



Hypothesis for future management of *Schizophyllum* allergy in asthma control

It has become important to assess the etiological and exacerbating agents as future risks in both achieving and maintaining asthma control [1]. In particular, there is increasing interest in the association between severe asthma and fungal sensitization [2].

Although we have recently reported that *Schizophyllum commune* (*S. commune*) is associated with two extreme immunological phenomena, i.e., *Schizophyllum*-sensitive asthma [3] and allergic bronchopulmonary mycosis (ABPM) [4], it has not been clarified whether this basidiomycetous fungus is actually an important candidate organism influencing the clinical manifestations of asthma via sensitization to this fungus, similar to *Aspergillus* or *Trichophyton* species [2,5]. We hypothesized that preventing sensitization to *S. commune* is an important management target of asthma control. To validate this hypothesis, at least 3 problems must be addressed. **A) Is *S. commune*-sensitization (SC-sensitization) an aggravation factor in asthma control?** This first issue may be investigated via asthma clinical trials concerning the relation between SC-sensitization and asthma severity, exacerbation frequency, and lung function decline. Our multivariate analysis demonstrated that SC-sensitization is correlated with both asthma severity and exacerbation frequency [6]. As there is evidence of a close link between severe asthma exacerbation and more rapid decline in lung function [7], the influence of asthma exacerbation should be taken into consideration when investigating whether such sensitization is associated with decline of lung function. **B) Are antifungal drugs helpful for asthma control?** There is some evidence of the role of itraconazole (ITCZ) in management of allergic fungal respiratory diseases [8] but its routine use in fungus-sensitized asthma requires further evaluation. To investigate the second problem, prospective studies to evaluate both the appropriate dose and period for performing ITCZ therapy in a larger number of such patients should be performed from the viewpoints of appropriate asthma outcomes. It will also be valuable to assess whether ITCZ therapy provides sufficient relief from SC-asthma or provides any advantage over the use of oral steroid therapy. **C) Does environmental management control SC-sensitization in asthmatics?** The importance of sensitization against airborne basidiomycetes, ascomycetes, and fungal fragments to exacerbations of respiratory allergies in tropical environments has already been reported [9]. To

investigate this third issue, longitudinal studies concerning the relation between the development of SC-sensitization and the presence of *S. commune* in the patients' environment should be performed. We have reported the possibility of disease recurrence of ABPM caused by *S. commune* due to the presence of this fungus in the patient's environment [4]. To address SC-sensitization in asthmatics, it will be necessary to investigate the effective management of environmental fungi.

By evaluating and resolving the 3 problems outlined above, total management of asthmatic patients affected by such fungal allergies may be established in the near future.

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Abbreviations: BM, basidiomycetous; ABPM, allergic bronchopulmonary mycosis; GINA, Global Initiative for Asthma; ITCZ, itraconazole; ECPs, environmental control practices.

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