Case Report

Treatment of Therapy Resistant Dyspnea with Traditional Chinese Medicine

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Received Date: 13 October, 2018; Accepted Date: 16 October, 2018; Published Date: 24 October, 2018

Abstract

Background: Asthma and chronic obstructive pulmonary disease (COPD) are the leading causes for dyspnea. Guidelines suggest many therapeutic options for the treatment of these respiratory symptoms with Western medicine. However, there is still a lack in therapy control, and the side effects of the used drugs are also not neglectable. Traditional Chinese Medicine might offer an individual, safe and effective complementary therapy option.

Case presentation: A 60-year-old Caucasian man suffering from asthma and COPD had a recourse to our clinic. His chronic exertional breathlessness was diagnosed as having no other origin but his primary diseases. The use of Western medicine left his symptoms unchanged. After three weeks of therapy with Traditional Chinese Medicine containing a combination of herbal extracts and acupuncture, his dyspnea disappeared, enabling the patient to cope with his workload. Altogether three months later his pulmonary function test has notably improved compared to the previous one (Maximal vital capacity 102% vs. 51%, Forced expiratory volume in 1 second 106% vs. 52%, Total lung capacity 107% vs. 69%, respectively).

Conclusions: Chinese medicine appears to be a good integrative method, especially in therapy resistant anhelation or poorly controlled respiratory diseases. A high number of patients suffering from such conditions might be affected, to whom complementary medicine could be helpful.

Keywords: Dyspnea, Asthma, COPD, Traditional Chinese Medicine

Background

Dyspnea is defined by the American Thoracic Society as a subjective experience of breathing discomfort that consists of qualitatively distinct sensations varying in intensity [1]. A peak incidence of the symptoms of breathlessness is between 55 and 69 years of age [2]. In 85 percent the causes of anhelation are asthma, chronic obstructive pulmonary disease (COPD), pneumonia, interstitial lung disease, congestive heart failure, cardiac ischemia or psychogenic conditions [3, 4]. If the symptom lasts for longer than one month, they are defined as a chronic dyspnea [5]. Chronic dyspnea usually appears due to one of the following causes: mostly bronchial asthma, COPD, congestive heart failure, interstitial lung disease, pneumonia, or mental disorders like anxiety disorders, panic disorders or somatization disorders [6, 7].

Asthma as one of the most common causes of anhelation, affects 24 million people worldwide [8]. The chronic inflammation of the respiratory tract is associated with airway hyper responsiveness leading to recurrent episodes of breathlessness, wheezing, chest tightness, and coughing [9]. Another important cause of dyspnea is COPD. Around 2% of the whole population – 4.5% of all people aged over 40 – suffer from diagnosed COPD [10]. This disease is characterized by persistent respiratory symptoms and airflow limitation due to airway and/or alveolar abnormalities. Next to breathlessness, the most frequent symptoms are coughing and/or sputum.
production, although the symptoms are commonly underreported by patients [11].

Many categories of drugs were developed to treat asthma and COPD. These are bronchodilators (β-adrenergic agonists, anticholinergics and methylxanthines) and anti-inflammatory agents (corticosteroids, antileukotrienes and mast cell stabilizers) [12] against asthma. Short- and long-acting bronchodilators are the mainstays of therapy for COPD, inhaled corticosteroids are reserved for patients with refractory or severe disease [13].

Current synthetic drugs used in the pharmacotherapy are unable to act during all stages and towards all targets of asthma [14], and there is no curative therapy available. Pharmacologic therapy for COPD reduces symptoms and the frequency, as well as the severity of exacerbations. It improves exercise tolerance and health status of the patients [11], but there is no existing medication that could modify the long-term decline in lung function [15–18]. Moreover, side effects from chronic use of current drugs are an issue of concern [19,20].

Hence, it is not surprising, that at least one-fifth of patients with respiratory disorders, such as asthma and COPD are longing for complementary and alternative treatments, including acupuncture, herbal medicine, and lifestyle advice [21,22]. Recently, multiple clinical studies showed that Traditional Chinese Medicine (TCM) is safe and effective for the treatment of asthma [23,24]. As reviewed by Li et al., several clinical studies showed an improvement in lung functions, were all addressed safety and well-tolerated. Although demonstrating significant improvement in asthmatic symptoms, all studies have limitations such as short follow-up periods or small sample size in the placebo arm [24]. On the other hand, there is accumulating evidence proving that TCM -including internal and external therapies – might have potential advantages in COPD as well [25–33]. Thus, the frequency of acute exacerbation was found to be reduced, leading to an improvement of life quality [34]. However, to our knowledge there are so far no reports available providing data on the effectiveness of TCM therapy in asthma-COPD overlap syndrome.

