Theoretical and clinical dose built-up in oral immunotherapy using IFN-gamma by calibration during oral challenge test for anaphylactic food allergy

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Aims: Oral immunotherapy using IFN-gamma has been done for more than 10 years successfully. The dosage modulation of treatment including initial dose and incremental dose for the treatment is absolutely necessary in the clinical field. Dosage modulation is also the issue during the treatment. For these issues, the theoretical and clinical backup is also needed. The aims of this study are the build-up the dosage modulation by dosage calibration during oral challenge test and during the treatment for the precise oral immunotherapy using IFN-gamma for anaphylactic food allergy. Also, the theoretical principle is also suggested.

Methods: Patients who had anaphylactic food allergy for milk, eggs, soybean and wheat were selected. Basic allergic laboratory tests were done including allergen-specific IgE and skin prick tests. Oral food challenge tests were conducted. Especially, the minimal dose and clinical severity were checked during oral immunotherapy. The initial dose was determined by the minimal dose and incremental dose was determined by the clinical severity. During the treatment, the incremental doses were escalated according to the patient’s responses to dosage. The duration and effectiveness of treatment is compared and evaluated between the classic methods and the advanced methods applying the concepts of calibration and modulation of dosage.

Results: The trial of calibration is proper for oral immunotherapy using IFN-gamma for anaphylactic food allergy. By dosage calibration, the duration and the effectiveness of oral immunotherapy using IFN-gamma was much improve, significantly. By dosage increment, the incremental dose was escalated exponentially.

Discussion: The basic theory of oral immunotherapy using IFN-gamma is depending on the tolerogenic effects of IFN-gamma. The allergy provocation strength should be within the range of tolerogenic effects of IFN-gamma. During oral immunotherapy using IFN-gamma for anaphylactic food allergy, patients were getting tolerance for last therapeutic dose. The meaning of allergy provoking dose and strength did not follow the absolute dose. The allergy provoking dose seems to be the dose of difference between the therapeutic dose and tolerable dose.

Conclusion: For more precise and effective treatment of oral immunotherapy for anaphylactic food allergy, the dosage calibration during oral challenge test is absolutely necessary for the determination of initial dose and incremental dose for the treatment. Also, modulation of dosage should follow the coverage range of tolerogenic effects of IFN-gamma.

From the results of clinical application of dosage modulation, the framework for the dosage modulation was built up with several terminologies for the theoretical and clinical setting.