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Review

Effect of Exercise on Asthma from Iranian Traditional Medicine Perspective

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Abstract

Asthma is a chronic inflammatory disease of the airways. In the conventional medicine, in addition drug therapy, exercise can also improve the respiratory parameters in asthma. In this article the view of Iranian Traditional Medicine (Persian Medicine) scholars on the effect of exercise in asthma is discussed. In this review article subjects related to exercise and asthma by two words ‘‘Riyazat’’ and ‘‘Rabv balghami’’ are collected from the major references of Iranian Traditional Medicine (ITM) such as Al- Havi, Cannon of medicine, Zakhireh kharazmshahi, Tibbe Akbari, Kholasat al-hekmat, Mojarabat, Al-mokhtarat fi al-tib and Exire Aazam. Many relevant abstracts and articles in the above mentioned areas were selected from Pub Med and Google Scholar which were published during 2003 to 2015. Articles selected for detailed review included review articles and clinical trial studies in humans. In ITM, Asthma is caused due to accumulation of thick secretions (Balghame ghaliz) in the airways. Exercise is recommended as an adjuvant therapy for asthma. In ITM’s view, exercise followed in proper manner, increases the body heat which by diluting the secretions helps the process of expulsion. In ITM, Exercise has an assisting role in the management of asthma, in other words following recommended exercises in their proper conditions can result in improved respiratory functions in patients. Ultimately, ITM recommendations along with modern medical management can improve the quality of life in asthma patients, an interesting subject that demands further research in the future.

Keywords: Asthma; Eexercise; Iranian traditional medicine; Persian medicine

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Introduction

Asthma is a chronic inflammatory airway disease resulted from complex interactions between genetic and environmental factors [1]. Approximately 300 million people worldwide are suffering from asthma and it is believed that by 2025 this figure will rise to 400 million [2,3]. According to WHO reports 250 thousand people lose their lives each year due to this disease [4]. The physiopathology of asthma includes inflammation, chronic obstruction, hyper secretion and hyper-responsiveness of airways [5]. Asthma can present itself with wheezing, cough, dyspnea and heaviness or pain in the chest area [6,7]. One of recognized methods for management of asthma patients is lung rehabilitation [8]. Rehabilitation programs as a complement to drug therapy has remarkably improved the condition of asthma patients [9]. Exercise programs form the major part of lung rehabilitation [10]. Many studies support the effect of exercise programs on patients by reducing the need for bronchodilators, reducing dyspnea and other respiratory symptoms along with hospital admission period through strengthening of respiratory muscles [11]. Studies show that exercise and aerobic exercise in particular have beneficial effects on tolerance, capacity and ventilation performance [12,13]. During exercise the respiratory rate decreases [14,15]. Unfortunately, asthma patients, frightened of aggravation of disease during the exercise, develop a negative attitude towards exercise; therefore, these people even those with mild asthma often follow a sedentary lifestyle [16,17]. Of course, in long and heavy exercise, increased respiratory rate can lead to mucosal dehydration and epithelial damage which can result in inflammatory reaction and aggravation of symptoms [18]. The aggravation of inflammatory response can be detected by increased NO level in expiratory air [19]. Moreover, exercise in cold or polluted weather and swimming in pools containing chlorine can aggravate the asthma symptoms [18,20]. Therefore, doing regular exercise with proper intensity and duration in an environment free of pollution with suitable temperature can improve the asthma symptoms.

Similarly, from Iranian Traditional Medicine (ITM) perspective exercise has a major role in maintenance of health and management of ailments including asthma. In ITM the proper exercise should be designed according to age, gender, temperament, season, job, physical capacity and habitation of the individual. In this study the opinions of ITM scholars regarding the effect of exercise on asthma in discussed.

Methods

This study is a literature research, investigating some important Iranian medical and pharmaceutical manuscripts from the tenth to the nineteenth century CE. The manuscripts were Al-Havi (The

Liber Continents, written by Rhazes in the tenth century CE), Al-Qanoon fi al-Tibb (The Canon of Medicine, written by Avicenna in eleventh century CE), Zakhireh Kharazmshahi (Treasures of the Khwarazm Shah, written by Sayed Ismail Jorjani in the twelve century CE), Al-mokhtarat fi al-tibb (written by Ali Baghdadi in the thirteenth century CE), Mojarabat (written by Ali Gilani in sixteenth century CE), Tibbe Akbari and Mofarrah al-gholub (written by Mohammad Akbar Arzani in the seventeenth century CE), Kholasat al-hekmat (written by Aghili Khorasani in eighteenth century CE) and the book of Exire Aazam (written by hakim Aazam khan in the nineteenth century CE). These books are determined as Iranian traditional references in medicine and pharmacy and are now used as references for the Iranian PhD program in traditional pharmacy. Two words ‘‘Riyazat’’ and ‘‘Rabv balghami’’ in the books mentioned above was searched. In order to demonstrate the relationships between traditional medicine and new findings regarding exercise and asthma, the current study was conducted using 20 articles featured by Pub Med and Google Scholar from 2003 until 2015. Relevant abstracts and articles in the above areas were selected. Articles selected for detailed review included review articles of the subjects along with clinical trial studies in humans.

