Biomarkers and efficacy of mometasone furoate nasal spray in patients with allergic rhinitis

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Objective: We investigated the efficacy of mometasone furoate nasal spray (MFNS) for improving the total nasal symptom score with perennial allergic rhinitis (PAR) and measured respiratory nitric oxide (NO) or serum cytokine levels as biomarkers.

Methods: Fifty-seven patients with PAR were randomized to MFNS or placebo for a 14-day. The subjects recorded their nasal symptom symptoms. Respiratory NO was measured during a single exhalation using a chemiluminescence analyzer, and serum cytokine levels were measured using ELISA system.

Results: MFNS treatment achieved significant reductions versus placebo for total nasal symptoms ($p<0.001$). The improvement ratio of nasal symptom scores in the group those

respiratory exhaled NO was 100 ppb or more than 100 ppb before treatment were significantly higher than the ratio in the other group ($p<0.05$) after MFNS treatment. The serum levels of IFN γ in the non-responders to MFNS were significantly higher than those in the responders ($p<0.05$) after the treatment, and the levels of respiratory exhaled NO in the non-responders to MFNS were significantly lower than those in the responders ($p<0.05$) after the treatment.

Conclusion: This study demonstrated that respiratory NO or serum cytokine level might be objective predicting factors or biomarkers on the efficacy of MFNS in Japanese subjects with PAR.