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Meeting Abstract: Abstracts From the American Heart Association's 2024 Scientific Sessions and the American Heart Association's 2024 Resuscitation Science Symposium

Abstract 4121568: The Influence of Cardiovascular Health on Atherosclerotic Cardiovascular Disease Progression and Life Expectancy Among Individuals with Type 2 Diabetes

Yanxia Wei, PhD, Xianbao Liu, MD, PhD, and Jianan Wang, MD, PhD | AUTHOR INFO & AFFILIATIONS

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Abstract

Objective: This study aims to evaluate whether cardiovascular health (CVH) plays a similar role in the transition from a healthy state to atherosclerotic cardiovascular disease (ASCVD) and subsequent mortality rates in diabetic patients compared to those without diabetes. It also evaluates the effectiveness of CVH in reducing diabetes-related ASCVD risks and enhancing ASCVD-free life expectancy.

Research design and methods: This cohort study included 176,669 adults from the UK Biobank, among whom 10,109 (22.3%) were diagnosed with type 2 diabetes mellitus (T2DM). CVH was assessed using the Life's Essential 8 score, encompassing diet, physical activity, smoking, sleep, BMI, blood lipids, blood glucose, and blood pressure. CVH scores were categorized into low, moderate, and high levels based on their distribution among diabetic patients. The main outcomes were the transitions from no ASCVD to the onset of ASCVD and then to mortality, as well as the ASCVD-free life expectancy.

Results: In patients with T2DM, high CVH levels were associated with lower ASCVD risk (HR: 0.55, 95% CI: 0.45-0.68 for women; HR: 0.57, 95% CI: 0.50-0.65 for men) and reduced mortality in those with ASCVD (HR: 0.62, 95% CI: 0.39-0.98 for women; HR: 0.62, 95% CI: 0.48-0.79 for men), compared to the low CVH group. No significant difference in CVH's effect on ASCVD and mortality was observed between diabetic and non-diabetic groups. When compared with non-diabetic individuals, no excess risk was observed in incident ASCVD and post-ASCVD mortality among diabetic patients with high CVH. At the age of 40, women with low CVH were expected to live 38.5 years (38.0-39.1) free from ASCVD, which increased to 42.9 years (42.4-43.5) for those with high CVH, while non-diabetic women were predicted to have an ASCVD-free life expectancy of 44.1 years (43.5-44.6). For men at the age of 40, those with low CVH had an ASCVD-free life expectancy of 32.0 years (31.3-32.6), which rose to 37.9 years (37.4-38.6) with high CVH. Non-diabetic men were expected to live 38.3 years (37.7-39.0) free from ASCVD. Notably, life expectancy with ASCVD did not increase with higher CVH levels in both genders.

Conclusions: Our findings suggest that the American Heart Association's recommendations for promoting CVH, initially designed for the general population, are also beneficial for individuals with

T2DM. Adopting these guidelines can help mitigate ASCVD progression and enhance life expectancy in diabetic patients.

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