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ATRIAL FIBRILLATION IN COPD

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ABSTRACT

Objective; To assess the frequency of atrial fibrillation in cases presenting with COPD. **Material and methods;** This was a cross sectional study that was carried out at Surraya Azeem Hospital, Lahore & Aziz Bhatti Shaheed teaching hospital, Gujrat during the July to December 2018. There were 400 patients included. The cases were labelled as COPD according to GOLD 2015 guidelines. Atrial fibrillation was labelled as yes on the basis of absent p wave and irregular heart rate. **Results;** In the present study, there were total 400 cases of COPD, out of which 328 (82%) were males and 72 (8%) were females. The mean age at presentation was 57.11±9.82 years. There were 232 (58%) cases that had COPD for more than 3 years and 272 (68%) of cases had class IV of COPD. Atrial fibrillation was seen in 72 (18%) of the cases. Atrial fibrillation was seen in 52 (22.41%) out of 232 cases that had COPD more than 3 years with p= 0.02. There was no significant difference in terms of severity of COPD where it was seen in 20 (15.62%) cases with class III and 52 (19.12%) cases of class IV out of their respective groups with p= 0.43. **Conclusion;** Atrial fibrillation is not uncommon complication of COPD and it is significantly associated with duration of COPD more than 5 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.[1]

COPD is a chronic debilitating disease that can increase the morbidity and mortality worldwide. Its number is highest in the developing countries. Various risk factors can predispose to this condition. Tobacco exposure is the most common one, followed by biomass fuel burning and indoor and outdoor pollution. The rate of smoking as well as pollution is rising and so are the cases of COPD, which is though to be the 3rd leading causes of death in next 20 years.[2-3]

The risk factors for COPD are also similar to that of ischemic heart disease and predispose to the cardiac disorders. Moreover, the dilated heart due to cor pulmonale also serves as a source to predispose for different arrhythmias like Atrial fibrillation.[3] Higher age, smoking habits, co morbid hypertension, diabetes mellitus are major risk factors for COPD as well as different arrhtymias.[4-5]

Quality of life is impaired in presence of comorbid conditions even in early stages of COPD.[6] Comorbid conditions may coexist with COPD as independent entity or it may have same risk factors/pathology as that of COPD. Such patients require multiple therapeutic interventional approach.[7-9]

OBJECTIVE

To assess the frequency of atrial fibrillation in cases presenting with COPD.

MATERIAL AND METHODS

Study design
Cross sectional study

Setting
Surraya Azeem Hospital, Lahore & Aziz Bhatti Shaheed teaching hospital, Gujrat

Duration
July to December 2018

Sampling technique
Non-probability consecutive sampling

Inclusion criteria

Either genders with age range of 40 years or more with COPD, diagnosed on the basis of GOLD guidelines 2015 of severity III and IV presenting to in patient departments were included.

Exclusion criteria

1. The cases of end stage liver or cardiac disease
2. The cases with electrolyte imbalance

The detailed socio demographic and clinical data was collected. Atrial fibrillation was labelled as yes when the p wave was absent and the R-R interval was variable. The data was entered and analysed using SPSS 21 version. Post stratification chi square test was applied taking p value < 0.05 as significant.

RESULTS

In the present study, there were total 400 cases of COPD, out of which 328 (82%) were males and 72 (8%) were females. The mean age at presentation was 57.11±9.82 years. There were 232 (58%) cases that had COPD for more than 3 years and 272 (68%) of cases had class IV of COPD. Atrial fibrillation was seen in 72 (18%) of the cases. Atrial fibrillation was seen in 52 (22.41%) out of 232 cases that had COPD more than 3 years with p= 0.02. There was no significant difference in terms of severity of COPD where it was seen in 20 (15.62%) cases with class III and 52 (19.12%) cases of class IV out of their respective groups with p= 0.43 as shown in the table 1.

Table 1: Atrial Fibrillation Vs Study Variables n= 400.

Duration of COPD	Atrial Fibrillation		Total	*P Value*
	Yes	No		
< 3 years	20 (11.90%)	148 (88.10%)	168 (42%)	0.02
> 3 years	52 (22.41%)	180 (77.59%)	232 (58%)	
Class of COPD	**Atrial Fibrillation**		**Total**	***P Value***
	Yes	**No**		
III	20 (15.62%)	148 (84.38%)	128 (32%)	0.43
IV	52 (19.12%)	220 (80.88%)	272 (68%)	

DISCUSSION

COPD is among the top 5 leading causes of death globally and it is considered to the 3rd leading cause of death by 2030. Multiple co morbid conditions can accelerate the severity and clinical spectrum of COPD and Atrial fibrillation in one of the salient ones.

In the present study, in cases of COPD, the atrial fibrillation was observed in 72 (18%) of the cases. This was also similar to the data in the previous studies where its prevalence has been seen in the range of 11-15% of the cases of COPD.[10-11]

The rate of atrial fibrillation was significantly high in cases that had duration of COPD for more than 5 years where it was seen in 52 (22.41%) out of 58 cases that had COPD more than 5 years with p= 0.02. This was also reinforced by the other studies. According to study done by Huang B et al and Li J et al, both revealed significantly high number of this complication; however the cut off values in their study were slightly different.[12-13] The latter study has shown as high as 30% of the cases to suffer from this. The reason of this high number can be explained by the fact that the chronic is the disease and higher are the chances to not only develop cor pulmonale due to stress over the right side of the heart, but also hypoxia and the increased risk of cardiovascular disease due to sharing of the common risk factors, that pose such cases to develop various arrhythmias including atrial fibrillation.

There was no significant difference in terms of severity of COPD where it was seen in 20 (15.62%) cases with class III and 52 (19.12%) cases of class IV out of their respective groups with p= 0.43. In the past not much work is done in such context to look for this aspect. However, the studies have shown that the severe disease has high chances to develop this.[14-15] The lack of significant difference in such cases may be due to the inclusion criteria as we included the cases of in patient that had admission with an acute exacerbation, which might show the more severe form then their baseline. So, the base line disease has not posed a great risk to develop this complication.

CONCLUSION

Atrial fibrillation is not uncommon complication of COPD and it is significantly associated with duration of COPD more than 5 years.

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