

Original Article

Effects of Antidepressive Medication on Lung Forced Expiratory Flow Rate in Patients with Major Depressive Disorder

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Abstract

Background: Major Depressive Disorder (MDD) is associated with depressed lung function. **Objectives:** To observe FEF25%-75% in newly diagnosed Major Depressive Disorder patients and after three months of antidepressive medication. **Methods:** This prospective study was carried out in the Department of Physiology, Bangabandhu Sheikh Mujib Medical University (BSMMU) from January to December, 2014 to assess the lung function status in MDD patients. For this, 30 newly diagnosed MDD patients (Group B1), age 20 to 50 years were enrolled from the Department of Psychiatry of BSMMU. FEF25%-75% of all subjects were assessed by a portable digital spirometer (PONY FX, Cosmed, Italy) before and after (Group B2) three months of giving antidepressive medication. For statistical analysis, paired sample 't' test was done and p value < 0.05 is considered as level of significance. **Results:** There was no significant change found in patients taking antidepressive medication when compared between before and after three months of medication. **Conclusion:** From this study it may be concluded that there is no role in antidepressive medication in improvement of depressed lung function in major depressive disorder.

Key words: Major Depressive Disorder (MDD), Forced Expiratory Flow in middle of FVC (FEF25-75%).

Date of received: 10.05.2016

Date of acceptance: 05.05.2017

Introduction

Depression is the most common chronic condition next to hypertension experience in general medical practice. Out of ten patients visiting psychiatric outpatient department; one patient is suffering from major depression. Major Depressive Disorder (MDD) is defined by depressed mood or loss of interest in nearly all activities or both for at least two weeks, accompanied by a minimum of three or four of the following symptoms (for a total of at least five symptoms altogether) such as insomnia or hypersomnia, feeling of worthlessness or excessive guilt, fatigue or loss of energy, diminished ability to think or

concentrate, substantial change in appetite or weight, psychomotor agitation or retardation and recurrent thoughts of death or suicide¹. Depression is a major cause of morbidity worldwide. The WHO ranks depression as the fourth leading cause of disability worldwide and by 2020, it will be the second leading cause. Population studies have consistently shown major depression is about twice as common in women as in men, although the underlying cause and factor is unclear. Old age people are more affected. People are most likely to suffer their first depressive episode at about 25.7 years in high income and 24 years in low to middle income country².

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Depression may effects all the organs of the body and is responsible for different diseases such as Psychiatric diseases, Myocardial Infraction (MI), other coronary artery diseases, stroke, diabetes, kidney diseases, arthritis, Parkinson's disease and other autoimmune diseases³. Researchers found depressed lung function in depressive illness patients which is more in major depressive disorder⁴. Another study found that Major Depressive Disorder (MDD) was associated with lower FEV1⁵. Whereas another study found no difference in lung function in MDD patients when compared to control⁶.

Methods

This interventional study was carried out in the department of Physiology, BSMMU, Dhaka, between January to December 2014. Thirty female newly diagnosed Major Depressive Disorder patients aged 20 to 50 years constituted study group. Study protocol was approved by Institutional Review Board (IRB) of BSMMU, Shahabag, Dhaka. Patients were randomly selected from the OPD of Psychiatry department of BSMMU, Dhaka. Subjects with pregnancy and lactation and history of lung diseases, coronary heart disease, diabetes mellitus, neurological disorders, smokers were excluded from the study. After selection when they agree to participate, an informed written consent was taken from each subject. A detail personal, medical, family, socioeconomic, occupational and drug history were recorded in a preformed questionnaire and through physical examinations were done and were documented. For this, assessment of lung function FEF 25%-75% of all the subjects were recorded by a digital spirometer before and after three months of antidepressive medication. Data were expressed as mean SE (Standard Error). Paired sample't' test was done to compare between the groups by using SPSS (Windows version 16). In the interpretation of results, p value 0.05 was accepted as level of significance.

Result

The Age, BMI & Blood pressure of the study group is shown in Table I.

Table-I: Age, BMI and Blood Pressure in study group

Groups	Age (years)	BMI (Kg/m ²)	SBP (mmHg)	DBP (mmHg)
MDD patients	34.13±1.49 (22-50)	27.51±0.56 (20.16 -32.2)	120±1.86 (100 -140)	79.00±1.73 (60-90)

Data were expressed as Mean ± SE. Figures in parentheses indicate ranges.

BMI= Body Mass Index

SBP= Systolic Blood Pressure

DBP= Diastolic Blood Pressure

There was no significant change in the percentage of predicted values of FEF 25%-75% found in patients taking antidepressive medication when compared between before and after three months of medication (Table II).

Table-II: Percentage of predicted values of FEF 25%-75% in different groups

Parameters	Group B1 (n=30)	Group B2 (n=30)	P value
FEF 25%	41.33±4.24 (10 -90)	51.56±4.47 (10 -90)	1.660 ns
FEF 50%	36.20±4.54 (4 -95)	45.40±4.06 (7 -92)	1.515 ns
FEF 75%	33.56±4.32 (4 -88)	36.40±3.64 (4 -88)	0.373 ns

Data were expressed as mean±SE. Figures in parenthesis indicate ranges.

Statistical analysis were done by Paired sample t-test.

ns : Nonsignificant

n : Number

Discussion

The present study has been undertaken to observe pulmonary functions in 30 female MDD patients before and after three months of antidepressive medication. Pulmonary functions were assessed by measuring FEF 25%-75% with a portable micro spirometer. Different researchers found that pulmonary functions are significantly reduced in patients with depressive illness especially in major depressive disorder patients. Islam and his colleagues investigated lung function by spirometry in depressive disorder patients and found lung function parameters were significantly lower in depressive disorder patients in comparison to healthy subjects⁴. Another study was done on US soldiers with Vietnam experience to find out association between MDD with lung function. But they did not found any significant association between MDD and poor lung function⁵. Calikoglu and his colleagues investigated lung function test by spirometry in 30 female MDD patients. After comparing with control group, they found that dyspnea was higher in MDD⁶.

These results suggest, FEF 25%-75% may be reduced in MDD patients. The apparent effect of depression on poor lung function in MDD patients may be explained by the reduced psychomotor activity along with poor respiratory muscle strength in depressive illness⁷. These 30 MDD patients who continued with antidepressive medication then again observed after three months and found that no significant improvements of lung function. So there is no role of antidepressive medication in improvement of depressed lung function in major depressive disorder.

Conclusion

From this study it may be concluded that antidepressive medication apparently did not have any effect on lung function.

Acknowledgement

Author would like to thank all the staffs of department of Physiology and department of Psychiatry, Bangabandhu Sheikh Mujib Medical University, Shahbagh, Dhaka, Bangladesh.

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