

Effect of Buteyko Method on Lungs Functions among Asthmatic Patients in Al-Najaf City

تأثير طريقة بوتيكو على وظائف الرئتين بين المرضى المصابين بالربو في مدينة النجف

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الخلاصة:

خلفية البحث: مرض الربو هو مرض التهاب المجاري التنفسية المزمن وهو أحد الحالات الشائعة والمتزايدة بسبب تلوث الهواء والتحضّر. إن استخدام الطرق البديلة كمعالجة قياسية فعالة أصبحت حاجة ملحة في الوقت الحاضر.

الهدف: تهدف الدراسة الحالية الى تحديد تأثير طريقة بوتيكو على وظائف الرئتين بين المرضى المصابين بالربو في مدينة النجف.

المنهجية: هذه الدراسة البحثية الوصفية استخدمت مجموعة واحدة قبل وبعد الاختبار ذات تصميم شبه تجريبي لدراسة تأثير طريقة بوتيكو على وظائف الرئتين بين المرضى المصابين بالربو، لتحديد تأثير طريقة بوتيكو على وظائف الرئتين من خلال مقارنة وظائف الرئتين قبل وبعد استخدام هذه الطريقة. أجريت هذه الدراسة من فترة الخامس عشر من آذار، 2016 ولغاية الأول من أيلول، 2016، تم اختيار (42) مريض مصاب بالربو من بين (54) متطوع ضمنوا في الدراسة.

النتائج: تشير نتائج الدراسة إلى أن هنالك فروقات معنوية بين النتائج قبل وبعد الاختبار، لذا فإن طريقة بوتيكو فعالة لتحسين وظائف الرئتين لدى المرضى.

الاستنتاج: استنتجت الدراسة بأن طريقة بوتيكو هي الطريقة الفعالة لتحسين وظائف الرئتين لدى المرضى وحل المشاكل التي تواجههم خلال نوبة الربو.

التوصيات: توصي الدراسة بأن الدراسات الموسعة يجب أن تجرى على مستوى وطني لأثبات تأثير هذه الطريقة أو مقارنة تأثيرها مع بقية الطرق المستخدمة لتحسين وظائف الرئتين.

الكلمات المفتاحية: تأثير، طريقة بوتيكو، وظائف الرئتين، مرضى الربو.

Abstract:

BACKGROUND: asthma is a chronic inflammatory disease of the airways and is one of the increasing trends to air pollution and urbanization. The use of alternative ways of treatment that are as efficacious as the standard treatment is the need of the hour.

AIM OF STUDY: To study and determine the effect of Buteyko method on lung's functions among asthmatic patients in Najaf al-Ashraf city

METHODOLOGY: This descriptive analyses study used a One-Group Pre-Test and Post-Test Quazi Experimental Design used to study the effect of Buteyko Method on lungs functions among asthmatic patients, to determine the effect of Buteyko method on lung's functions through comparing the lung's functions prior and after using Buteyko method. This study conducted from the period of 15/ March 2016 to 1/ Sept. 2016. A (42) asthmatic patients selected from (54) volunteers are included in the study.

RESULTS: The study results indicate that there is a high significant difference between the pre-test and post-test scores so; the Buteyko method is effective to improve the patients' lungs functions.

CONCLUSION: The study concludes that Buteyko method is an effective way to improve the patient's lungs capacities and it can resolve the problems that faced during asthmatic attack.

RECOMMENDATION: The study recommends that the further studied should conduct at national level to prove the effect of this method or to compare the effect with other methods that used to improve the lungs functions.

KEYWORDS: Effect, Buteyko Method, Lungs Functions, Asthmatic Patients.

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INTRODUCTION

Asthma is a chronic inflammatory disorder of the airways that causes recurrent attacks of breathlessness wheezing, chest tightness and cough particularly at night or in the early morning. It is mainly due to airway hyper responsiveness to a variety of stimuli resulting in inflammation of the bronchial wall and increased mucus secretion thereby causing Broncho constriction and airflow limitation ⁽¹⁾.

Asthma is a disease where hyper responsiveness, mucosal edema and mucus production occurs in the airways. This causes signs and symptoms such as coughing, wheezing, chest tightness and dyspnea. In 2013, the WHO estimated 235 million people suffer from asthma worldwide. Their 2011 data suggests that in the Philippines, 10,471 people died of asthma in that year alone. This represents 2.48% of the total deaths of that year. The age-adjusted death rate is 19.48 per 100,000 of the population. The incidence of asthma in the Philippines is ranked as the 24th highest rate in the world ⁽²⁾.

