

## CLINICAL PRESENTATION AND CO- MORBIDITY OF COPD PATIENTS

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### Abstract

COPD is considered the sixth leading cause of death in 1990. It is supposed to be the third cause of death worldwide by 2020 due to an increase in smoking rates and demographic changes in many countries.

**The Aim of the work;** Detection different patterns of clinical presentation of COPD among the patients attending Sohag University Hospital and Pattern of co morbidities associated with COPD at presentation.

**Patients and methods:** This Prospective study of the clinical presentation of COPD was carried out on 63 patients (42 males & 21 females) they were admitted to chest department of Sohag University Hospital during period from December 2017 to August 2018.

**Inclusion Criteria:** Patients were diagnosed to have COPD after assessing the presence of chronic cough, sputum production, dyspnea and history of exposure to risk factors as smoking, fumes and PFTs.

**Exclusion criteria:**

1-Patients were presented with bronchial asthma or acute coronary syndrome.

2-young aged patients <20 years.

**Results:** The pattern of co morbidities associated with COPD at presentation: Exacerbation of COPD 20 cases (32%), COPD with cardiomegally 12 cases (19%), COPD with superadded pneumonia 11 cases (17%).

**Conclusion:** COPD is more common in old aged males' smoker than non-smokers. The more severe the COPD condition the more the patients' complaint.

**Key Words:** COPD, Acute exacerbation, CO-morbidity

### Introduction

COPD is considered the sixth leading cause of death in 1990. It is supposed to be the third cause of death worldwide by 2020 due to an increase in smoking rates and demographic changes in many countries. (1) The economic burden of COPD in the U.S. in 2007 was \$42.6 billion in health care costs and lost productivity and it is ranked as the 4th leading cause of death there (2,3). Patients with COPD are susceptible to many insults that can lead rapidly to an acute deterioration superimposed on chronic

disease. COPD exacerbation is an important but occasionally overlooked parameter. COPD exacerbations are very common; affecting about 20% of patients with moderate-to-severe COPD (1.3 events per year in patients with 40-45% predicted FEV1). Most of which are caused by infections or air pollution. Rapid and accurate recognition of these patients along with aggressive intervention may be the only action that prevents frank respiratory failure. (4)

**The Aim of the work:**

- Detection different patterns of clinical presentation of COPD among the patients attending Sohag University Hospital.
- Detection of the relation between smoking and COPD.
- Pattern of co morbidities associated with COPD at presentation.

**Patients and methods:**

This Prospective study of the clinical presentation of COPD was carried out on 63 patients (42 males & 21 females) they were admitted to chest department of Sohag University Hospital during period from December 2017 to August 2018.

**Inclusion Criteria:**

- Patients were diagnosed to have COPD after assessing the presence of chronic cough, sputum production, dyspnea and history of exposure to risk factors as smoking, fumes.
- Patients were presented with acute exacerbation with or without respiratory failure or decompensated cor pulmonale or other co morbidities.

**Exclusion criteria:**

- Patients were presented with bronchial asthma or acute coronary syndrome.
- Young aged patients <20 years.

**Patients were diagnosed to have COPD based on:**

Complete history taking including:

- Age and sex
- Smoking history, number of "pack years", one pack year being smoking of 20 cigarettes per day for one year. This was arrived at by dividing the "pack years", and History of exposure to biomass fuel was recorded in female patients who were non-smokers.
- History of cough as regard (i) increase in sputum purulence; (ii) Increase in sputum volume, with or without haemoptysis
- History of recent rapid worsening of dyspnea

Physical examination including:

- General examination
- Complete chest examination

Investigations:

- Complete blood count
- Erythrocyte sedimentation rate
- Chest x-Ray postero- anterior view and lateral view
- Sputum culture if done

- Pulmonary function tests: They were performed with a Spirometer of computer processing (Jaeger Master Screen Diffusion, Viasys Healthcare, Gmbh, Hoechberg, Germany) COPD was diagnosed based on the criteria laid down by the GOLD criteria and post-bronchodilator forced expiratory volume in the first second to forced vital capacity (FEV1/FVC) ratio less than or equal to 0.7 was documented in all of them confirming the presence of airflow limitation that is not fully reversible. Patients were classified into mild, moderate, severe according to FEV1 as following FEV1 >80% of predicted was mild, 50 % < FEV1 < 80% predicted was moderate, 30 % < FEV1 < 50% predicted was severe.
- Electrocardiography.
- Echocardiography when indicated.
- Computerized tomography scan for Chest for suspected cases of malignancy and thromboembolic conditions.

