Specialists from all over Spain will attend the IV ESTEVE Symposium on Respiratory Diseases to be held on 22-23 May in Madrid

Respiratory fungal allergies are a risk factor in patients with severe asthma, and involve more attacks and more hospital admissions

Severe asthma affects 10% of adults with asthma; of these, 30% to 60% have a respiratory allergy to one or more fungi

Experts claim that advance should be made in the diagnosis of respiratory fungal allergies and of hypersensitivity pneumonitis which, when chronic, causes pulmonary fibrosis

Asthmatic smokers are 3 to 5 times more at risk of developing COPD

Barcelona, 21 May 2015.- Respiratory fungal allergies are a risk factor in patients with severe asthma. A high percentage of asthmatics who must be admitted to hospital several times are sensitized to one or more fungi. According to experts, fungal-induced allergies are still largely unknown, pose the biggest challenge in their approach, and still call for major research in order to reach appropriate diagnosis and treatment. Another issue addressed at the IV ESTEVE Symposium on Respiratory Diseases —a must for pulmonologists and allergists— is the detection, diagnosis and treatment of patients with a mixed COPD-asthma phenotype, which is found in 12% of COPD patients.

Fungi are between one hundred and one thousand times more frequent than pollens, and the entire population is exposed to them throughout the year, outdoors and at home. While less people are sensitive to them, those suffering from a respiratory fungal allergy may develop major life-threatening diseases such as pulmonary fibrosis. About 5% to 10% of the allergic population has a positive skin test to fungi.

Asthmatic subjects sensitized to fungi can develop very severe asthma conditions that may even require admission to the ICU. In fact, severe asthma affects 5-10% of asthmatic adults in Spain, and skin tests suggest that between 30% and 60% of these patients are allergic to one or more fungi. As senior specialist allergist of the Pulmonary and Allergy Service of the Hospital Clínic of Barcelona **Dr. Antonio Valero** explains: *"Fungal allergies somewhat condition the severity of asthma. Besides triggering asthma attacks more frequently, these attacks are more severe and involve more visits to ER and more hospital admissions. In these cases, Alternaria-related respiratory allergies are frequent."*

The four most common fungi are: *Alternaria* and *Cladosporium*, predominantly outdoors, and *Penicillium* and *Aspergillus*, predominantly indoors. The fungus *Alternaria* is the most abundant in our country and the most studied, with peaks generally found in late summer

and early fall. Respiratory allergies due to this fungus are more frequent in continental climates, or indoors.

According to specialists, "*the role of fungi in the scope of respiratory allergies is still largely unknown to both allergists and pulmonologists. This is because of the large number of fungi, because we know few mold species able to cause respiratory allergies, and because no extracts of proper quality and standardization are available for diagnosis. That is why a large part of the IV ESTEVE Symposium on Respiratory Diseases is focused on this issue".*

These fungi may also cause other diseases, such as hypersensitivity pneumonitis, which causes an immune response and an inflammatory process of the more distant peripheral parts of the lung (basically the alveoli), and which also poses a big challenge regarding diagnosis. *"Its prevalence is below 1% of the population and, if not diagnosed in its acute phases, it may become chronic and cause pulmonary fibrosis, which is a life-threatening disease with very poor prognosis".*

Hypersensitivity pneumonitis presents in an acute form, as if it were pneumonia. This is precisely why it goes unnoticed so frequently. Its diagnosis may take years, and by then the patient will have developed pulmonary fibrosis. According to **Dr. Valero**, *"it is important to suspect the disease in a patient presenting with flu-like clinical signs or repeated pneumonias; and also to think about the focus of exposure when studying the etiology".*

The Farmer's Lung and the Bird-Breeder's Lung are some of the best know examples —it is estimated that between 2% and 5% of farmers suffer from hypersensitivity pneumonitis. This disease, however, may also affect professions greatly exposed to large quantities of mold and to high humidity conditions (swimming pools, hot tubs, plumbing, food factories, etc.).

Asthmatic smokers are five times more likely to develop COPD

Between 12% and 15% of COPD patients have asthma, that is, the asthma-COPD overlap syndrome (ACOS). In fact, as Head of the Pulmonology Service of the University Hospital of Lugo **Dr. Pérez de Llano** explains, "*asthmatics are known to be a population more likely to suffer COPD as compared to the general population. Most frequently, asthma precedes COPD and asthmatic smokers develop this mixed phenotype*." In critically ill asthmatics, the percentage of smokers can be up to 20-30%, and this latter group is 3 to 5 times more likely to develop COPD than the general population of smokers.

"*These are two very frequent diseases that affect between 5% and 10% of the adult population, and that can coincide very easily*", **Dr. Pérez de Llano** explains. "*The problem is that the target organ is the same (the bronchi) and that these two conditions are similar in several ways, which makes them hard to differentiate. While they are both inflammatory diseases that obstruct the airways, they are different in nature and have different mechanisms".*

Patients with the mixed phenotype are patients with COPD-induced fixed airway obstruction, which is measured by spirometry. Also, these patients have a characteristic that is unique to asthma in terms of symptoms and pulmonary function. There are currently no specific diagnostic tests or an established protocol for the mixed COPD-asthma phenotype.

The GEMA (Spanish Guideline on the Management of Asthma) establishes objective tests to differentiate these patients, such as spirometry, bronchodilator testing, eosinophil determination in sputum or blood, and knowing whether there is a history of asthma. "*This data can lead to suspect that the patient has the mixed COPD-asthma phenotype".* Also, an early use of corticosteroids is advised. *"All suspected patients must be administered an oral corticoid for a couple of weeks and then the reversibility of the obstruction must be assessed by spirometry. If reversible*, *the patient has asthma only".*

What does seem clear is that the mixed COPD-asthma phenotype involves a specific treatment consisting in combining bronchodilators with inhaled corticosteroids. *"Asthmatic patients must never be given a fixed dose of bronchodilator only. Rather, the bronchodilator must always be associated with inhaled corticosteroids. A long-acting bronchodilator is essential in COPD on account of irreversible airway obstruction".*

Precisely, another topic addressed at the IV ESTEVE Symposium on Respiratory Diseases is the use of inhaled corticosteroids. According to the TORCH study[1] conducted by the SEPAR, inhaled corticosteroids increase the risk of pneumonia in COPD patients, but also reduce the mortality caused by these pneumonias. Currently, the objective is to determine which patient profile can actually benefit from treatment with inhaled corticosteroids.

According to **Dr. Pérez de Llano**, "*a high percentage of COPD patients have their airways colonized by germs and, when this immunosuppressing treatment is administered, these germs may proliferate and cause pneumonia. However, inhaled corticosteroids are also anti-inflammatory in nature and apparently they would be able to module the inflammatory response caused by pneumonia".*

Ideally, biomarkers allowing to ascertain which patients would respond better to inhaled corticosteroids should be available, but research is still ongoing. However, clinical criteria are already available, the most important being exacerbation in COPD. *"These patients could benefit from this therapy, as would patients with a history of asthma or with eosinophilia in sputum or peripheral blood",* **Dr. Pérez de Llano** explains.

References

[1]http://apps.elsevier.es/watermark/ctl_servlet?_f=10&pident_articulo=13148330&pident_usuario=0&pcontactid=&pident_revista=6&ty=140&accion=L&origen=bronco&web=www.archbronconeumol.org&lan=es&fichero=6v45nSupl.5a13148330pdf001.pdf

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