Letter to the Editor
Allergy Asthma Immunol Res. 2018 March;10(2):182-183.
https://doi.org/10.4168/aair.2018.10.2.182
pISSN 2092-7355 • eISSN 2092-7363

AAIR
Allergy, Asthma & Immunology Research

Benefits of Nasal Cellulose Powder Application Depend on the Type of Allergen Sensitization in Allergic Rhinitis

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Key Words: Nasal cellulose powder; house dust mites; perennial allergic rhinitis

Dear Editor,

We read with interest the article "*Efficacy of nasal cellulose powder in the symptomatic treatment of allergic rhinitis: a randomized, double-blind, placebo-controlled trial*" by Manuyakorn *et al.*[1] Their well-designed placebo-controlled study examined the potential benefits of the mucosal barrier-enforcing effects of nasal cellulose powder (NCP) in children with perennial allergic rhinitis (PAR) sensitized to house dust mites (HDM). They concluded that there is no significant difference between NCP and placebo in relieving symptoms. This result contrasts with the field studies recently reviewed by us which showed significant beneficial effects of NCP in a spectrum of patients with seasonal allergic rhinitis (SAR).[2] We would like to comment on the possible reasons for this seeming mismatch and to elaborate on some questions that consequently arise.

The *in vitro* study of Diethart *et al.*[3] assessed the effect of NCP on the diffusion rate of *Dermatophagoides pteronyssinus* 1 (*Der p1*) compared to agar gel and controls with no gel. In the absence of barrier (control) 72.2% of the *Der p1* solution was absorbed after 15 minutes and 100% after 60 minutes. In comparison, the presence of NCP barrier reduced *Der p1* absorption to 0.76% after 15 minutes and 28.1% after 360 minutes. This clearly demonstrates that the small mesh size of the polymer network of NCP gel provides a significant mechanical barrier to HDM allergens. The effectiveness of the NCP nasal barrier has also been shown in the *in vivo* study of Emberlin *et al.*[4] in which NCP significantly reduced symptom development following nasal provocation with HDM allergen. This also concurs with anecdotal data about the efficacy of NCP in house dust-sensitized people who develop symptoms when entering old, not regularly inhabited, houses.

So why is the study of Manuyakorn *et al.*[1] negative? The authors themselves suggest that the high amount of allergen exposure and the peculiarities of tropical climate in Thailand may make a difference. Persistent exposure to large concentrations of *Der p1* allergen causes activation of both the adaptive and innate immune responses resulting in chronic allergic inflammation all year round.[5] Thus, mucosal inflammation in PAR is self-sustained and the role of daily allergen contact is not as clear or undisputed as in SAR or in provocation studies. Furthermore, the ARIA guidelines conclude that there is no overall clinical benefit of allergen avoidance measures (encasing mattresses, domestic cleaning, use of acaricides), in patients already suffering from HDM-related PAR with or without asthma.[6] While NCP may not be demonstrably effective as monotherapy in subjects with persistent PAR sensitized to HDM, it has been shown to significantly enhance the effectiveness of nasally applied drugs, such as oxymetazoline in this group of patients.[7]

In conclusion, we are glad to see the first study on the efficacy of NCP monotherapy in HDM-sensitized children and we agree with the authors that more research is needed to delineate the applicability of NCP in child and adult patients with PAR sensitized to HDM.

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Received: October 6, 2017; Accepted: October 20, 2017
• There are no financial or other issues that might lead to conflict of interest.

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