

Use Of Triple Therapy In A Cohort Of Patients With COPD Associated Wood Smoke And High Risk : Real Life Study Of Five Cases.

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Abstract

Introduction: chronic obstructive pulmonary disease associated with exposure to wood smoke (copd-l) is part of 30% of the etiology of this entity. We know that copd-l has different characteristics compared to the association with tobacco. There is little worldwide experience in the use of bronchodilators and inhaled steroids in patients with this disease. Currently, the high risk of patients with copd-l is the main cause of exacerbations and short-term cardiovascular outcome is the cause of increased morbidity and mortality. Triple therapy is currently a treatment used in patients with copd-t with excellent clinical and symptomatic benefits.

Objective: to describe the effect of triple therapy in a series of 5 cases of patients with copd associated with wood smoke (copd-l) after 1-3-6 months of administration, improving symptoms and benefiting lung function.

Methods: prospective, cross-sectional, observational real-life study carried out in the department of pulmonology of a third-level hospital in the city of puebla in the period from january 1, 2024 to august 1, 2024 in patients with symptomatic l-copd under the cat scale despite dual bronchodilator therapy treatment.

Results: 100% of patients were female, exposed to wood smoke with an average of 196 hours/year, eosinophil count of 338 cells on average, with cat starting greater than 24 points before treatment and 13 points at the end of treatment at 6 months. Decrease to 50% of the eosinophil count, as well as decrease in dyspnea 1 point on the mmrc scale and 5 points on the borg scale.

Conclusion: the cases described offer initial evidence of our medical practice on the benefits of triple therapy in patients with copd associated with firewood. Beclomethasone/formoterol/glycopyrronium have demonstrated good tolerance and safety without presenting adverse effects. These benefits have allowed the patient a better quality of life and a radical decrease in the prevalence of symptoms.

Keywords: copd, biomass, triple therapy, high risk. Wood smoke

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I. Introduction

COPD treatment is currently based on different international evidence-based guidelines. In this report we have based ourselves on the Spanish guidelines due to their wide use worldwide and based on evidence (GesEPOC 2022). The process of care for patients with COPD proposes an evaluation in 4 areas: Diagnosis and General Measures, Risk Stratification and selection of the inhaled medication according to symptoms, clinical phenotype and finally approach to treatable traits.

In high-risk patients, GesEPOC 2021 recognizes three phenotypes in the pharmacological treatment regimen: Non-exacerbator, eosinophilic exacerbator and non-eosinophilic exacerbator. Under the above scheme and treatment algorithm, the eosinophilic and non-eosinophilic exacerbator patient benefits from triple therapy due to the increase in symptoms or exacerbation, as well as the increase in the eosinophil count greater than 300 cells per deciliter in patients with high-risk COPD associated with tobacco. As has been stated, there are numerous writings regarding the association with tobacco but not with exposure to wood smoke. Patients with COPD associated with tobacco and wood have similarities in some characteristics, especially in the diagnosis, but they also have different physical and clinical characteristics.

Patients with high-risk COPD associated with tobacco benefit from triple therapy, as described in multiple studies due to improvement in symptoms, decreased exacerbations and reduced mortality. For this reason, it is relevant to descriptively demonstrate the benefit of triple therapy in the group of patients with high-risk COPD associated with wood smoke. Justification for carrying out the project is to have clear, real-life data, both symptomatic and clinical, on the use of the treatment in a group of patients with the same disease, but

associated with another exhibitor and whose benefit has already been widely described in one of them. The importance of demonstrating the improvement in clinical and functional parameters in this group of patients is of utmost importance for its use in patients who present this clinical phenotype, especially in our Mexican and Latin American population. Perez Padilla, Villegas and Sansores et al. are, to date, the only Latin American pulmonologists who have described the benefit of bronchodilators in patients with COPD associated with firewood with excellent results, as well as the pathophysiology of the year, taking into account that the survival of patients associated with firewood and tobacco are similar as they have described, due to which it is beneficial to think that patients with triple therapy benefit from its use. Determining the clinical benefits of high-risk COPD patients associated with wood smoke in a real-life study cohort is of utmost importance in clinical practice and demonstrating the same benefit as that obtained in high-risk COPD patients associated with tobacco. However, COPD in general, and exposure studies using in vitro and in vivo model systems to understand the molecular mechanisms of COPD have been investigated primarily in relation to tobacco smoke. Studies on biomass smoke-induced COPD, as well as exposure studies with biomass smoke, are limited and the few available are mainly limited to particulate matter (PM_{2.5})-extracted wood smoke. Smoke from combustion processes is a complex mixture.

II. Material And Methods

Prospective, cross-sectional, observational real-life study carried out in the Department of Pulmonology of a third-level hospital in the City of Puebla in the period from January 1, 2024 to August 1, 2024. Inclusion criteria; 1) patients diagnosed with COPD by GOLD/ATS/BTS/SEPAR criteria classified as high risk who attended the Pulmonology outpatient clinic, 2) Patients with use of dual bronchodilator therapy LABA/LAMA. 3) Those who agreed to participate and signed an informed consent letter. 4) Patients who have had an exacerbation in the previous year and remain symptomatic according to the CAT score. Exclusion criteria: Patients with Asthma and Asthma-COPD Overlap. Mainly, patients who attend the outpatient clinic are described.

Development: Once the diagnosis of COPD was confirmed, the patient had post-bronchodilator spirometry, blood eosinophils. It was determined that as they came to the outpatient clinic during the next 1.3-6 months of starting triple bronchodilator therapy for a previous exacerbation (at least moderate). CAT levels before and after treatment. The clinical dyspnea scales have been standardized in BORG, MMRc which are endorsed by different international organizations to determine the measurement of dyspnea.