Case Presentation

Our clinic received a 60-year-old male patient suffering from asthma and COPD, with chronic dyspnea lasting for the past eight months. Symptoms occurred after even as little as 1-2 minutes walking or speaking. In the medical history hypertension, benign prostatic hyperplasia, hypercholesterinaemia, low-grade aortic insufficiency, hepatic steatosis, pollosenia and penicillin allergy were mentioned. The patient was operated for right-side inguinal hernia, left ankle ligament rupture and left medial meniscus rupture. The patient’s medication consisted of amlodipin (2x5mg), pantoprazol (2x40 mg), budesonide/formoterol spray (100 µg/6 µg 2-0-2), salbutamol (1,25 mg/2,5 ml 1-0-1), ebastin (20 mg 1-0-1), atorvastatin (20 mg 0-0-1), and bisoprolol (5 mg 1-0-1).

The non-smoking patient suffered from recurrent respiratory tract infection with anhelation for the past 30 years. Returning to Germany from the Caribbean in February 2016, his new dyspnea was provoked even after minimal load. No infections were detected. The intermittent coughing was accompanied by no, or only little sputum of white color. Hemoptysis, fever, night sweating or weight loss were not present. The thorax X-ray from March 2016 did not show any infiltrate, only some light chronically increased bronchovascular markings due to the primary asthmatic disease were present. The pulmonary function test showed a moderately obstructive and restrictive ventilatory defect. In the computed tomography of May 2016, accented paratracheal lymph nodes on the right side and around the right hilus with its maximal intensity next to the right primary bronchus (maximal height: 12 mm) were visible. An examination by a cardiologist in an outpatient clinic failed to show any cardiologic origin of the breathlessness. The ENT specialist diagnosed gastroesophageal reflux disease and recommended to continue the PPI therapy. The endoscopy in May 2016 failed to show any restriction of the lung function, but showed an increased basal heart rate; the cardio workout was about 160/min (140 Watt). The renin, aldosterone and aldosterone/renin ratio and the urine catecholamines were in normal range.

The findings of the physical examinations were normal except for slightly reduced respiratory sounds – during speaking a light dyspnea was obvious. Physical parameters were in normal range: the ranges of systolic and diastolic blood pressures were 120-150/70-90 mmHg, the heart rate between 60-82/min, and the oxygen saturation between 94-97%. Laboratory findings showed a slightly increased serum glutamic-pyruvic transaminase level (GPT=86.9 U/l), while the other parameters were in the normal range. In the psychological conversations there were no signs of depression, schizophrenia, anxiety-, panic-, mental- or somatization disorders.

When he was observed in our clinic, the patient's tongue was pale and fissured with a white tongue coating. The pulse was deep, chordal; the kidney (chi) pulse was weak. The Chinese diagnosis was 'Spleen-Lung-Qi-deficiency'. The therapy consisted of Chinese herbal tea two times per day, acupuncture three times per week and a daily qigong therapy. The first prescription to be ingested for seven days consisted of: Astragali radix (Huangqi) 6 g Codonopsis pilosulae radix (Dangshen) 6 g, Actacetylods macrocephalae rhizoma (Baizhu) 6 g, Polygonati rhizoma (Huangjing) 6 g, Lycii fructus (Gouqi) 6 g, Ophiopogonis radix (Maidong) 6 g, Schisandrae fructus (Wuweizi) 3 g.

After one week the prescription was changed based on the purple tongue with thin greasy and yellow tongue coating adding ‘blood stasis’ and ‘phlegm’ to the Chinese diagnosis. Additional night sweating appeared. The second recipe consisted of: Poria (Fulingkui) 6 g, Schisandrae fructus (Wuweizi) 3 g, Ephedrae herba (Mahuang) 3 g, Persicae semen (Taoren) 6 g, Armeniacae amarum semen (Kuxingren) 6 g, Luffae fructus retinervus (Sigualuo) 6 g.

Magnoliae officinalis cortex (Houpo) 6 g, Curcumae radix (Yujin) 6 g, Mori radicis cortex (Sangbapi) 6 g, Bambusae caulis in taeniam (Zhurui) 6 g, Phragmitis rhizoma (Lugen) 6 g, Imperatae rhizoma (Baimaogen) 6 g, Lycii radicis cortex (Digupi) 6 g, Rhizoma sparganii tuber (Sanleng) 6 g.

The following points were targeted with acupuncture: Conception Vessel 4, 12, 17; Spleen 6, 15; Large intestine 4, 11; Stomach 37.

Ingestion of this second prescription for 2 days reduced the anhelation. 9 days later the patient could walk without limits (10 km daily were reported). The salbutamol medication could be stopped on the 14th day of the therapy and five days later the beclometason/formoterol doses could be halved. On the 22nd day of the therapy the GPT level was reduced to 58.3 U/l.

