Background: Unhealthy lifestyle may contribute to poor clinical outcomes in patients with atrial fibrillation (AF).

Objective: The study aimed to investigate the impact of an unhealthy lifestyle on 'low-risk' AF patients (CHA2DS2-VASc ≤1 for men, 2 for women).

Methods: A total of 52,451 low-risk AF patients were investigated from the National Health Insurance Service database between 2009 and 2016. According to unhealthy lifestyle scores, the study population was categorized into 4 groups (Figure 1). Based on a survey on the health habits of each patient, we calculated an unhealthy lifestyle score (ULS) by adding 1 point each if a participant had a sedentary lifestyle, alcohol consumption, or smoking. Multivariable Cox’s hazard regression analysis was used to evaluate the risks of study outcomes. The primary outcome was the composite of major cardiovascular adverse events (MACE, including myocardial infarction, ischemic stroke, and heart failure) and all-cause death.

Results: There was a total of 12,792 (24.4%), 24,785 (47.3%), 11,602 (22.1%), and 3,272 (6.2%) low-risk AF patients with 0 to 3 points of ULS, respectively. The population's mean age was 51.6 ± 10.4 years, and male proportion was 61.6%. Compared to the healthiest group (ULS 0), the unhealthiest group (ULS 3) was younger (48.2 vs. 53.0 years, p < 0.0001), had a higher proportion of males (93.1% vs. 43.6%, p < 0.0001), was more obese (38.6% vs. 34.1%, p < 0.0001). The median follow-up was 4.1 (2.1-6.1) years. Compared to the healthiest group, the other groups were associated with significantly higher risks of the primary outcome with a gradually increasing trend according to ULS (adjusted HR [95% CI] = 1.17 [1.05-1.31], 1.37 [1.21-1.56], 1.82 [1.53-2.17], respectively) (Figure 2).

Conclusion: Unhealthy lifestyle may lead to poor clinical outcomes in low-risk AF patients. A healthy lifestyle would be important to prevent adverse cardiovascular events in low-risk AF patients.