Abstract: **P1871**

**Bodyweight variability and atrial fibrillation development**

**Authors:**
H Lee¹, EK Choi¹, KD Han², S Oh¹, ¹Seoul National University Hospital, Internal Medicine - Seoul - Korea (Republic of), ²The Catholic University of Korea, Department of Biostatics - Seoul - Korea (Republic of),

**Topic(s):**
Arrhythmias, General – Epidemiology, Prognosis, Outcome

**Citation:**
Background: Bodyweight fluctuation is a risk factor for cardiovascular events and death. We investigated whether bodyweight variability is also a risk factor for atrial fibrillation (AF) development.

Methods: A nationwide population-based cohort of 8,091,401 adults from the Korean National Health Insurance Service database without previous history of AF and with at least 3 measurements of bodyweight over a 5-year period was followed up for incident AF. Intra-individual bodyweight variability was calculated using variability independent of mean, and high bodyweight variability was defined as the quartile with highest bodyweight variability (Q4) with Q1-3 as reference.

Results: During median 8.1 years of follow-up, AF was newly diagnosed in 158,347 (2.0%). Increasing bodyweight variability was associated with AF development after adjustment for baseline bodyweight, height, age, sex, lifestyle factors and comorbidities: each increase of 1-SD in bodyweight variability was associated with 5% increased risk of AF development (hazard ratio [HR] 1.05, 95% confidence interval [CI] 1.04-1.05), and subjects with highest bodyweight variability (Q4) showed 14% increased risk of AF development compared to those in the quartile with lowest bodyweight variability (HR 1.14, 95% CI 1.12-1.15).

When the cohort was grouped by body mass index (BMI) into underweight, normal weight, overweight, obese (Figure 1A), subjects with high bodyweight variability showed a shallow U-shaped relationship of BMI with AF incidence, with the highest incidence rate of AF in the underweight group. On the other hand, subjects with reference bodyweight variability showed a proportional increase of AF incidence with BMI, with the highest AF incidence in the obese group. High bodyweight variability was significantly associated with AF development in all BMI groups except in the very obese (BMI=30) in multivariable analysis, and this association was stronger in subjects with lower bodyweight. In underweight subjects, high bodyweight variability was associated with 16% increased risk of AF development (HR 1.16, 95% CI 1.08-1.24). Obese subjects with high bodyweight variability compared to those with reference variability showed lower crude AF incidence rates, but after multivariable analysis, AF risk was increased (obese stage I) or comparable (obese stage II).

When the cohort was grouped by total bodyweight change (Figure 1B), subjects with high bodyweight variability showed higher AF incidence and elevated AF risk on multivariable analysis in all weight change groups. Subjects with overall weight loss (=−5%) and high bodyweight variability showed the highest AF incidence and AF risk (HR 1.12, 95% CI 1.09-1.15).

Conclusions: Fluctuation in bodyweight was independently associated with higher risk of AF development. The association of high bodyweight variability with AF development was especially stronger in subjects with lower bodyweight, and in subjects with overall weight loss (=−5%)
Abstract: P1871

Bodyweight variability and atrial fibrillation development

Authors: H Lee1, EK Choi1, KD Han2, S Oh1, 1... AF development was especially stronger in subjects with lower
bodyweight, and in subjects with overall weight loss (=−5%)