Results

History and principles of ITM

The history of ancient Iran from prehistoric era to 637 AD returns to about 10 000 years ago, and the advancement of medicinal science was particularly considerable [21]. Medical sciences flourished in Iran throughout mediaeval [22]. Prominent mediaeval scientists such as Râzi (Rhazes; 865–925 AD), Ali Ebn Abbas (Haly Abbas; 949–982 AD), Ibn Sina (Avicenna; 980–1037 AD) and Jorjani (Sorsanus; 1042–1137 AD) significantly influenced the development of Iranian medical science [23-25]. Iranian traditional medicine was based on four humors (khelt: in Persian language) including “dam” or blood (possessing hot and wet qualities), “balgham” or phlegm (possessing cold and wet qualities), “safra” or yellow bile (possessing hot and dry qualities), and “sauda” or black bile (possessing cold and dry qualities). Every humor is a matter produced from digestion and transmutation of foodstuffs in the digestive system. From the perspective of ITM health is owing to the balance of these humors and abnormality or imbalance in humors can lead to illness [26,27].

Exercise in ITM

There are 6 factors in ITM that are considered essential for maintenance of life and health, they are called “setteye zaruriyeh” and include: climate of the

habitat, foods and drinks, sleep and wakefulness, physical movement and repose, mental and emotional state, retention and expulsion. Exercise is discussed under the subject of physical movement and repose, the fourth part of "setteye zaruriyeh" [28-30]. Some scholars such as Avicenna consider the exercise as the most important factor among "setteye zaruriyeh" [28]. In ITM exercise gives the organs strength through elevation of heat and energy and excretion of waste materials [28-31]. For optimal benefit, the exercise needs to fit the individual; otherwise it can even be harmful [28].

Types of exercise according to ITM

There are two types of exercise in ITM, general exercise and specific exercise. In general exercise the whole body is engaged like walking and wrestling while in specific exercise one organ is engaged more than the others like arrow shooting or singing [28-31].

Effects of exercise on asthma in ITM

Scholars in ITM have used the Arabic term "Rabv" and "Zigho-al-nafas" to describe the condition that we know as asthma now. This disease has various types and several etiologies are mentioned it. A type of this disease which results from accumulation of thick and sticky phlegm or "Balgham ghaliz" humor in the airways is called "Rabve balghami". This disease is similar the asthma in definition and symptoms and asthma is a subset of the "Rabve balghami". In "Rabve balghami" the sticky secretions "Balgham ghaliz"after accumulation in the airways lead to their partial obstruction and appearance of symptoms. As the less important causes of this condition edema of the airways and bronchospasm are also mentioned in ITM references [28]. ITM believes that any factor capable of increasing the heat in the body can dilute these secretions and lead to their expulsion and exercise is one of the most important factors that can increase the heat and dispel the waste material [28,32]. Therefore, in the management of asthma ITM has considered exercise essential for controlling the causative factor, boosting the respiratory organs and improving the symptoms while at the same time advising certain exercise conditions for best results.

Proper exercise conditions according to ITM

1-Exercise should be started after our therapy has expelled a fraction of the pathogenic material out of the body [33].

2-Exercise should be started slowly and then its speed and intensity should be increased gradually [28,30,32,34].

3-Exercise should be balanced in terms of duration, intensity and speed [35].

4-Exercise should be performed before meal [35].

5-ITM considers walking the best general exercise and light arrow shooting and singing in moderation the best specific exercises in asthma. Singing is a specific

exercise for respiratory organs which should be started slowly and gradually become louder. It can increase the heat in chest region with subsequent dilution and elimination of the secretions [28,30,32-34]. 6-Exercise should not be performed in cold environment [31].

Improper exercise conditions according to ITM

Intensive high speed exercise of long duration is harmful because generation of too much heat within the body leads to dehydration and thickness of the secretions which makes their elimination more difficult. Moreover, continuous consumption of energy will lead to reduction of body heat and subsequent coldness of the chest which, in addition to production of more phlegm "Balgham" in the airways, can condense the existing "Balgham" and make the symptoms worse. Exercise in cold weather is harmful as well because according to ITM the inhalation of cold air can result in bronchospasm [28,30,32-36].

Discussion

Similar to modern medical approach which recommends exercise to asthma patients under certain conditions, ITM uses the exercise that is proper for individual with specific qualities. From modern medical point of view intensive exercise can aggravate the asthma symptoms [18,19]; ITM recommends the balance of intensity, speed and duration for exercise in these patients otherwise it can worsen the situation [33,36]. Exercise in cold weather can result in severity of asthma symptoms according to modern medicine [18,20], the same is true in ITM as the inhalation of cold weather can lead to bronchospasm and production of more secretions in the airways [28,32]. ITM recommends singing as a specific exercise for boosting the respiratory organs [28,30,32-34]. In modern medical literature singing as one of lung rehabilitation methods can boost the respiratory function and is accepted as a complementary therapy [37]. ITM considers walking as a suitable exercise in asthma patients [30,32,34] while new studies suggest that regular walking can improve the respiratory function in these patients [38].

Conclusion

In ITM exercise has a supportive role in management of asthma and following exercise programs with conditions recommended in ITM can boost the respiratory function of the patients, therefore collaboration of modern medicine and ITM can improve the quality of life in asthma patients which demands more studies in the future.

Conflicts of Interest

The authors state that there are no conflicts of interest.

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