

A Cross-Sectional Study on Prescribing Patterns on Patients Suffering from Chronic obstructive lung disease in a Teaching Hospital of Vizianagaram.

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Abstract: Chronic Obstructive Pulmonary Disease (COPD) has been a major public health problem during this century, and will remain a challenge for the future. Worldwide COPD is in spotlight, because of its high prevalence, morbidity and mortality create powerful challenges for healthcare systems [1]. The global prevalence of COPD in adults aged >40years was approximately 9-10 per cent and the overall prevalence of Chronic Bronchitis in adults >35years alone was 3.49%. COPD may develop due to multiple factors and the risk factors can be genetic or environmental[2]. In chronic respiratory disease like COPD, it becomes very essential to create awareness among the patients about medication and disease. This study was to Analyze drug prescription pattern in COPD using Gold criteria as base can provide useful means of determining whether drug use is as appropriate in treatment of individual patients. This was a prospective, cross section observational study with aim of, analyze the drug prescribing pattern in chronic obstructive pulmonary disease patients. A total of 110 patients were analyzed in our study. In our study, we observed that the incidence of COPD was more common in males(68) when compared to females(42). Ani cholinergics, beta -2 agonist, anti tussives, Mucolytics anti boitics ,oral corticosteroids commonly prescribed acoordence to GOLD criteria . Oral route (71%) was more preferred over inhalational (27%) and parenteral route (1.2%). The majority of patients have moderate to severe exacerbations of COPD due to the inadequate pattern of drug use. GOLD guidelines can be properly followed for prescribing drugs for COPD and can be achieve total control of COPD.

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I. Introduction

Chronic obstructive pulmonary disease (COPD), also known as chronic obstructive lung disease (COLD), and chronic obstructive airway disease (COAD), among others, is a type of obstructive lung disease characterized by chronically poor airflow. It typically worsens over time. The main symptoms include shortness of breath, cough, and sputum production.^[3] Most people with chronic bronchitis have COPD.^[4] Tobacco smoking is the most common cause of COPD, with a number of other factors such as air pollution and genetics playing a smaller role.^[5] In the developing world, one of the common sources of air pollution is from poorly vented cooking and heating fires. Long-term exposure to these irritants causes an inflammatory response in the lungs resulting in narrowing of the small airways and breakdown of lung tissue known as emphysema.^[6] The diagnosis is based on poor airflow as measured by lung function tests.^[7] In contrast to asthma, the airflow reduction does not improve significantly with the administration of medication. COPD can be prevented by reducing exposure to the known causes. This includes efforts to decrease rates of smoking and to improve indoor and outdoor air quality. The present study aims to study the drug treatment pattern in moderate to severe chronic pulmonary disease (COPD) in-patients of Vizianagaram district, Find out whether a)Generic drugs are prescribed b)GOLD prescribing pattern is followed.^[7]

II. Materials & Methods

The study was conducted for a period of 20 months during the period of October 2014 to 2016 april, on patients suffering from COPD (moderate to severe) patients admitted in Maharajah's institute of medical sciences(MIMS) Hospital, Nellimarla, Vizianagaram, Andhra Pradesh. The approval of ethics committee(IEC) of MIMS was taken before the start of the study

STUDY DESIGN:- Observational, Prospective, cross sectional study.

Subject and selection Method:- Total 110 patients of either sex who fulfilled our inclusion criteria were evaluated . All COPD Patients with tobacco smoking, along with co morbidities and those who visited the hospital for acute exacerbation of the disease inclusive of both genders aged above 18 years were enrolled in the

study. Upon prior consent from the patients, data was collected which includes the patient demographics and medications prescribed. The medication charts were analysed using GOLD treatment guidelines.

SETTING:-Vizianagaram population

PLACE: -Maharajah's institute of medical sciences

DURATION OF STUDY:-18months

SELECTION CRITERIA:

Inclusion criteria

a)The prescription pattern data was collected from all the patients of either sex in the hospitals of Vizianagaram, outpatients and inpatients of COPD throughout the year from 2014 October to 2016 April.

b)who were given consent to participate in the study and must have a diagnosis of COPD as defined by the ⁽⁶⁾Global Initiative for Chronic Obstructive Lung Disease (GOLD) guidelines.

Exclusion criteria

a)Patients below the age of 45 years and above 65years age

b)Patients with other co morbidities like Diabetes Mellitus

c)Patients with renal failure

d) Patients with recent MI

e) Patients with recent infections or major surgery

f) Pregnant women

Methodology:

This study was conducted at department of pulmonology in-patients, Maharajah's institute of medical sciences tertiary care hospital.

The institutional ethics committee of MIMS hospital approved the study protocol. The participants declared their willingness on the details of study and the treatment has been explained to the subjects enrolled into the study gave written informed consent.

