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Research Article,

The Management And Evaluation of the Diagnostic-Therapeutic Pathway of Patients with Chronic Obstructive Diseases: A Retrospective Survey of the Italian Population

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Abstract:

The study is an independent retrospective cohort study, the data used were collected after obtaining informed consent from patients and were conducted anonymously online. The study was conducted on a heterogeneous population of patients with chronic obstructive respiratory disease (200 survey responses) who were attending the outpatient pneumology clinic "La Madonnina" based in Reggio Calabria, Italy from May 2021 until May 2022. The survey included ten multiple-choice questions with a single answer allowed and in some questions also the possibility of writing comments, carried out through the Survey Monkey digital platform. The objectives of the study are:

1. To identify the prevalence of symptoms perceived by patients with chronic obstructive pulmonary disease (COPD and asthma),

2. The role of the Respiratory Medicine Specialist and General Practitioner in the management of these diseases.

3. The emerging figure of self-management of these diseases is indirectly indicative of a high degree of depression in the population with these diseases, which is still poorly known and addressed by Italian general practitioners.

The extrapolated data from the online survey, indicate that there is to date a prevalence of Asthma versus COPD, confirming that the prevalent common symptom is dyspnea, also clarifies that the management of the diagnostic and therapeutic pathway of chronic respiratory diseases is of specialist relevance; the prescribed therapies act mainly on the symptom dyspnea (25.36%).

Keywords: survey, asthma, COPD, General practitioners, specialist, pulmonology, dyspnea.

Introduction:

Asthma is a heterogeneous disease, usually characterized by chronic airway inflammation and bronchial hyperresponsiveness. However, there are different phenotypes of asthma determined by a complex genetic predisposition, and environmental exposure is one of the determinants of asthma**[1]**. It is defined by a history of respiratory symptoms (wheezing, accessory dyspnea, chest constriction, and cough) that can vary in time and intensity, associated with bronchial obstruction that varies over time and is usually largely reversible. Numerous phenotypes can be included in the definition of asthma, which may differ in pathogenetic mechanisms, type, and degree of bronchial inflammation, mode of clinical presentation, evolution over time, and response to therapy. Etiology (e.g., allergic-

nonallergic) and pathogenesis (e.g., eosinophilic-noneosinophilic) are useful in some subjects for phenotyping/endotyping and treatment choices but are not relevant for disease diagnosis. The disease is also heterogeneous (in etiologic phenotypes and severity levels) in pathophysiologic mechanisms such as (1) airway inflammation, (2) smooth muscle dysfunction, (3) structural remodeling, and (4) airway-parenchyma interaction. In atopic asthma, eosinophilic inflammation depends on the differentiation and activation of Th2 lymphocytes by dendritic cells. Th2 lymphocytes secrete IL-5, which is responsible for eosinophil production, activation, and survival, and IL-13 and IL-4, which induce IgE production. In nonatopic or intrinsic asthma, in which no specific allergen is involved and does not depend on the activation of adaptive immunity, ILC2 cells produce IL-5 and IL-13, which are responsible for the eosinophilia and structural changes associated with bronchial hyperresponsiveness. ILC2s produce little IL-4 and there is, therefore, no IgE production by B lymphocytes **[2]**. In a Spanish survey, blood eosinophilia and elevated levels of total IgE were considered, together, the most important parameters for treatment choice in severe asthma (>38%). More than 10% of the experts did not answer the question. In addition, almost half of the experts did not know (or did not answer) the long-term consequences of complete eosinophil suppression by any of the biological drugs. medications. Thus, benralizumab has been shown to achieve eosinophil depletion of >95%, higher than that described for mepolizumab and reslizumab; therefore, eosinophils represent a marker to indicate the right target therapy to treat asthma **[3]**. Another Portuguese national survey conducted in 2014 documented the prevalence of upper respiratory tract symptoms (24.9%) of sneezing, and itchy nose. Less common was the prevalence of nocturnal respiratory symptoms (69.5% had answered never) **[4]**. This indicates that asthma is a complex disease affecting the respiratory tree starting with the upper airways with respiratory symptoms resulting in a prevalence of dyspnea as is highlighted in our survey. Concerning COPD there are a variety of surveys in the literature that show how increasingly prevalent the harm secondary to tobacco smoke use in young people, particularly girls as well demonstrated in an Indian survey back in 2004. The study intimated the policy to carry out more and more youth-focused tobacco control programs that are essential in reducing the burden of tobacco-related diseases in India**[5]**. Another survey carried out in 2020 on the management of COPD patients by Danish general practitioners highlights that the support for COPD maintenance provided by GPs seems to be inadequate concerning smoking cessation and physical activity. In addition, some GPs have expressed a need for educational support in the management of COPD**[6]**. The purpose of our work is precise to confirm the latter finding, shedding light on the important gaps in the Italian national health system in general practice on the management of the diagnostic-therapeutic pathway of chronic obstructive diseases.

