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Clinical Profile of Acute Exacerbation of Chronic Obstructive Pulmonary Disease Patients in a Tertiary Care Hospital in North-East India: A Retrospective Study.

Potsangbam Sarat Singh[1], Pamei Wilubuibou[1], H. Kulabidhu Singh[2]
[1]Assistant Professor, Department of Respiratory Medicine, JNIMS.
[2]Associate Professor, Department of Community Medicine, JNIMS.

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ABSTRACT

Background: Studies regarding clinical profile of Acute Exacerbation of Chronic Obstructive Pulmonary Disease (AECOPD) is extremely rare from the north-eastern part of India. This necessitates the present study. Aim: The present study aimed to describe the clinical profile of Acute Exacerbation of COPD (AECOPD) patients admitted in the Department of Respiratory Medicine, JNIMS, Imphal. **Methods:** The hospital records of all Acute Exacerbations of COPD patients admitted during the period Sept 2015 to Aug 2016 in the IPD of the Department of Respiratory Medicine, JNIMS were recorded retrospectively and analyzed by using descriptive statistics. **Results:** A total of 100 patients were admitted during the study period of one year. The mean age (SD) of the patients was found to be 71.3 (10.567) years. Female patients outnumbered male patients (M:F=1:1.08). The last quarter of the year (Sept-Dec) showed the least number of patients admitted while remaining months of the year had variable but relatively higher number of patients admitted with a peak in August. Dyspnoea was the commonest symptom which was found in almost all the patients (99%). Co-amoxiclav, Cephalosporin, Macrolide and Fluoroquinolone were the antibiotics most frequently used. In addition to the antibiotics mentioned above, steroids were needed and administered in 74 cases (74%). Methylprednisolone and Hydrocortisone were the main steroidal preparations used. Ventilation support was needed by two (2%) patients. And altogether three patients died during the study period (3%). The period of stay in IPD by all the patients ranged from 2-35 days with a mean (SD) of 8.51 (6.268) days. **Conclusion:** COPD exacerbation was seen in ageing population of both sexes. Dyspnoea was commonest symptom and mean hospital stay was 8.51 days. Antibiotics and steroid commonly prescribed were Co-amoxiclav and methylprednisolone respectively. 3% of study population expired.

Keywords: Acute Exacerbation of Chronic Obstructive Pulmonary Disease (AECOPD), Clinical profile, Dyspnoea, Steroids.

INTRODUCTION

COPD is a chronic respiratory disease characterized by a decline in lung function over time and accompanied by respiratory symptoms, primarily dyspnoea, cough, and sputum production. It is associated with episodes of acute deterioration of symptoms called exacerbations and many a times need intensive care. Being the third largest cause of worldwide mortality and showing a steeply rising trend in global prevalence, COPD is likely to emerge as the most important disease for the physicians to manage.[1]

COPD is a major public health problem, especially in the developing countries. In a multi-centric study done in India, the COPD prevalence was found to be 4.1% among the adult population. Other studies have shown the prevalence to be ranging between 4-10%.[2] An overview of the published literatures showed that India contributes very significantly to mortality from COPD (102/100,000) and 6,74000 DALYs out of the world total of 27,756,000 DALYs; thus significantly affecting health-related Quality of Life in the country. COPD is surpassing malaria, tuberculosis even today and the gap would get widened with time in the near future.[3]

While trying to curb the problem, it is important to understand the clinical profile of the COPD patients. Various studies regarding this have been conducted in many states of the country and abroad.[1,4-10] Yet similar study reports are hardly available from the north-eastern side of India. Hence, it was felt important to study the clinical profile of the COPD patients in this part of the country where the socio-demography and habitat pattern are different from other parts of the country.

Aims:

Name & Address of Corresponding Author
Dr. Pamei Wilubuibou
Assistant Professor
Department of Respiratory Medicine
Jawaharlal Nehru Institute of Medical Sciences
Porompat, Imphal, Manipur 795005.

The present study was taken up to delve into the clinical profile of Acute Exacerbation of Chronic Obstructive Pulmonary Disease patients admitted in the IPD of Department of Respiratory Medicine, JNIMS which is a tertiary care hospital located in the north-eastern part of India.

MATERIALS AND METHODS

A retrospective hospital-based study was taken up in the Department of Respiratory Medicine, JNIMS, Imphal in which all recorded relevant clinical data of Acute Exacerbation of COPD patients admitted in the ward during the period Sept 2015 – Aug 2016 were analyzed. Background socio-demographic details, associated symptoms, duration of admission, antibiotics and other drugs administered, other treatment supports needed (ventilation), treatment outcome and discharge medications prescribed were analyzed.

Only descriptive statistics like proportion, mean and standard deviation were used for data presentation.

RESULTS

A total number of 100 patients were admitted in the IPD of the Department of Respiratory Medicine, JNIMS during the one-year period of the study. The mean age (SD) of the patients was found to be 71.3 (10.567) years. Female patients outnumbered male patients (M:F=1:1.08). Hindus, Muslims and other communities consisted of 81%, 12% and 7% respectively of all the patients. Patients from rural areas of the state comprised 79% of the total patients whereas the remaining 21% hailed from urban areas. The last quarter of the year (Sept-Dec) showed the least number of patients admitted while remaining months of the year had variable but relatively higher number of patients admitted with a peak in August [Figure 1].

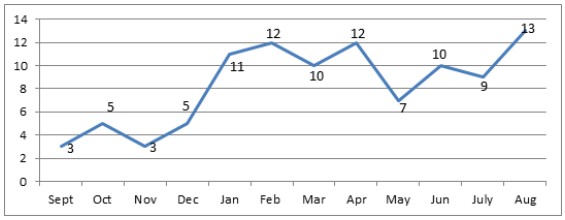

Figure 1: Month-wise number of AECOPD patients admitted.

