 2008 and 2010 in the Department of Internal Diseases, Geriatrics, and Allergology of the Medical Academy, who gave written, informed consent for participation in the study. Among them were 80 patients with diagnosed bronchial asthma of mild to severe intensity. The severity of asthma was assessed and classified according to Global Initiative for Asthma (GINA) criteria [17]. A further 40 persons taking part in the study had no chronic respiratory disease, and thus were included in the control group.

The study population included mainly women (66% of total, 66% of all asthma patients, and 66% of persons in the control group). Mean patient age was 50.6 years, with standard deviation (SD) of ±12.8 years in the entire population, 51.9 ± 12.8 years in asthma group and 47.9 ± 13.6 in the control group. In the group of patients with asthma, 40 persons had severe disease, and 40 had mild or moderately intensive disease. All patients (from both groups) underwent a clinical (subjective and objective) examination, followed by spirometry aiming to assess the ventilation parameters of the respiratory system. The presence and intensity of depressive disorders were assessed using Beck Depression Inventory (BDI).

The Beck Depression Inventory is a scale developed by Dr. Aaron Beck and published in 1961. It consists of 21 questions that the patient responds to on his/her own. The current version of the questionnaire remains one of the most commonly used tools in the assessment of depressive disorders and their intensity in subjects of at least 13 years of age. It includes features representing various aspects or symptoms of depression, such as helplessness and irritation, cognitive disorders, and guilt feelings but also questions concerning physical conditions (tiredness, loss of body mass, or loss of interest in sexual activity). Four answer options are available for each question, reflecting varying intensities of symptoms, graded from 0 to 3 points, respectively. The responder is asked to choose one variant of answer to each of the questions, which best represents his/her condition in a given period of time as delineated by the examining physician (e.g. the past week or month). The obtained result is compared to the key describing depression severity. An overall score of 0–11 points means no signs of depression, 12–27 points – mild to moderate depression, and 28 or more points represent severe depressive disorders [18, 19]. Statistical analysis was performed using Student’s t test.

Results

Twenty-nine patients in the control group (72.5%) had no signs of depression, 11 (27.5%) persons had mild depressive disorders, and no subject demonstrated severe depression. In the study group, among patients with mild to moderate asthma, 25 persons (62.5%) showed no decreased mood, 15 persons (37.5%) had moderate depressive disorders but no one had severe depression. In the subgroup with severe asthma, 5 patients (12.5%) were classified as having severe depression, 18 persons (45%) as presenting mild depression, and 17 (42.5%) patients as being free from depressive disorders (fig. 1).

There was a statistically significant correlation between degree of depression and severity of bronchial asthma (p = 0.046) (fig. 2).

The investigated male subjects demonstrated significant correlation between signs of depression and degree of asthma severity (p = 0.001), which was not observed for female patients. A significant difference in depression severity was also observed between patients with severe asthma and subjects having only mild bronchial disease (p = 0.016) or control persons (p = 0.02).

Discussion

There exists a clinically motivated need to demonstrate and explain correlations between
bronchial asthma and concomitant depressive disorders as well as to investigate reasons for progressing severity of the two diseases. In the presented study, there was link between the presence and intensity of asthma and depressive disorders, which confirmed previously published data from literature. Some reports suggested a general tendency for the coexistence of asthma and depression [2, 20–23]. This may suggest that an individual’s psychical condition may influence his/her somatic sphere and vice versa, especially when a correlation between severe asthma and severe depression can be observed, as reported in the presented study. Depressive disorders may be related to repeated episodes of dyspnoea, a feeling of lack of control of the symptoms, decreased capability of daily activities, and sudden and episodic character of symptoms that may be life-threatening, reflecting various degrees and forms of ventilation disorders in patients with severe asthma [24, 25].

Data from literature suggest that inhibition of the thalamo-pituitary-adrenal axis due to psychological stress can increase the intensity of inflammatory reaction in the case of allergic response [26, 27]. Miller et al. demonstrated that increased parasympathetic stimulation in the course of depression or stress reaction has an effect on bronchial function in patients with asthma [28]. On the other hand, mediators of the allergy-related inflammatory reaction may influence the central nervous system, which in turn may result in decreased mood and depression [29].

Other authors reported correlations between intensity of depressive disorders and degree of patient-described dyspnoea, which may suggest that decreased mood increases the experience of asthma signs and symptoms [30]. Pietras et al. evaluated links between subjective perception of signs of airway obturation (e.g. intensity of dyspnoea) and degree of depression in asthmatic patients. These authors also investigated objective indicators of airway obturation in asthma patients, discovering a correlation between the perceived degree of dyspnoea according to Borg scale or depression severity and spirometric test results [31].

When analysing links between degree of depression and severity of asthma, it is also important to consider systemic glucocorticosteroid therapy in the treatment of the latter disease, as steroids themselves can induce depressive disorders [32]. In the above-mentioned publication, Pietras et al. demonstrated a correlation between the intensity of dyspnoea or degree of depression and high-dose inhaled steroids, frequency of short-acting β2-agonists, or necessity of systemic steroid administration [31].

Contrary to previous reports, the presented study demonstrated depression occurring significantly more often in male patients. Centanni et al. noted higher levels of depressive disorders in women [33]. The authors from Cracow found no difference in the severity of depression between the sexes but with correlation between asthma severity and depression level, particularly in older female patients [2].

The Beck Depression Inventory used in the presented study was designed to diagnose depressive disorders and their severity, and still remains
a crucial investigative tool. It can be used to monitor depression development, thus contributing to a better assessment of treatment results and clinical improvements [34]. As for the limitations of BDI results can be, to a certain degree, over- or underrated by the responder, which can affect the final score. Of note, patients with chronic somatic diseases may pay more attention to experienced symptoms such as tiredness, loss of appetite, or sleep deprivation when filling in the questionnaire. This can, in turn, artificially increase the overall score due to reported symptoms of chronic disease and non-typical depressive disorders [35, 36].

The presented analysis has a cause-effect character, and was performed in quite a big patient population, thus strengthening the conclusions concerning affective disorders in patients with asthma, particularly with severe disease. The latter patient group was divided into just two subgroups, including mild-to-moderate and severe disease. The aim of this was to maximally expose links and severity of depressive disorders. Patients with moderate asthma were least represented in our population; therefore, future studies can be conducted with more focus on this patient subgroup when analysing intensity of depressive disorders in asthmatics.

Links between asthma and depression have recently become a subject of great interest from a clinical perspective. Questions such as correlation of severe depression and anxiety with prognosis in asthma, standards of depression, and anxiety treatment in these patients or identification of personality features of patients with chronic obstructive airway diseases, including asthma, warrant further, more complex and interdisciplinary studies.

Conclusions

Based on the authors’ own observations and interpretation of results from the presented study and published data from the last few years, it can be implied that the presence of affective disorders in patients with diagnosed bronchial asthma is a complex issue, which can strongly influence patient-physician contacts, compliance to medical orders, and recommendations and thus affect the possibility to effectively prevent progression of airway disease.

Emerging depressive disorders may reflect worsened control of asthma and decreased quality of life of the patient. This confirms the necessity of cooperation between allergologists and psychiatrists and the application of adequate therapeutic methods (including thymoleptics) in order to better control the clinical course of asthma and improve the patient’s everyday functioning. Therefore, the role of educating physicians and emphasising the coexistence of bronchial asthma and depressive disorders should not be underestimated.

Conflict of interests

During the preparation of this publication there were no conflicts of interests concerning financial or personal dependence, academic competition, or sponsor participation.