Heart Failure and Cardiomyopathies

ELECTRONIC NICOTINE PRODUCT USE IS ASSOCIATED WITH INCIDENT HEART FAILURE - THE ALL OF US RESEARCH PROGRAM

Poster Contributions
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Background: There is a growing body of evidence linking electronic nicotine product use with an increased risk of cardiovascular diseases and adverse outcomes. The association between electronic nicotine products and new-onset heart failure (HF) is less established although these products have been linked to conditions along the causal path of HF. We sought to evaluate the association between electronic nicotine product use and incident HF.

Methods: Using the NIH-sponsored All of Us Research Program, we performed a prospective analysis of participants' survey data and Electronic Health records (EHR). We excluded patients with a baseline EHR diagnosis of HF. Data on electronic nicotine product use was obtained from participants using the Population Assessment of Tobacco and Health-styled questions. We determined the association between electronic nicotine products use and incident HF using Cox proportional hazards models adjusted for demographic and socioeconomic factors, diabetes mellitus, hypertension, hyperlipidemia, BMI and concomitant substance use (cigarette, cigar, hookah, smokeless cigarette and alcohol use).

Results: From a final population of 175,667, there were 3242 events within a median follow-up time of 45 months. Compared to never users, ever users of electronic nicotine products had an increased risk of incident HF (aHR - 1.19, 95% CI 1.06 -1.35) in our fully adjusted model. Subgroup analyses showed an increased risk of HFpEF (aHR - 1.21, 95% CI 1.01 -1.47) and not HFrEF (aHR - 1.11, 95% CI 0.90 - 1.37). Among ever users, there was no association between frequency of current use and HF. There was no evidence of effect modification by age, sex at birth nor cigarette smoking status. In sensitivity analysis, we excluded participants with a history of cigarette, cigar, hookah and smokeless cigarettes (aHR - 1.04, 95% CI 0.57 - 1.89).

Conclusion: Our findings suggest that a history of electronic cigarette use is independently associated with an increased risk of incident HF and HFpEF. More research is needed corroborate these findings, to enable clinicians provide the public with high quality information on the health implications of electronic nicotine product use and to guide policies.