



## ATRIAL-FIBRILLATION AND COPD

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Article Received on 22/09/2018

Article Revised on 12/09/2018

Article Accepted on 02/10/2018

### ABSTRACT

**Objective:** Frequency of Atrial-fibrillation in patients presenting with COPD. **Methodology:** This was a cross-sectional study and was carried out at Faisalabad institute of cardiology (FIC), Faisalabad during January to June 2017. The diagnosed cases of COPD according to COPD-GOLD 2016 guidelines presenting for echocardiography to FIC were selected and Electrocardiograph (ECG) was done for all the cases and Atrial-fibrillation was labelled where there was absent p wave and irregular heart rate. **Results:** In this study out of 100 cases 83% were males and the mean age of the cases was  $59.89 \pm 10.21$  years. Atrial-Fibrillation was seen in 14 (14%) of the cases. There was no significant difference in terms of gender and age groups with p values of 0.76 and 0.82. Atrial-Fibrillation was seen significantly high in cases of COPD duration of 3 or more years where it was seen in 12 (15.79%) of cases with p value of 0.03. **Conclusion:** Atrial-fibrillation is not uncommon in cases presenting with COPD and is significantly associated with COPD duration of 3 or more years.

**KEYWORDS:** COPD, Atrial-fibrillation.

### INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is a common, preventable and treatable disease that is characterized by persistent respiratory symptoms and airflow limitation that is due to airway and/or alveolar abnormalities usually caused by significant exposure to noxious particles or gases.<sup>[1]</sup>

The number of cases of COPD is on the rise day by day due to rising trends of smoking and increased atmospheric pollution due to rising number of cars and factories. Females are also at high risk in the developing countries due to pollution and in door combustion of fuel due to poverty issue.<sup>[2-3]</sup>

COPD can results in wide range of clinical and pathological changes in the body and have great impact on respiratory and cardiac symptoms. Respiratory failure, pneumothorax, pneumonia, pulmonary HTN, arrhythmia, heart failure, systolic and diastolic dysfunction are among the top complications seen in these cases.<sup>[4-7]</sup>

Atrial-fibrillation is a highly morbid arrhythmia due to its resistant nature and can present either as slow or rapid ventricular response i.e. SVR or RVR. Rate and rhythm control are the major management options and depend on individual scenarios.<sup>[8-9]</sup>

### OBJECTIVE

Frequency of Atrial-fibrillation in patients presenting with COPD.

### METHODOLOGY

This was a cross-sectional study and was carried out at Faisalabad institute of cardiology (FIC), Faisalabad during January to June 2017. The diagnosed cases of COPD according to COPD-GOLD 2016 guidelines presenting for echocardiography to FIC were selected and Electrocardiograph (ECG) was done for all the cases and Atrial-fibrillation was labelled where there was absent p wave and irregular heart rate.

### Statistical analysis

The data was processed by SPSS 23 and post stratification chi square test was applied and  $p < 0.05$  was taken as significant.

### RESULTS

In this study out of 100 cases 83% were males and the mean age of the cases was  $59.89 \pm 10.21$  years. Atrial-Fibrillation was seen in 14 (14%) of the cases. There was no significant difference in terms of gender and age groups with p values of 0.76 and 0.82 as shown in table I. Atrial-Fibrillation was seen significantly high in cases of COPD duration of 3 or more years where it was seen in 12 (15.79%) of cases with p value of 0.03 as in table II.

**Table I: Atrial-Fibrillation with age and gender.**

Gender	Atrial-Fibrillation		Total	p
	Yes	No		
Male	12 (14.45%)	71 (85.55%)	83 (83%)	0.76
Female	2 (11.76%)	15 (88.24%)	17 (17%)	
Age	Atrial-Fibrillation		Total	P
	Yes	No		
<55 years	4 (13.79%)	25 (86.21%)	29 (29%)	0.82
>55	10 (14.08%)	61 (85.92%)	71 (71%)	

**Table II: Atrial-Fibrillation and duration of COPD.**

Duration of COPD	Atrial-Fibrillation		Total	P Value
	Yes	No		
< 3 years	02 (8.33%)	22 (91.67%)	24 (24%)	0.03
3 or more years	12 (15.79%)	64 (84.21%)	76 (76%)	

## DISCUSSION

COPD is among the top ten leading causes of death and according to a survey it is supposed to be third cause of death by the year 2030. The major causes of mortality in these cases are respiratory failure, pneumothorax and cardiac arrhythmias like ventricular tachycardia. Atrial-Fibrillation is the second most common arrhythmia after premature ventricular contractions and can be with slow or rapid ventricular response.

Atrial-Fibrillation was seen in 14 (14%) of the cases presenting with COPD and the results were closer to the studies done in the past and its prevalence range from 10-15%.<sup>[10-11]</sup> According to two other studies this prevalence was seen in 7.9% and 13.2% of the cases and was closer to the results of the present study where this was in 14% of the cases.<sup>[12-13]</sup>

Atrial-Fibrillation was seen significantly high in cases of COPD duration of 3 or more years where it was seen in 12 (15.79%) of cases with p value of 0.03. This was also supported by the previous data.<sup>[14-16]</sup> The reason of higher number can be explained by the factor that the longer the duration of the COPD and higher is the likelihood of hypoxia and impact on the heart in terms of right heart strain which also predispose these cases to different arrhythmias like Atrial-fibrillation.

## CONCLUSION

Atrial-fibrillation is not uncommon in cases presenting with COPD and is significantly associated with COPD duration of 3 or more years.

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