**Statistical Methods used for data analysis:**

The data are subjected to statistical analysis and tabulation using SPSS program version (10) P value is considered significant if less than 0.05 then the results were presented to full fill the objectives of the study.

## Results

The study was done at chest department of Sohag University Hospital during the period between December 2017 to August 2018 and included sixty-three patients 75% were males, 25% were females with mean age  $59 \pm 11.13$  years.

**Table (1):** Demographic data and smoking state of the patients.

**Table (2):** there were statistically significant relation between sex and type of smoking (P value 0.000).

**Table (3):** the pattern of co morbidities associated with COPD at presentation: Exacerbation of COPD 20 cases (32%), COPD with cardiomegally 12 cases (19%), COPD with superadded pneumonia 11 cases (17%).

**Table (4):** showed the major Symptoms leading patients to seek medical advice were cough with expectoration that was statistically significant difference between it and different radiological diagnosis (p value 0.002).

**Table (5):** Exertional dyspnea that was statistically significant difference between it and different radiological diagnosis (p value 0.000)

**Table (6):** represented that pulmonary function tests were statistically significant difference between it and different stages of COPD (p value 0.023) & according to Global initiative for Chronic

Obstructive Pulmonary Disease the majority of patients were presented with moderate to severe form.

**Table 1:** some demographic and smoking characteristics of the studied cases

Parameter	No.	%	
<b>Sex</b>	Male	42	75.0
	Female	21	25.0
<b>Age group</b>	20 -	0	0.0
	30 -	0	0.0
	40 -	12	19.0
	50 -	16	25.0
	60 -	26	41.0
	70 -	7	11.0
	80 +	2	3.0
Mean age $\pm$ S.D (59.3 $\pm$ 11.13 years). Minimum 24years. Maximum 87 years			
<b>Smoking</b>	Still cigarette smoker	10	16.0
	Ex-smoker	32	50.0
	Stopped goza smoking	4	7.0
	Non smoker	17	27.0
<b>Type of smoking</b>	Cig	42	67.0
	Goza	4	6.0

**Table 2:** Relation between sex and type of smoking in the studied cases

Sex		Type of smoking			Total
		Cig	Non- smoker	Goza	
Male	No.	37	2	3	42
	% within type of smoking	90.8%	12.%	85.7%	75.0%
Female	No.	5	15	1	21
	% within type of smoking	9.2%	88%	14.3%	25.0%
Total	No.	42	17	4	63
	% within type of smoking	100.0%	100.0%	100.0%	100.0%
P value		0.000	*61.534		

\*Chi-Square value

**Table 3:** Final radiological diagnosis, in the studied patients

Final radiological diagnosis	No.	%
Acute exacerbation of COPD	20	32.0
COPD with bronchiectatic changes	11	17.0
COPD with superadded pneumonia	11	17.0
COPD with cardiomegally and bronchiectatic changes	3	4.0
COPD with cardiomegally	12	19.0
COPD with cardiomegally and bilateral effusion	1	2.0
COPD with left pneumothorax and emphysema	1	2.0
COPD with pneumonia and cardiomegally	1	2.0
COPD with left pleural effusion	1	2.0
COPD with lung abscess	1	2.0
COPD with lung mass	1	2.0
Total	63	100.0

**Table 4:** Cough among different clinical presentations in the studied cases

clinical presentations		Cough		Total
		Negative	Positive	
AECOPD	No.	4	16	20
	%	20.7%	35.2%	31.0%
COPD with bronchiectatic changes	No.	1	10	11
	%	6.9%	21.1%	17.0%
COPD with superadded pneumonia	No.	2	9	11
	%	10.3	19.7%	17.0%
COPD with cardiomegally and bronchiectatic changes	No.	0	3	3
	%	0.0	7.0%	5.0%
COPD with cardiomegally	No.	6	6	12
	%	31.0%	12.7%	18.0%
COPD with cardiomegally and bilateral effusion	No.	1	0	1
	%	3.4%	0.0	1.0%
COPD with left pneumothorax and emphysema	No.	1	0	1
	%	10.3%	0.0	3.0%
COPD with pneumonia and cardiomegally	No.	0	1	1
	%	0.0	2.8%	2.0%
COPD with left pleural effusion	No.	1	0	1
	%	4.8%	0.0	2.0%
COPD with lung abscess	No.	1	0	1
	%	0.0	6.9%	2.0%
COPD with lung mass	No.	1	0	1
	%	6.9%	0.0	1.0%
Total	No.	18	45	63
	%	29.0%	71.0%	100.0%
<b>P value</b>		<b>0.002</b>	<b>*36.360</b>	

