Increased Risk of Atrial Fibrillation in Patients with Atopic Triad: A Nationwide Population-Based Study

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Introduction: Atopic triad consists of asthma, allergic rhinitis, and atopic dermatitis, which are linked by a shared mechanism of the immune system. Although asthma has been reported to have an increased risk of atrial fibrillation (AF), the relationship between multiple atopic diseases (i.e., atopic triad) and AF has not been fully elucidated. We aimed to investigate atopic triad is associated with the development of AF.

Methods: This study used the database from the National Health Insurance Services-Health Screening Cohort in 2009. We identified patients with the atopic disease, who have visited the hospital more than three times per year for each disease. The primary outcome was new-onset AF in subjects without a history of previous AF (n=6,699,738). Of them, 1,156,729 (17.4%) subjects had at least one of atopic diseases, and 5,543,009 (82.7%) were defined non-atopic subjects.

Result: During 8.8 years of follow-up, 161,374 subjects were newly diagnosed with AF (125,760 in the atopic group and 35,614 in the non-atopic group). The incidence rate (IR) of AF was 4.3 per 1000 person-year in the atopic group and 3.6 per 1000 person-year in the non-atopic group. The atopic group had a 24% (95% confidence interval, 22.5–25.5%) higher risk of AF development (Figure 1). The risk of incident AF showed a dose-response association with the number of atopic diseases (Table 1).

Conclusion: The atopic triad, including asthma, allergic rhinitis, and atopic dermatitis, was associated with an increased risk of AF development. Multiple combination atopic disease is a potential risk factor of AF development.