

MEETING ABSTRACT

Open Access

Allied health – 3008. Comparison of anti-allergic effect of pneumococcal conjugated vaccine and pneumococcal polysaccharide vaccine in a murine model of house dust mite allergic rhinitis

Soo Whan Kim*, Boo-Young Kim

From 2nd WAO International Scientific Conference (WISC 2012)
Hyderabad, India. 6-9 December 2012

Background

It was discovered that pneumococcal vaccine can reduce the allergic disease. The purpose of the present study is to evaluate the anti-allergic effect of pneumococcal conjugated vaccine and pneumococcal polysaccharide vaccine in a murine model of house dust mite allergic rhinitis. We also evaluated difference between effect of both vaccines.

Methods

Forty mice were divided into four groups: control, Der f, pneumococcal polysaccharide vaccine (PV), and protein conjugate polysaccharide vaccine (PCV). Allergic rhinitis was induced in BALB/c mice by intraperitoneal sensitization and intranasal challenge with *Dermatophagoides farinae* (Der f). The allergic symptom after the final challenge was recorded. Interferon (IFN)- γ , Interleukin (IL)-13, and IL-10 levels in nasal lavage fluid (NALF), as well as serum Der f-specific IgE levels were measured. The number of eosinophils in lamina propria was evaluated. The levels of T-bet, GATA-3, and Foxp3 mRNA expression in splenic mononuclear cells were determined by real-time polymerase chain reaction. A comparison of the frequency of CD4⁺CD25⁺Foxp3⁺ regulatory T cells in splenic mononuclear cells were made by flow cytometry.

Results

The T-bet mRNA level was lower in the PV and PCV group than Der f group ($p < 0.05$). The IL-13, GATA-3 mRNA level and serum Der f-specific IgE and eosinophil were lower in the PV and PCV group than Der f group

($p < 0.05$). Foxp3 mRNA expression in the PV and PCV group was elevated compared to the Der f group ($p < 0.05$). In flow cytometry, the PV group ($p < 0.05$) and the PCV group ($p < 0.05$) had higher percentages of CD4⁺CD25⁺Foxp3⁺ T cells than the Der f group. In the PV group, the percentage of these cells was higher than that in the PCV group. ($p=0.00$).

Conclusions

These results suggest that the pneumococcal polysaccharide vaccines will suppress the allergen-specific Th2 response and enhanced the induction of regulatory T cells in a model of allergic rhinitis. And the process to work regulatory T cell can be different between the PV and PCV group.

Published: 23 April 2013

doi:10.1186/1939-4551-6-S1-P184

Cite this article as: Kim and Kim: Allied health – 3008. Comparison of anti-allergic effect of pneumococcal conjugated vaccine and pneumococcal polysaccharide vaccine in a murine model of house dust mite allergic rhinitis. *World Allergy Organization Journal* 2013 **6**(Suppl 1): P184.