After four complete weeks of therapy in the clinic, the patient was discharged in a very good condition without any signs of dyspnea and even with reduced respiratory medication. Treatment with the applied Chinese herbs was continued for two months after the discharge with a reduced dose of only 3 g each. The difference between the two lung function tests before and after Chinese medicine treatment is shown in Table 1. In November 2016 the patient visited or outpatient department without any symptoms of breathlessness; further therapy was found not to be necessary.

Discussion

In our case report a patient with treatment-resistant asthma and COPD was demonstrated, for whom excellent results could be achieved by a combination therapy of herbal extracts and acupuncture.

According to TCM, dyspnea mainly occurs due to the energetic problems of functional circles like lung, spleen and kidney. The aim of the therapy is to restore the function of these functional circles, enhancing the circulation of Qi. To that aim TCM uses herbs and acupuncture as its main two therapy methods.

The use of herbal medicine is increasing dramatically in the last decades worldwide [14, 35-37]. Thus, more than 400 medical plant species are known with applications in traditionally and ethnomedicinally to treat the symptoms of asthmatic disorders [12].

Chinese herbs form one of the most important and effective pillars of TCM, with reports on physiological effects in several studies. They do not only enable the improvement of asthmatic symptoms for example through direct spasmolytic effects, inhibiting the airway hyperresponsiveness and blocking the acetylcholine-induced tracheal ring constriction [38-41], but also impact the regulation of the immune system, inhibiting the inflammatory cell infiltration of eosinophils, neutrophils, lymphocytes and macrophages into lung tissue or into the bronchoalveolar lavage fluids [42-44]. Furthermore, some Chinese herbs inhibit the production of Immunoglobulin E and the expression of inflammatory cytokines (such as TNF-alfa, IL-1β, IL-6, and macrophage-inflammatory peptide-2 by attenuating the activation of nuclear factor-kappa B) [45-49]. Herba ephedrae is the most commonly used Chinese herb to treat dyspnea. Interestingly, of the most frequently used Chinese herbs treating respiratory diseases, like Radix glycyrrhizae, Semen armeniacae amarum, Fructus schisandrae chinese, Herba ephedrae and Radix ginseng (including in the prescriptions 47.2%, 36.7%, 21.2%, 20.6%, 19.4%, respectively), only Herba ephedrae was used in our prescription [50]. Said herb can improve the flow of Lung Qi in order to relieve cough and anhelation, and has been used in China for thousands of years. It was reported to have anti-inflammatory, anti-tussive and anti-asthmatic effects [27]. Ephedrine was identified as its active component; D-pseudoephedrine has anti-inflammatory action which could reduce vasopermeability. Additionally, several flavonoids isolated from Herba ephedrae were reported to exhibit radical scavenging activity [50, 51].

Mostly applied in combination with the use of Chinese herbs, the second important and effective pillar of TCM is acupuncture. Animal experiments showed improvements in the pulmonary function and lung pathology in COPD. The COPD rats, treated with the so-called Buefei Yishen together with acupoint-sticking showed better outcomes than acupoint-sticking or treatment with aminophylline alone [52]. In another rat model, Li et al. showed that acupuncture treatment appeared to reduce the COPD-induced inflammatory response by decreasing cell inflammation. Furthermore, it reduced the production of TNF-α and IL-8 in the bronchoalveolar lavage fluid in smoke-induced COPD by modulating Histone deacetylase 2. The pulmonary function test showed that reductions in peak expiratory flow, inspiratory capacity and minute volume in COPD were normalized after acupuncture treatment [53]. In human studies, COPD patients receiving traditional acupuncture experienced improvement in dyspnea on exertion and 6-min walking distance, indicating better exercise tolerance. In patients receiving standard medication, acupuncture was superior to placebo in improving breathlessness [54, 55]. Geng et al. suggested that acupuncture may reduce lung injury associated with COPD, possibly through downregulation of inflammatory cytokines. Anti-inflammatory and antioxidant effects have been implicated in the clinical benefit of electro-acupuncture [56].

In conclusion, in our case Chinese medicine was an effective complementary way to treat chronic dyspnea based on asthma and COPD. The improvement of the symptoms seemed to be long-lasting and was confirmed objectively with spirometry test.

This case suggests that additive complementary medicine could improve the condition of patients suffering from uncontrolled respiratory diseases. Such a complementary treatment can be a promising strategy for a high number of patients, especially for those, for whom Western medicine alone fails to result in dissolution of symptoms.
Acknowledgements

The authors acknowledge the contribution of Oleg Pogrebnyak and Veronika Friederike Sophia Pape for their linguistic support.

References