

Allergen frequency Pattern in Korean on AdvanSure™ Allergy Screen Test

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Backgrounds

AdvanSure™ Allergy Screen (LG Life Sciences, Daejeon, Korea) is Multiple Antigen Simultaneous Test (MAST)-immunoblot assay introduced recently, which is consisted of 42 different specific allergens for the inhalant and food panel respectively. On MAST assay, depending on the characteristics of patients, raw materials of antigens and composition of specific allergens, the positive rate of specific allergens may appear differently. In this study, we analyzed allergen frequency pattern with a number of MAST assay results (26,468) for the characterization of the reagent, and efficient selecting of the frequent allergens for the performing specific allergy test without screening test.

Methods

A total of 26,468 test results are analyzed, which is consist of 16,487 inhalant panel tests and 9,981 food panel tests, referred to the Samkwang Medical Laboratories (SML) from July 2009 to June 2010. According to the manufacturer's instructions, the results more than class 2 on total IgE and specific IgE test were considered positive.

Results

The positivity rate of total IgE or allergen-specific IgE is 62.5% on inhalant panel and 55.9% on food panel (Table 1). The high frequent allergens on inhalant panel are D. farinae (37.1%), D. pteronyssinus (29.8%), house dust (21.9%), dog (10.4%), cat (9.7%) and pine (5.0%) in order. The high frequent allergens on food panel are Dermatophagoides farinae (26.5%), D. pteronyssinus (20.0%), house dust (17.7%), Acarus siro (11.1%), dog (9.1%), and cat (8.3%) in order. In the group aged 0-4 years, the high frequent allergens are D. farinae (17.6%), house dust (16.7%), dog (13.7%), D. pteronyssinus (12.8%), cat (11.8%), egg white (7.8%) in order (Table 2), and in the group over the age of 5 years, D. farinae (36.5%), D. pteronyssinus (29.0%), house dust (21.2%), dog (9.0%), cat (8.5%), cockroach mix (4.6%), respectively.

Table 1. Positive rate of total IgE and allergen-specific IgE by panel of MAST

Panel of MAST	No. tested	No. (%) of total IgE (+) or one or more allergen-specific IgE (+)	No. (%) of total IgE (+) and allergen-specific IgE (-)	No. (%) of total IgE (+) and one or more allergen-specific IgE (+)	No. (%) of total IgE (-) and one or more allergen-specific IgE (+)
Inhalant panel	16,487	10,306 (62.5%)	1,413 (8.6%)	5,124 (31.1%)	3,769 (22.9%)
Food panel	9,981	5,551 (55.9%)	1,065 (10.7%)	2,484 (25.0%)	2,022 (20.3%)
Total	26,468	15,857 (60.0%)	2,478 (9.4%)	7,618 (28.8%)	5,791 (21.9%)

Table 2. Commonly detected allergens according to age groups

Age	No. tested*	No. (%) positive of total IgE	No. (%) positive of one or more specific IgE	Average No. of positive allergens	Rank					
					1	2	3	4	5	6
<5	4,004	1,155 (28.9%)	1,642 (41.0%)	5.5	D. farinae (17.6%)	House dust (16.7%)	Dog (13.7%)	D. pteronyssinus (12.8%)	Cat (11.8%)	Egg White (7.8%)
5-10	4,161	1,586 (38.1%)	2,466 (59.2%)	5.5	D. farinae (42.4%)	D. pteronyssinus (36.2%)	House dust (23.5%)	Dog (14.0%)	Cat (12.8%)	Pine (4.9%)
11-20	5,686	1,677 (29.5%)	2,545 (44.8%)	5.5	D. farinae (48.8%)	D. pteronyssinus (40.8%)	House dust (28.8%)	Cat (10.9%)	Dog (10.9%)	Pine (4.1%)
21-40	5,670	2,059 (36.3%)	2,670 (47.1%)	5.7	D. farinae (22.5%)	D. pteronyssinus (18.5%)	House dust (14.2%)	Dog (8.0%)	Cat (5.6%)	Cockroach Mix (5.6%)
41-60	4,409	1,682 (38.1%)	1,795 (40.7%)	4.1	D. farinae (27.0%)	D. pteronyssinus (20.0%)	House dust (16.4%)	Cockroach Mix (7.9%)	Acarus siro (7.8%)	Dog (5.5%)
>61	1,655	601 (36.3%)	557 (34.1%)	5.6	D. farinae (20.2%)	D. pteronyssinus (14.9%)	House dust (14.3%)	Acarus siro (7.7%)	Cockroach Mix (6.5%)	Dog (6.4%)

*Referred with information of patient age

Conclusion

Conclusions: This study shows the frequency pattern of specific allergens in this country by the AdvanSure™ Allergy Screen test. These results could be used as the basic data in comparing characteristics of allergen composition in this reagent with other MAST assays, and useful to select the frequent allergens effectively for the performing specific allergy test without screening test.