All in-patients of COPD with-out co-morbidities are recruited from department of Pulmonology, Data was retrieved from Photographed prescriptions

Clinical parameters-

Blood pressure-

Heart rate-

Liver function test-

Complete blood count-

Spirometry-

ESR-

Thyroid function test-

III. Observation And Results

No. of patients screened for enrolment	:	110
No. of patients selected in this study	:	110
No. of Drop outs	:	0
No. of patients completed the study	:	110

Total 770 drugs were prescribed with average of 7 drugs prescribed per encounter. Therapeutic categorization showed maximum prescribed drugs were Anti-microbial agents n=110, Glucocorticoids tablet n=110, ICS n=110 Xanthenes n=100, FDC (duolin) (n=100), NSAIDS (n=60), Nutrition (n=50), Mucolytics(n=50). On another words, every patient received anti-microbial agents and inhaled steroids, fixed drug combination in their prescription. it is followed by xanthines, G.I.T drugs, NSAIDS, Nutrition and others. Number of injections (n=10) but nebulisation from (n= 110) and among total prescribed medication doses form with tablets n= 430at the top. Similarly, proportion of drug under generic name was found NIL and 100% of the prescribed drug were listedout in the WHO essential drug list.

Table no. 1 Age group distribution of patients

Category	40-50 Years	51-60 Years	>60 Years	Total
Male	18	40	10	68
Female	9	12	21	42

Table- 2 Showing smoking status of the patient

Smoking status	No. of patients	Percentage
Smokers	110	100%
Ex-Smokers	60	60%
Current-smokers	50	50%
Non-smoker	0	0

Table no. 3 Showing details of routes used in administration drugs

Routes	No. of drugs	Percentage
Inhalational	210	27%
Oral	550	71%
Injection	10	1.20%

Table no.7 :Disease Prevalence among age groups

Age	Moderate COPD patients	Severe COPD patients	Total Number of patients
40-50	21	6	27
51-60	31	21	52
>60	22	9	31
Total	36	74	110

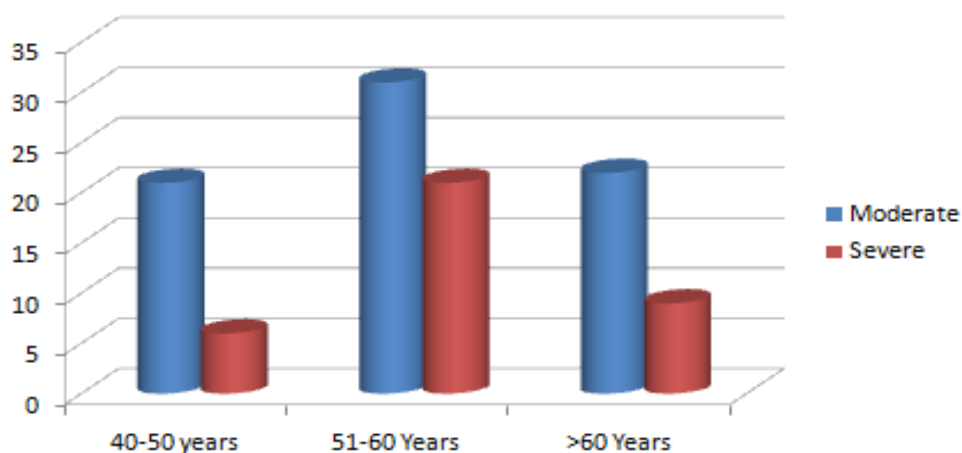


Table no.8 :Disease prevalence among gender

Category	40-50 Years	51-60 Years	>60 Years	Total
Male	18	40	10	68
Female	9	12	21	42

Table no 10: Drugs Primarily Prescribed in MIMS

Category	Name of the drugs	Number of prescriptions	Percentage
Beta -2 -agonist	Salbutamol, Terbutaline, Salmeterol, Formeterol	110	100%
Corticosteroids	Beclomthasone, Budesonide, Fluticasone, Hydrocortisone, Prednisolone	110	100%
Methylxanthine	Theophylline, Etophylline	110	100%

Antibiotics	Amoxycillin, clavulenic acid	110	100%
Antitussives	Mucolytics, Cough suppressants	110	100%
Anticholinergics	Ipratropium bromide	110	100%

IV. Discussion

Table no.11: Based on all data the present study comparing with other studies

Group of Drugs	Present study	Arya Gigi ^[8]	David price ^[9]	CAGE study ^[10]
Beta -2 agonist	100	56%	60%	45%
Anti- Muscarnic	100	50%	37	50%
ICS	100	50%	60	67%
Xanthines	12	40%	30%	20%
Vaccines	0	0	0	80%
ABX	33	42%	50%	50%
G.I.T. drugs	7%	0	0	0
OCS	100%	50%	50%	40
Anti- histamines	0	0	0	0
Systemic steroids	100%	40%	50%	45%
LTRA	0	0	0	0