\*chi-square value

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**Table 5:** Dyspnea among different clinical presentations in the studied cases

clinical presentations		Dyspnea		Total
		Negative	Positive	
AECOPD	No.	5	15	20
	%	17.4%	42.6%	31.0%
COPD with bronchiectatic changes	No.	7	4	11
	%	28.3%	7.4%	17.0%
COPD with superadded pneumonia	No.	10	1	11
	%	26.1%	9.3%	17.0%
COPD with cardiomegally and bronchiectatic changes	No.	0	3	3
	%	0,0	10,9%	5.0%
COPD with cardiomegally	No.	4	8	12
	%	10.9%	24.1%	18.0%
COPD with cardiomegally and bilateral effusion	No.	1	0	1
	%	2,2%	0,0	1.0%
COPD with left pneumothorax and emphysema	No.	0	1	1
	%	0,0	6.3%	3.0%
COPD with pneumonia and cardiomegally	No.	1	0	1
	%	4.3%	0,0	2.0%
COPD with left pleural effusion	No.	0	1	1
	%	0.0	3.7%	2.0%
COPD with lung abscess	No.	1	0	1
	%	3.7%	0.0	2.0%
COPD with lung mass	No.	1	0	1
	%	4.3%	0.0	2.0%
Total	No.	30	33	63
	%	48.0%	52.0%	100.0%
<b>P value</b>		<b>0.000 *40.307</b>		

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**Table 6:** pulmonary function tests result in different clinical presentations of the studied cases

clinical presentations		Pulmonary function tests result			Total
		Mild	Moderate to severe	Severe	
AECOPD	No.	4	6	10	20
	%	80%	20.7%	34.5%	31.7%
COPD with bronchiectatic changes	No.	0	7	4	11
	%	0.0	24.1%	13.8%	17.5%
COPD with superadded pneumonia	No.	0	6	5	11
	%	0.0	20.7%	17.2%	17.5%
COPD with cardiomegally and bronchiectatic changes	No.	0	1	2	3
	%	0.0	3.4%	6.9%	5%
COPD with cardiomegally	No.	0	6	6	12
	%	0.0	21%	21%	19%
COPD with cardiomegally and bilateral effusion	No.	0	0	1	1
	%	0.0	0.0	3.4%	1.6%
COPD with pneumonia and cardiomegally	No.	0	1	0	1
	%	0.0	3.4%	0.0	1.6%
COPD with left pleural effusion	No.	1	0	0	1
	%	20%	0.0	0.0	1.6%
COPD with lung abscess	No.	0	1	0	1
	%	0.0	3.4%	0.0	1.6%
COPD with lung mass	No.	0	1	0	1
	%	0.0	3.4%	0.0	1.6%
COPD with pneumothorax	No.	0	0	1	1
	%	0.0	0.0	3.4%	1.6%
Total	No.	5	29	29	63
	%	8.0%	46.0%	46.0%	100.0%
<b>P value</b>		<b>0.023</b>	<b>*42.247</b>		

## Discussion

The study included 63 patients (42 males, 21 females) who were admitted to Chest Department in Sohag University Hospital and diagnosed as Chronic Obstructive Pulmonary Disease based on clinical history, examinations, radiological, laboratory investigations and pulmonary function tests.

As shown in this Study the most common presentation was exacerbation of COPD which represented 20 cases (32%) (14 male, 6 females) mostly at the age 60 years that manifested clinically by cough with expectoration of Purulent sputum (16 cases), exertional dyspnea (15 cases). These findings were in agreement with (Chandra D 2009) His study was done among 396 patients with median age 60 years that 54% were male. Most of his patients (70%) presented with cough with expectoration of purulent sputum and (61%) presented with exertional dyspnea and presented mostly in smoker (26 cases) these findings were in agreement with (Chapman KR 2001) His study was done among 192 patients 154 patients were smokers

The pulmonary function tests were classified according to Gold criteria into mild form 4 cases. Moderate form 6 cases. Severe form 10 cases. these results revealed that the incidence of exacerbation was high in patients of moderate and severe forms of the disease, these findings were in agreement with (Pellegrino R 2005) His study was done among 685 patients were classified into mild form (102 case), moderate form (115 case) and severe form (137 case)

## Conclusion

- COPD is more common in old aged males' smoker than non-smokers.
- The most common clinical presentations are cough with expectoration and exertional dyspnea.
- The most common co morbid condition associated with COPD are acute exacerbation of COPD and COPD with decompensated cor pulmonale

- The most common complication is COPD with bronchiectatic changes that characterized by haemoptysis.
- The more severe the COPD condition the more the patients' complaint.

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