III. Results:

100% of patients were female, exposed to wood smoke for an average of 196 hours/year. Eosinophil count was 338 cells on average, with initial CAT greater than 24 points before treatment and 13 points at the end of treatment at 6 months. Eosinophil count decreased by 50%, as well as a decrease in dyspnea of 1 point on the MMRc scale and 5 points on the BORG scale (Table 1 and 2) and (Figure 1 and 2).

IV. Discussion:

Patients with COPD-L associated with wood smoke are currently part of a percentage greater than 30% of those associated with tobacco. There is little evidence, but as commented by Dr. Pérez Padilla, Ramírez and Sansores et al. have demonstrated the efficacy of double bronchodilation in symptomatic COPD-L patients in previous studies. They are currently the most prominent physicians worldwide in the study of patients associated with wood smoke. This small real-life study still reflects the presence of patients in Latin America who still cook with wood and develop the disease over time. It is a small sample of patients in a short period of time, but enough to demonstrate short-term improvement very similar to that described in patients associated with tobacco in several studies with triple therapy.

V. Conclusion:

This study of 5 real-life patients with L-COPD with high cardiovascular risk demonstrates the improvement of symptoms with the use of triple bronchodilator therapy (Glycopyrronium/ Formoterol/ Beclomethasone) with improvement of symptoms, decrease in CAT, dyspnea and increase in lung function.

Literature

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Table 1. Clinical Characteristics Of Patients Diagnosed With Copd (Wood Smoke)

	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5
Gender	Female	Female	Female	Female	Female
Age	56	65	67	78	81
Smoking	-	-	-	-	-
Wood Smoke Index	160	200	260	160	200
Eosinophils	310	390	370	290	330
Basal Spirometry					
Fev1/Fvc Ratio	55	58	44	50	63
Fevi	57	56	50	51	59
Postbd	57	57	56	53	61
%	0	3	6	2	3
MI	0	80	110	60	75
Cat	24	29	30	30	24
At Month Spirometry					
Rel Fev1/Fvc Ratio	55	58	44	50	63
Fevi	57	56	50	51	59
Postbd	58	58	58	54	62
%	1%	4%	8%	3%	4%
MI	31	90	130	75	82
Cat	21	22	24	24	22
Spirometry Month 3					
Fev1/Fvc Ratio	55	58	44	50	63
Fevi	56	57	50	51	59
Postbd	58	60	60	53	60
%	2%	3%	10%	2%	1%
MI	35	75	170	55	28
Cat	16	20	16	20	16
Spirometry Month 6					
Fev1/Fvc Ratio	57	58	44	50	63
Fevi	60	57	50	51	61
Postbd	61	59	58	53	63
%	1%	2%	8%	2%	2%
MI	29	75	120	58	64
Cat	13	16	13	16	11

Rel: Fev1/Fvc Ratio. Fev1: Fractional Expiration In 1 Second Postbd: Post Bronchodilator. MI: Milliliters Cat: (Copd Assessment Questionnaire, Copd Impact And Quality Of Life Test).

Table 2. Clinical Improvement Of Patients With Copd-L With Triple Therapy (Glycopyrronium/Formoterol/Beclomethasone)

	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5
Eosinophils					
1 Month	290	320	360	210	290
3 Months	250	210	270	170	210
6 Months	120	170	180	90	190
Previous Cat	24	29	30	30	24
Cat					

6 Months With Triple Therapy	13	16	13	16	11
Disnea					
Basal					
Mmrc	2	2	2	2	2
Borg	7	6	7	6	5
Disnea At 6 Months With Triple Therapy					
Mmrc	0	1	1	0	1
Borg	2	2	2	1	2

Cat: (Copd Assessment Questionnaire, Copd Impact And Quality Of Life Test. Mmrc Scale: Modified Medical Research Council Dyspnea Scale) Borg Scale (Borg Rating Of Perceived Exertion) Tt: Triple Therapy.

Figure 1. Cat Improvement With Triple Therapy After 6 Months Of Treatment.

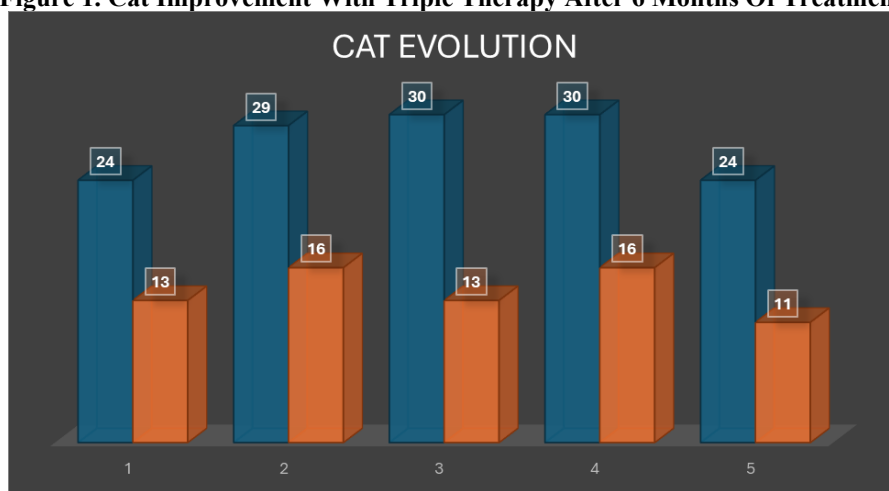


Figure 2.- Evolution Of Eosinophils. (Blue: Initial. Orange: 6 Months Later With Triple Therapy)