Table 1: Distribution of patients by symptom(s) (n=100)

Symptom(s)	No. of patients (%)
Dyspnoea only	66 (66)
Dyspnoea + cough	28 (28)
Dyspnoea + chest pain	3 (3)
Chest pain + cough	1 (1)
Dyspnoea + increased sputum expectoration	1 (1)
Dyspnoea + cough + chest pain	1 (1)

Dyspnoea was the commonest symptom which was found in almost all the patients (99%). Dyspnoea only was complained of by 66 patients (66%), whereas amongst the rest, it was in combination with cough, chest pain and/or increased sputum production which were the other associated symptoms. The various symptoms with which the patients presented are illustrated in [Table 1] below.

The different types of antibiotics administered are shown in [Table 2]. Co-amoxiclav, Cephalosporin, Macrolide and Fluoroquinolone were the antibiotics most frequently used.

Table 2: Antibiotics used (n=100)

Antibiotic	No. of patients (%)
Co-amoxiclav	32 (32)
Cephalosporin	24 (24)
Macrolide	23 (23)
Fluoroquinolone	16 (16)
PIP Tazo	2 (2)
No antibiotic	3 (3)

In addition to the antibiotics mentioned above, steroids were needed and administered in 74 cases. Methylprednisolone and Hydrocortisone were the main steroidal preparations used [Table 3].

Table 3: Steroidal preparations used (n=100)

Steroid	No. of patients (%)
Methyl prednisolone	36 (36)
Hydrocortisone	29 (29)
Dexamethasone	7 (7)
Prednisolone	2 (2)
No steroid used	26 (26)

Only two of the 100 patients admitted needed ventilation (2%). And altogether three patients died during the study period (3%). The period of stay in IPD by all the patients ranged from 2-35 days with a mean (SD) of 8.51 (6.268) days. The 97 patients who recovered were discharged with various medications for preventing recurrence of exacerbations [Table 4].

Table 4: Discharge medications (n=97)

ICS* + LAMA† + LABA‡	66 (68)
Oral drugs	10 (10)
ICS* + LABA‡	9 (9)
LAMA† + LABA‡	8 (8)
LAMA†	4 (4)

*Inhaled corticosteroid; †Long-acting muscarinic antagonist; ‡Long-acting β2-agonist

DISCUSSION

The current study finding of the mean age of the patients being 71.3 years is on the higher side if compared to earlier study findings made by Murio C et al, Sinha T et al, Mohan A et al and Kamdan DJ et al.[6-8,10] Probably, the reduction in tobacco-use rate with the people becoming more aware of the ill effects of it might have delayed the onset of COPD. Also, comparatively lower level of air pollution in

the forest-filled hilly areas of the north-eastern part of the country might explain the discrepancy. Different endotype may also play a role.

The female predominance of the disease as found out from the present study is in corroboration with Kamdan DJ et al.[10] But is just the opposite of study-findings made by Murio C et al, Sinha T et al and Mohan A et al, the last mentioned study finding more than two-fifths of the patients being males.[6-8] High female tobacco use pattern may explain it.

More than two-fifths of the patients (81%) being Hindus may simply reflect the predominance of Hindu community in the study area. Also, 79% of the patients being inhabitants of rural areas may simply be because of the fact that more than 70% of the state belonged to the rural areas.

Dyspnoea with or without other associated symptoms was the commonest clinical presentation made by the patients in the current study. This finding is peculiar in the sense that Murio C et al found increased expectoration as the commonest symptom (88.7%) followed by dyspnoea (87.5%).[6] Sinha T et al also found cough as the commonest symptom followed by expectoration, oedema and chest pain.[7] But again, the present study finding is in line with Kamdan DJ et al who found dyspnoea in all the patients.[10] In summary, it can be concluded that Acute Exacerbation of COPD may present with varying symptoms.

Antibiotics may be indicated in many of the patients because of bacterial growth found in the sputum and/or broncho-alveolar lavage (BAL), other respiratory tract samples in few recent studies, though some did not specifically target AECOPD. Gurumayum P et alfrom the same study area found 67.8% of patients had Gram negative bacterial growth.[11] Sougrakpam R et al from the same state also found 40% of the sputum culture positive for pathogenic bacteria.[12] Chawla K et al and Borthakur AK et al also found pathogen-growth in 51% and 68.8% of sputum and BAL of acute exacerbations of COPD.[13,14] In addition to the antibiotics, systemic steroids were needed in 74% of the COPD patients in the present study. This is in contrast to Murio C et al who found that 40.1% of patients needed oral corticosteroids.[6]

The case fatality rate of 3% as found out in the present study is much lower than the figure of 13.7% reported my Mohan A et al in 2006.[8] Probably, serious co-morbidity in their study patients, non inclusion of patients who landed directly in ICUs in the current study, might contribute to this difference in finding. Different endotype may also play a role.

Strength of the study is the considerable number of patients in the first such study from the region. Weakness may lie in the retrospective nature over one year period only.

CONCLUSION

COPD was found more common in older age group. Females slightly outnumbered male cases. Dyspnoea was the commonest symptom presented with. Duration of stay in hospital was variable ranging from two days to more than two months, mean being 8.51 days. Antibiotics most commonly prescribed were Co-amoxiclav, Cephalosporin and Macrolide. Steroids are needed in 74% of patient admitted in IPD. Ventilation support was needed in 2% of cases. Three patients expired (3%) during hospital stay. Properly designed prospective study over at least over a few consecutive years may give better insight.

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