Impact of cardiovascular health score on year-to-year blood pressure variability

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OBJECTIVES Based on seven cardiovascular health factors and behaviors, the American Heart Association proposed the Cardiovascular Health Score (CHS). It has been widely used to estimate cardiovascular health status of individuals. The aim of this study was to investigate the impact of different CHS on year-to-year blood pressure variability (BPV).

METHODS Based on CHS, we defined three groups: first group, 0–4 points; second group, 5–9 points; and third group, 10–14 points. The impact of CHS on year-to-year blood pressure variability were analyzed.

RESULTS A total of 41,710 individuals met the inclusion criteria (no history of stroke, transient ischemic attack, myocardial infarction, malignant tumor, or atrial fibrillation) and had complete blood pressure data. The standard deviation of systolic blood pressure (SSD) was >10.87 mmHg in 41.90% of the total population, and in 55.90%, 45.00%, and 36.90% of the first, second, and third groups (P < 0.05). The coefficient of the variation of systolic blood pressure (SCV) was ≥32% in 44.40% of the total population and in 50.70%, 44.30%, and 44.30% of the first, second, and third groups respectively (P < 0.05). Multivariate logistic regression analysis revealed that higher CHS was a protective factor against increasing year-to-year BPV, which persisted after adjusted for baseline systolic blood pressure and other risk factors.

CONCLUSIONS In summary, CHS was negatively related to year-to-year BPV, which further supported that healthier lifestyle might contribute to better blood pressure management.

Hypertensive Left Ventricular Hypertrophy is a Major Cause of Acquired Long QT Syndrome

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OBJECTIVES Essential hypertension (HTN) is the most common cardiovascular disease that can lead to the left ventricular hypertrophy (LVH). The end stage LVH is a major cause of heart failure in elderly patients. QT prolongation is an independent risk factor for sudden cardiac death and all-cause mortality. In this study we aimed to investigate the prevalence of acquired long QT syndrome and gender effects in patients with HTN-LVH.

METHODS A pilot study of retrospective medical records review was conducted for inpatient patients diagnosed with HTN-LVH. ECGs were retrieved from an institutional-wide MUSE system. ECG parameters including heart rate, rhythm, QRS duration/amplitude and QT interval (QTc by Bazett’s) were evaluated. All study subjects met the ECG LVH criteria defined by Sokolow-Lyon Voltage, Cornell Voltage or Cornell Voltage Products. Patients with atrial fibrillation/flutter, complete LBBB, RBBB or ventricular pacing that affect accurate QT measurement were excluded from analysis.

RESULTS In a total of 240 subjects (age 68±13 years, 61% M) met the inclusion criteria, 60% of HTN-LVH patients presented with a prolonged QT interval including markedly prolonged QTc (>495 ms) seen in 15% (37/240), moderately prolonged QTc (465-494 ms) in 20%, and borderline prolonged QTc (445-464 ms) in 25%, respectively. In general male have bigger ventricular mass showing as higher QRS amplitude and wider QRS. Nevertheless, female have longer QT interval. In HTN-LVH cohort, however, 58% of those showing a prolonged QT interval were male though female remained to show a marked prolong QTc (529±138 ms vs. 414±24 ms, P < 0.0001). After adjusted with covariates, the hazard ratio for the ALQTS group was: 10.627 (95% CI 1.03-109.86, P < 0.05). 2) More patients in the ALQTS group had a baseline condition of hypertension (50% vs. 44%, P < 0.0001), type-2 diabetes mellitus (25% vs. 0, P < 0.0001), acute coronary syndrome (9% vs. 3%, P < 0.0001), syncope and life-threatening ventricular arrhythmia (6% vs. 0.6%, P < 0.0001).

CONCLUSIONS Among hospitalized patients, the all-cause mortality in patients with a markedly prolonged QT is significantly higher than those without QT prolongation. The prevalence of cardiovascular disease and type-2 diabetes mellitus is higher in ALQTS. Other than the known risk factors, hypertension is a common contributing risk factor to ALQTS.