HORMONE REPLACEMENT THERAPY AND AF IN POSTMENOPAUSAL WOMEN: AN ANALYSIS OF THE NATIONAL INPATIENT SAMPLE (NIS) DATABASE

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Background: Hormone replacement therapy (HRT) use has independently been related to thromboembolism, but the association between HRT and AF in postmenopausal women is not fully understood.

Objective: We hypothesized that HRT may play a protective role in AF risk, which would align with data from current studies. We also sought to assess the impact of HRT on stroke outcomes in postmenopausal women with AF.

Methods: Using the National Inpatient Sample (NIS) database, postmenopausal hospitalized females of age ≥60 years old from 2016-2018 were identified. Patients were further delineated by HRT use and AF presence. Prevalence of AF in those on HRT versus not on HRT was investigated using multivariate analysis to adjust for age, race, sex and comorbidities. Chi-square analysis was used to identify any difference in stroke in women with known AF between the HRT and non-HRT groups.

Results: A total of 5,007,601 hospitalized, postmenopausal female patients ≥60 years old were identified. Of those, 894,933 had AF and 5727 were on HRT. The prevalence of AF was found to be lower in HRT (n=866, 15.5%) compared to those not on HRT (n=894047, 17.9%) (p<0.001, OR 0.84, [0.78-0.90]). The inverse association between HRT and AF remained significant after adjusting for age, race, sex and comorbidities in a multivariate analysis (OR 0.80 [0.68-0.95], p<0.007*). In AF patients, there was no difference in prevalence of stroke between HRT and no HRT (n=44, 5% vs n=39, 13.7%, 4.4%).

Conclusion: The role of sex hormones in AF has not been studied using NIS data. AF risk appears lower in patients with HRT after adjusting for age, race and comorbidities index, which compliments results of current clinical studies. This suggests that female sex hormones may play a protective role against an arrhythmogenic milieu in the atria that perpetuate AF. No difference was found in risk of stroke/TIA or composite end point in females age >60 and AF with or without HRT.

SEVERITY OF METABOLIC SYNDROME AND INCIDENT END-STAGE RENAL DISEASE AMONG PATIENTS WITH AF

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Background: There is less evidence regarding the association of metabolic syndrome (MS) and incident end-stage renal disease (ESRD) among patients with atrial fibrillation (AF).

Objective: The study aimed to investigate the impact of the severity of metabolic syndrome on incident ESRD among patients with AF using 5 diagnostic criteria of MS.

Methods: A total of 270,112 AF patients without a history of ESRD were investigated from the National Health Insurance Service database between 2009 and 2016. The study population was categorized into 6 groups according to the metabolic scores (Figure 1). For each patient, the metabolic score was calculated by adding 1 point each for any criterion that meets the diagnostic criteria for metabolic syndrome (0-5 points available). We regarded a higher metabolic score corresponded to a severer metabolic syndrome. Multivariable Cox’s analysis was used to estimate the risks of ESRD.

Results: There was a total of 23,110 (8.6%), 44,042 (16.3%), 53,732 (19.9%), 61,717 (22.8%), 58,383 (21.6%), and 58,383 (21.6%) patients with 0 to 5 metabolic scores, respectively. The population’s mean age was 61.8 years and the male proportion was 56.3%. Compared to the no MS group (score 0), the severest group (score 5) was older (mean 65.9 versus 50.0 years), had a higher proportion of males (54.5% versus 46.6%), and had a higher CHA2DS2-VASc score (mean 3.8 versus 1.0). The median follow-up was 4.5 years. Compared to the no MS group, the other groups were associated with gradually increasing incidences of ESRD according to metabolic scores (log-rank p<0.0001) (Figure 2). In general, a higher metabolic score led to a more increased risk of ESRD (adjusted HR [95% CI] = 1.95 [1.03-3.72], 2.14 [1.13-4.03], 2.41 [1.27-4.55], 2.05 [1.06-3.94], 2.58 [1.32-5.07], according to each metabolic score) (Figure 2).

Conclusion: In general, each component of metabolic syndrome showed an additive impact on the risk of ESRD among patients with AF.
PO-640-08

CLINICAL IMPACT OF UNHEALTHY LIFESTYLE IN PATIENTS WITH ATRIAL FIBRILLATION HAVING LOW-RISK FOR STROKE

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**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.