Drugs (100%) are prescribed according to the GOLD (a global initiative of obstructive lung disease) criteria recommendation^[5] based on GOLD, MIMS tertiary care hospital physicians prescribed corticosteroids. They gave significant improvement of FEV1 and reduce risk of early relapse, reduce risk of treatment failure, length of hospital stay is reduced in our hospital also. It suggests that corticosteroids play major role in COPD patients to enhance patients quality of life. In present study physician prescribed the combined bronchodilators (beta-2 agonist agent, anti-muscarnic) as a fixed dose combination (FDC) to all the patients, which acts with different mechanisms and durations of action. It may increase the degree of bronchodilation for equivalent and lesser side effects^[13]. The combination of beta-2 agonist and an anti-cholinergic, and/or theophylline may produce additional improvements in lung function^[10] which is similar to present study. It is also similar to Mazhermaqusod study, but it differs in prescribing LTRA and Anti-histamines. None of the studies like CAGE, Arya Gigi, Vettil SK, Aleemuddin NM, have such similarity with Mazhermaqusod in prescribing LTRA and anti-histamine. Mazhermaqusod correlated with our study in prescribing corticosteroids and combined bronchodilators. Nedocromil and LTRA have not been adequately tested in COPD patients and cannot be recommended^[5], but Mazhermaqusod, Gregory Diette studies revealed that prescribing LTRA to the patients was being deviated from GOLD guidelines. Xanthenes which have narrow therapeutic index and higher side effects have been prescribed to many number of patients in Mazhermaqusod study and CAGE, Arya Gigi, Vettil SK, Aleemuddin NM, but not in the present study where xanthenes used selectively to few patients (12%). It shows MIMS Pulmonary medicine physicians are highly concerned about patients care and following GOLD guidelines.

In COPD, exacerbation can be viral or bacteria^[13]. The use of ABA in COPD remain controversial^[14]. Based on this, in MIMS pulmonary medicine department, physicians prescribed ABA to a few patients. In other studies shown in table CAGE, Arya Gigi, Vettil SK, Aleemuddin NM, the rate of prescribing ABA are so high when compared with our study. It reminds the adherence to GOLD by our physicians.

Number of Drugs are given directly to the site of infection (lungs) via inhalation form so as to reduce side effects. As in table which shows 100% patients have received inhalational beta-2 agonist and steroids. None of them received anti-tussive and mucolytics, although troublesome symptom in COPD, has significant protective role^[13]. The regular use of anti-tussives not recommended in stable COPD^[5] and regular use of mucolytics in COPD has been evaluated in a number of long term studies with controversial results^[14] Cochrane review showed little or no effect on the overall quality of life^[9]. It strongly supports treatment pattern in the present study. Both mucolytics and antitussives not prescribed at all even in other studies

As the table shows, 100% patients received inhaled beta agonists and anticholinergics, steroids, advised nebulisation

There is no evidence suggesting that nebulizers cause more side effects than other inhalation devices, such as metered dose inhalers (MDI) or dry powder inhalers (DPI). There are a few things to look out for when using a nebulizer, however. With a face mask, a good fit helps prevent leakage of the mist. A mouthpiece is sometimes preferred to stop skin or eye irritation from the circulating mist. Regular cleaning of the nebulizer parts is necessary, because medicine can accumulate in the cup and the growth of bacteria may cause infection.

The side effects are typically from the medicine itself. Beta-agonists, such as albuterol, the mainstay of COPD treatment, may cause uncomfortable side effects such as headache, insomnia, rapid heartbeat, tremor and nervousness. These often go away within a few minutes or after a few doses. Another group of bronchodilators, anticholinergics, may cause dry mouth or cough. If they get into the eyes, they may worsen glaucoma or cause

eye irritation. Inhaled corticosteroids, sometimes combined with other medicines, help to reduce swelling in the airways. These tend to cause local effects like sore throat, hoarseness and thrush, a yeast infection in the mouth. Corticosteroids may help with inflammation, but this effect may also increase the risk of infection in some circumstances.

V. Conclusion

It was found that majority (99%) of the drugs were given in accordance with Global Initiative for Chronic Obstructive Lung Disease criteria recommendations.

In our study number of male patients are more compared to female, All were having smoking history and also some had history of exposure to jute mill dust.

This study considered as therapeutic polypharmacy. The positive outcomes of polypharmacy include

- a.) synergistic combinations allow lower doses and therefore less adverse effect than individual drug,
- b.) additional drug may improve outcomes.

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