Different kinds of individuals react differently to various triggering factors. The Main Causes for Asthma are house dust mites in bedding, carpets and stuffed furniture, pollution, pet dander, tobacco smoke, chemical irritants in the workplace and air pollution. Asthma can differentiate from chronic obstructive pulmonary disease and other respiratory infectious disease with the help of Spirometry and peak expiratory flow meter. Severe and uncontrolled asthma can be life threatening and its incidence has increased significantly since late 1970s.

Many drugs used in the management of asthmatic patients, but they are not found to improve the quality of life adequately. In addition, they also have serious adverse effect, which limits their long-term use ⁽³⁾.

Patients with asthma are interested in the use of breathing exercises but their role is uncertain. In addition, there is interest in the use of complementary treatment for asthma and a third of respondents in a recent asthma survey had tried one or more breathing techniques to relieve symptoms. However, few controlled studies have been undertaken to determine the effectiveness of these approaches ⁽⁴⁾.

The Russian physician Konstantin Buteyko (1923–2003) developed the Buteyko Method. He connected hyperventilation with asthma as well as a variety of other diseases. He developed the technique in the 1950's. The Buteyko Method gained popularity in Russia, and has been made available in different parts of the world. The method aims to reduce hyperventilation by teaching people how to hold their breath and incorporate “shallow breathing” exercises with relaxation. The Buteyko Method also proposes the use of the diaphragm for breathing at all times. Participants are discouraged from using their accessory muscles for breathing. This technique encourages users to practice nasal breathing at all times. The nasal passages are physiologically better at filtering and humidifying inhaled air. Besides this, nasal breathing has recently been shown to improve blood levels of nitrous oxide as well. To induce nasal breathing during sleep, Buteyko Practitioners encourage users to keep their mouth closed during sleep. This can be done by taping their lips together with medical-grade micro porous tape at night.

The Buteyko Method also proposes to measure the carbon dioxide levels in the blood stream by using a variation of the breath holding time, called the “Control Pause”. Breath holds can be measured in seconds, and is believed to correlate to one's health status. Beyond breathing, the Buteyko Method also proposes lifestyle changes including diet, allergy avoidance, and stress management ⁽⁵⁾.

The Buteyko Breathing Method is a unique breathing therapy that uses breath control and breath-holding exercises to treat a wide range of health conditions believed to be connected to hyperventilation and low carbon dioxide. A number of clinical trials indicate that it is a successful treatment for asthma. There are, however, many other possible reasons that the breathing techniques used by the Buteyko Method work. These reasons include change in

symptom perception and improved sense of control, improved biomechanics of breathing, beneficial effects of low-volume breathing, altered nitric oxide levels, and resetting of respiratory rhythm generation by breath-holding techniques ⁽⁶⁾.

METHODOLOGY

Design of the study: A One-Group Pre-Test and Post-Test Quazi Experimental Design used to study the effect of Buteyko Method on lungs functions among asthmatic patients, this study conducted from the period of 15/Sept./2016 to 1/March/2016.

SETTING OF THE STUDY: The study is conduct in Al-Najaf City/Al-Najaf Al-Ashraf Health Directorate/ Al-Sadder Medical City and Emergency Department.

SAMPLE OF THE STUDY: A Non-Probability Convenience Sample of (42) asthmatic patients under asthmatic attack are included in the study.

THE STUDY INSTRUMENT: An assessment tool is developed by the researchers to determine the effect of the Buteyko method on patients' lungs functions. The final copy consists of three parts:

Part I: Patient's demographic data form, **Part II:** Patient's clinical data form, and **Part III:** Lungs functions (Forced Expiratory Volume FEV1/ liters, and percentage of Forced Expiatory Volume FEV %) by using Spirometry. The measurement of FEV1 identifies the obstructive nature of the ventilatory defect, define its severity, and provide the basis of bronchodilator reversibility) ⁽⁵⁾.

DATA COLLECTION:

The researchers collect the data through the utilization of the developed questionnaire, and by means of structured interview technique with the subjects, who are individually interviewing by using the Arabic version of the questionnaire. While the lungs functions collected by using the Spirometry before and after using of Buteyko method.

