Available online at www.rajournals.in

RA JOURNAL OF APPLIED RESEARCH
ISSN: 2394-6709
DOI:10.47191/rajar/v8i2.13
Volume: 08 Issue: 02 February-2022

International Open Access

Impact Factor- 7.036

Page no.- 147-149

Prevalence and Pattern of Lung Dysfunction in Patients with Type 2 DM Attending a Tertiary Health Care Centre of Tripura by Spirometry

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ARTICLE INFO

Published Online:
22 February 2022

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ABSTRACT

Introduction:- Diabetes has multiple microvascular and macrovascular complications, pulmonary complication though is less researched. In our present study we have tried to find out effects of diabetes mellitus on respiratory system.

Methods:- We did pulmonary function test on all patients admitted to Tripura medical college and Dr BRAM teaching hospital with diabetes mellitus after considering inclusion and exclusion criterias.

Result:- We have find higher prevalence of restricted lung disease in patients with diabetes mellitus and the relation between restrictive lung disease and HbA1C was statistically significant.

Conclusion:- So, should try to pick up lung disorders in diabetes patients from an early stage and try to treat it.

KEYWORDS: Diabetes mellitus, spirometry,restrictive lung function test.

INTRODUCTION

Diabetes mellitus describes a metabolic disorder of multiple aetiology characterized by chronic hyperglycaemia with disturbances of carbohydrate, fat and protein metabolism resulting from defects in insulin secretion, insulin action, or both.[1,2,3,4] The presence of an extensive pulmonary microvascular circulation and abundant connective tissue raises the possibility that lung may also be a target organ in diabetes.[5,6,7,8,9]

METHODS AND MATERIALS

This was an observational study done from February 2018 to august 2019 in Tripura medical college and Dr B.R. Ambedkar teaching hospital over 142 patients to study pulmonary function tests and its pattern in patients having diabetes mellitus.

RESULT

A total of 142 diagnosed patients with diabetes were included in the study.

97 patients (68.31%) of study population were having abnormal lung function whereas 45 patients (31.69%) were having normal lung function.

Male gender were having (62.9%) more abnormal lung function compared to female gender (37.1%) in this present study. But no statistical significant association was observed between lung function and gender.

Our study shows that participants with abnormal lung function had higher FBS (132 ± 33.8) compared to normal lung function (121 ± 27.3) and the difference was statistically significant (p value = 0.07).It also shows that participants with abnormal lung function have higher PPBS (182 ± 61.7) compared to normal lung function (176 ± 54.0) but the difference was not statistically significant (p value = 0.61).

Our study shows significant reduction in FEV1(65.8±16.5) and FVC (68±.17) and increase in FEV1/FVC(93.7± 16.3).

Table 1:-Mean PFT values in study population

	FEV1	FVC	FEV1/FVC
MEAN	65.8	69.5	93.7
STANDARD DEVIATION	16.5	17.0	16.3

Mean FEV1 in our study population was *65.8*±16.5 and mean FVC was 69.5±17 and mean FEV1/FVC was 93.7± 16.3.

Our study demonstrates that there is restrictive pulmonary function pattern in diabetes type 2. Among 97 patients with

abnormal lung function, 15(15.5%) patients were having obstructive lung pattern and 82(84.5%) were having restrictive lung function pattern.

In our study we found that participants with abnormal lung function have higher duration (6.18 ± 4.61) of DM compared to normal lung function but the difference was not statistically significant (p value = 0.82**).**

Table 2: Distribution of study population based on duration of DM

	No lung abnormality	Obstructive	Restrictive	P value
Duration of DM	6 ± 3.32	5.33 ± 3.54	6.33 ± 4.79	0.68

Table 3: Distribution of study population based on HbA1c level

	Lung function		p value
	Normal	Abnormal	
HBA1c	5.80 ± 0.70	6.28 ± 1.11	0.01

The association between lung function and HBA1c value was statistically significant.

DISCUSSION

The present study showed patients with higher HbA1c were having higher abnormal function compared to patients with lower HbA1c.Participants with abnormal lung function have higher HBA1c (6.28 ± 1.11) compared to normal lung function (5.80 ± 0.70) and the difference was statistically significant (p value = 0.01).

The findings of present study thus reveals that the glycaemic exposure is a strong determinant of reduced pulmonary functions in type 2 diabetics. Thus, an intensive glycaemic management may reduce the pulmonary dysfunction to a great extent. This is in sync with multiple other studies that have found that there is high prevalence of abnormal lung function in diabetes patient.[15-25]

CONCLUSION

It is advisable, therefore, that diabetic patients must undergo periodic spirometry tests to assess the severity of lung function impairment. Additional research is required to identify pathophysiologic mechanisms and to determine clinical significance of this association. In the meantime, clinicians should pay utmost attention to pulmonary functions in their patients with type 2 diabetes.

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