Materials and Methods:

Starting from May 2021 until May 2022, online creation on the Survey Monkey platform of a form to be filled in anonymously was carried out which included 10 specific multiple-choice questions on 6 thematic areas: 1) smoker or non-smoker, 2) presence or absence of respiratory symptoms and if yes, which ones, 3) pathology management by general practitioner 4) type of medications prescribed, 5) patient management by pulmonology specialist 6) perception of pathology management in the pathway carried out and clinical improvement after prescribed therapy. We received a large participation with the presence of 200 responses in which we highlighted: a prevalence of non-smoking patients, with prevalent symptom dyspnea, medications prescribed by the specialist mainly ICS/LABA in double daily administration or triple therapy, medications prescribed by the general practitioner including antibiotics and systemic therapy with corticosteroids. The worrisome data that emerges in Italy is what we find reported in question number 4, which shows that 59.5 percent of patients manage their respiratory situation independently with self-medication by not even going to the general practitioner. This situation is emerging and worrisome for the diagnostic and therapeutic pathways of these lung diseases. The

other emerging finding is that in question number 8 patients experience after initiation of inhalation therapy an improvement in upper respiratory tract symptoms and particularly dyspnea. In question 10 an ease of use of the prescribed device is highlighted by 92 percent of patients. The surprising finding is that of question 9 in which 60 percent of patients believe that despite poor management by the general practitioner, the condition was perceived as properly managed.

Table 1 :-

Q1: Are you a smoker?		
Answer choices	**Number of Responses**	***Percentage %***
YES	**84**	***42***
NO	**116**	***58***
Answered	**200**	***100***
Skipped	**0**	/

Q2: If Yes, how long have you been smoking?		
Answer choices	**Number of Responses**	***Percentage %***
Never or < 10 years	**119**	***59.5***
>10 years	**29**	***14.5***
>20 years	**52**	***26***
Answered	**200**	***100***
Skipped	**0**	/

Q3: What symptoms do you feel when you breathe?		
Answer choices	**Number of Responses**	***Percentage %***
Dyspnoea	**65**	***32.5***
Dry cough	**16**	***8***
Cough with phlegm	**41**	***20.5***
Chest tightness	**8**	***4***
Wheeze	**51**	***25.5***
None of the above	**8**	***4***
All of the above	**11**	***5.5***
Answered	**200**	***100***
Skipped	**0**	/

Q4: How does the attending general practitioner manage these reported symptoms?		
Answer choices	**Number of responses**	***Percentage %***
Directs me to specialist	**51**	***25.5***
Manages the situation autonomously with therapy	**76**	***38***
I don't really go to the attending General practitioner, I do it myself	**43**	***21.5***
Carry out in-depth exams and then direct me as a specialist	**30**	***15***
Answered	**200**	***100***
Skipped	**0**	/

Q5: What medication Inhaler was prescribed to you before going to the Pulmonologist specialist?		
Answer choices	**Number of Responses**	***Percentage %***
Single drug	**86**	***46.24***
Two or more drugs	**23**	***12.37***
Indicate which medicine(s) were prescribed	**77**	***41.4***
Answered	**186**	***93***
Skipped	**14**	***7***

(Prevalence of responses: Nothing, Antibiotics, Steroids aerosol therapies)

Table 2 :-

Q6: Which medication did the reference pulmonologist prescribe you after evaluation?		
Answer Choices	**Number of Responses**	**Percentage %**
Single drug	**9**	**4.59**
Two or more drugs	**10**	**5.10**
Indicate which medicine(s) have been prescribed	**177**	**90.31**
Answered	**196**	**98**
Skipped	**4**	**2**

(Prevalence of responses: ICS/LABA or LABA/LAMA or LAMA or Triple therapy)

Q7: Are you satisfied with your current inhalation therapy?		
Answer Choices	**Number of Responses**	**Percentage %**
YES	**186**	**93**
NO	**14**	**7**
Answered	**200**	**100**
Skipped	**0**	**0**

Q8: What has improved current inhalation therapy?		
Answer choices	**Number of Responses**	**Percentage %**
Improved breathlessness	**51**	**25.63**
Resolution of productive cough	**7**	**3.52%**
Reduction of dry cough	**7**	**3.52%**
Resolved wheezing	**16**	**8.04%**
Resolved chest tightness	**6**	**3.02%**
All of the above	**94**	**47.24%**
None of the above	**18**	**9.05%**
Answered	**199**	**99.5**
Skipped	**1**	**0.5**

Q9: How do you think your respiratory disease has been managed?		
Answer Choices	**Number of Responses**	***Percentage %***
Corrected	**120**	***60***
Incorrect initially, then corrected	**58**	***29***
Underestimated	**20**	***10***
Overrated	**2**	***1***
Answered	**200**	***100***
Skipped	**0**	***0***