Procedure of Buteyko Method: ⁽¹⁾

Step I: Keep your mouth closed at all times and only uses your nose to breath. It may be hard if you have a blocked nose, but it should eventually clear once you start the breathing technique.

Step II: Buteyko breathing requires that you breathe into your diaphragm (stomach) and not your chest. In fact, some may notice Buteyko is similar to some meditation style breathing techniques. When breathing check to make sure your diaphragm inflates and deflates in a controlled manner and your chest remains.

Step III: When breathing ensures you breathe in a very shallow manner so if, you help a blade of grass under your nose, it would barely move. This shallow controlled breathing also applies for the breathing in part.

Step IV: Sit in an upright position and shallow breath for around 2-3 min, also remember to breathe in fully and do not do partial inhales. After the 2-3 min period when you get to the exhaling part of your breathing, pinch your nose closed and pause your breathing until you feel the urge to breath.

Step V: After holding your breath for a comfortable amount of time, un-pinch your nose and resist the urge to draw in a big breath of air instead continue with the shallow breathing technique. It is hard at first and if you find it difficult you may have held your breath for too long.

Statistical analysis: The following statistical data analysis approaches is used in order to analyze the data of the study under application of the statistical package (SPSS) Ver. (16), and the Microsoft excel (2007):

Descriptive data analysis: Tables (Frequencies, and Percentages), Statistical figures (Bar Charts), Statistical mean and standard deviation

Inferential data analysis: This approach used to accept or reject the statistical hypothesis, which includes Paired T-Test.

RESULTS:

Table (1): Distribution of the study sample by socio-demographic characteristics NO. =42

Variables	Rating	Frequency	Percent
Residency	Rural	17	40.5
	Urban	25	59.5
Gender	Male	34	81
	Female	8	19
Age / years	20-29	4	9.5
	30-39	2	4.8
	40-49	2	4.8
	50-59	10	23.8
	60 and more	24	57.1
Marital status	Single	4	9.5
	Married	34	81
	Divorced	2	4.8
	Widowed	2	4.8
Levels of education	Illiterate	10	23.8
	Able to read and write	4	9.5
	Primary school graduated	10	23.8
	Intermediate school graduated	8	19
	Secondary school graduated	2	4.8
	Institute graduated	2	4.8
Occupational status	College graduated	6	14.3
	Governmental employee	14	33.3
	Private worker	12	28.6
	Jobless	14	33.3
Socio-economic status	Retired	2	4.8
	Adequate	22	52.4
	Adequate to some extent	8	19
	Inadequate	12	28.6

N (42)

This table shows that (59.5%) of the study subjects are urban residents, (81%) are males, (57.1%) are within (60 years old and more), (81%) are married, (23.8%) are illiterate or primary school graduate, (33.3%) are governmental employee or jobless, and (52.4%) their socio-economic status is adequate.

Table (2): Distribution of the study sample by socio-demographic characteristics NO. =42

Variables	Rating	Frequency	Percent
Body mass index	Under weight	2	4.8
	Normal	10	23.8
	Over weight	14	33.3
	Obese	16	38.1
Duration of asthma / years	1-9	14	33.3
	10-19	16	38.1
	20-29	6	14.3
	30-39	4	9.5
	40 and more	2	4.8

This table shows that (38.1%) of the study subjects are obese, and (38.1%) are suffering from asthma since 10-19 years.

Table (3): Differences for lung function between pre-and post-applying of Buteyko method

Pairs	Mean	N	Std. Deviation	Std. Error Mean	t-value	d.f.	p-value
FEV (Pre-test)	1.26	42.00	0.65	0.10	4.977	41	0.001
FEV (Post-test)	1.60	42.00	0.58	0.09			
FEV % (Pre-test)	62.25	42.00	20.97	3.24	4.875	41	0.001
FEV % (post-test)	72.49	42.00	20.43	3.15			

P-value (0.01), FEV (Forced Expiratory Volume)

This table shows that there is a high significant difference between the lungs functions levels before and after application of Buteyko method.

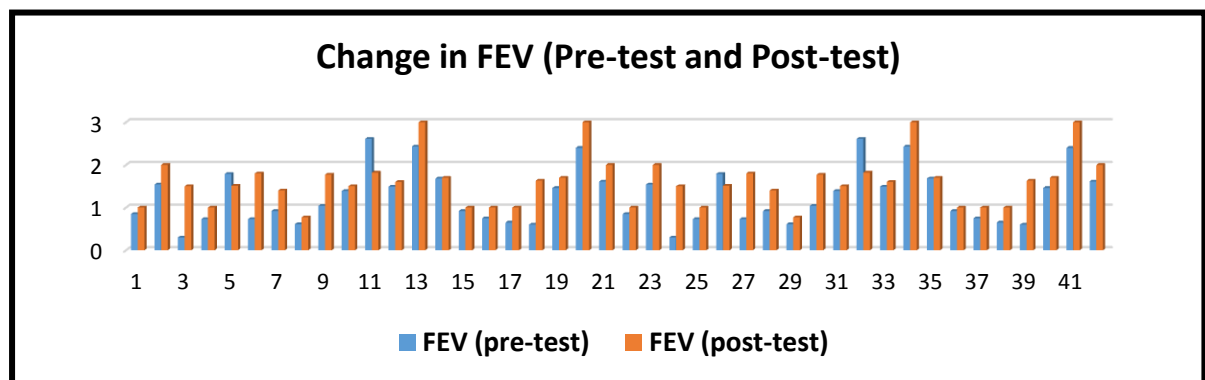


Figure (1): changes in forced expiratory volume (FEV) at two levels pre and post application of Buteyko method.

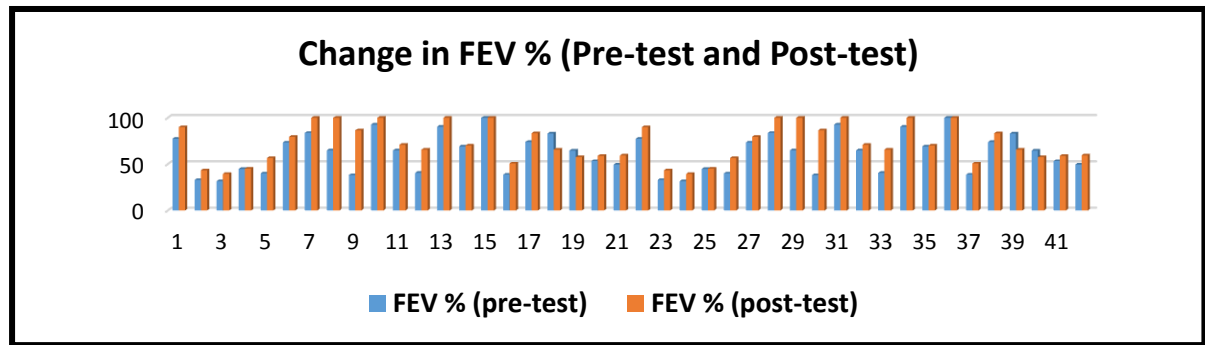


Figure (2): changes in forced expiratory volume (FEV) / percentage (FEV %) at two levels pre and post application of Buteyko method.

DISCUSSION

Patients with asthma are interested in the use of breathing exercises but their role is uncertain. In addition, there is interest in the use of complementary treatment for asthma and a third of respondents in a recent asthma survey had tried one or more breathing techniques to relieve symptoms. However, few controlled studies have undertaken to determine the effectiveness of these approaches ⁽⁷⁾. The present study conducted to determine the effect of Buteyko method on lungs functions among patients with asthma. The study results indicate that there is a high significant difference between the lungs' functions levels before and after application of Buteyko method that mean the Buteyko method is an effective way to improve the patients' lungs capacities and it can resolve the problems that the patients may experience during asthmatic attack.

In 2003, McHugh et al undertook a study, which broadly replicated the findings of previous studies. Nineteen participants randomized assigned to a group that received training in Buteyko and nineteen received traditional asthma education and relaxation techniques. Both groups showed a reduction in reliever use by six months with those in the Buteyko group also reducing their inhaled corticosteroid dose. These studies suggest that the Buteyko method has a significant impact on people's feelings about their asthma, the use of relievers and a reduction in inhaled corticosteroid dose in some people.

CONCLUSION

The study concludes that Buteyko method is an effective way to improve the patient's lungs capacities and it can resolve the problems that the faced during asthmatic attack.

RECOMMENDATION

The study recommends that the further studies should conduct at national level to prove the effect of this method and to compare the effect with other methods that used to improve the lungs functions.

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