Q10: How do you consider the drug prescribed by the pulmonologist specialist?		
Answer Choices	Responses	**Percentage %**
Easy to use	185	**92**
Not Easy to use	7	**3**
I don't understand how to use it	8	**4**
I was not properly trained to perform it	0	**0**
Answered	**200**	**100**
Skipped	**0**	**0**

Discussion:

The data extrapolated from this Italian survey are in line with online or telephone surveys conducted in various countries representing the emerging finding of the poor capacity of general practitioners to manage the respiratory disease and respiratory patient self-diagnosis and care. In particular, a French study found that more than 50 percent of physicians agreed that misdiagnosis or misdiagnosis of COPD in women is a major problem related to gender differences. In addition, the survey showed that women were more susceptible to the effects of smoking. More than 60% of physicians agreed that women experience more severe symptoms (anxiety and depression) and have a reduced quality of life than men. More than 50% of physicians agreed that misdiagnosis/underdiagnosis of COPD in women is an important factor for gender differences**[7]**. An English survey on the management of depression in patients with COPD by general practitioners also showed that GPs in England were able to diagnose depression and plan appropriate treatment strategies in patients with chronic obstructive disease. The surveyed GPs believed that depression interferes with the self-management of COPD **[8]**. Another comparison survey between pulmonologists and general practitioners carried out by a group of English and Dutch physicians, highlighted the shortcoming of addressing the topic of palliative care for this condition in the elderly, as palliative care in symptomatic and elderly patients remains poorly formalized and structured making clear directions and standardization of practice necessary to help practitioners decide when and how to initiate discussions about such sensitive issues in patients who are already frail and depressed **[9]**. What is intended to be conveyed in this survey, as was already done by a German study group that conducted a national survey on the management of COPD is that it appears necessary to date to adhere to the GOLD 2022 guidelines in daily practice, even if, however, physicians' knowledge of the guidelines is not sufficient as the sole benchmark for evaluating their application in daily practice. Changes needed in the health care system must include more effective ways to transfer knowledge to clinical practice and to provide access to interventions of proven clinical benefit **[10]**. To do this, it is necessary to start treatment right away, but other surveys in the literature show that in the Belgian population, treatment of newly diagnosed COPD patients has usually been initiated by a Pulmonologist (in 62% of cases), or by a general practitioner (34% of cases), rarely by a specialist in another field (5%). cases), rarely by a specialist in another field (5%) **[11]**. The daily impact of chronic obstructive pulmonary disease (COPD) on younger patients is often underestimated. As highlighted by a global online survey conducted by a group of German Dutch and Chinese physicians, Younger patients are more impacted by their daily activities, well-being, and the need to adapt their activities due to symptoms than older patients. The findings highlight the importance of optimizing treatment for younger patients with COPD and suggest that physicians should not overlook the burden of disease in these patients **[12]**. As early as 2015, a

major survey conducted on the population in Taiwan showed that COPD has an estimated prevalence of 6.1 percent in the general population, and is underdiagnosed. Symptoms and comorbidities were found to be independent risk factors for healthcare use in individuals with certain or possible COPD. An urgency was expressed to raise awareness of the importance of early evaluation and timely treatment for individuals with chronic airway symptoms **[13]**. Finally, another international survey found that poor patient engagement and poor medication adherence were frequent and associated with worsening COPD-specific health status, this leads to increased use of health care and lower satisfaction with health care providers **[14]**. The only study found in the literature against using surveys to indicate the prevalence of COPD is that of the Spanish group, which pointed out in the paper that, the prevalence of COPD varies depending on the definition used. In addition, a substantial number of subjects with COPD with spirometry diagnosis cannot be identified with questionnaires or medical records, due to an underestimation of the prevalence figure **[15]**. Thus, it emerges from this discussion how further randomized controlled clinical trials are needed to make the emerged figure even more statistically significant.

Conclusions:

The study was able to provide insights into the management of the patient with chronic respiratory disease, which is a worldwide challenge for specialists and general practitioners to date, still despite the knowledge reported in the literature, it is difficult to manage the patient also because of strong misinformation of the diseases that a cultural background in our latitudes in southern Italy. Further randomized controlled clinical trials are needed to support what has been highlighted by the study. Of concern is the figure for self-management and treatment of chronic respiratory diseases, which are still not perceived to be on par with common chronic diseases such as diabetes or systemic hypertension. It will be necessary for the coming years on the part of institutions to provide the means for general practitioners to address a problem that has not stopped in recent decades, and it is also important, in our opinion, to carry out awareness campaigns against the use of cigarette and tobacco smoking in young people, who are to date the segment of the population in which the incidence of chronic obstructive diseases is developing the most.

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