inducer of apoptosis (TWEAK) is thought to be involved in the pathogenesis of CVD. We previously showed that administration of a standard-dose influenza vaccine reduced circulating TWEAK levels. This study aimed to test the hypothesis that a high-dose vaccine would have greater impact on TWEAK levels than the standard-dose. Two groups of participants matched on age and sex were included in the study. One group (n=25) received standard-dose vaccine during 2008-2009 season, the other group (n=25) received high-dose vaccine during 2014-2015 season. Soluble TWEAK (sTWEAK) levels were assessed using ELISA in serum samples collected immediately before vaccination and during the 4th week after vaccination. Vaccine-induced strain specific antibody titers were measured by hemagglutination inhibition assay. The participants had a mean age 86 years and 68% were women. Our preliminary results thus far demonstrated no statistically significant change in sTWEAK levels after vaccination in either group (Wilcoxon matched-pairs signed rank test: standard-dose group: median change [interquartile range]=11.2 [-92.2–197.1] pg/mL, p=0.72; high-dose group: -24.8 [-58.9–87.3] pg/mL, p=0.70). Pre-vaccination sTWEAK levels tended to be negatively associated with age (unadjusted linear regression of log2(x) transformed TWEAK levels on age: estimate [±SE]=-4.6% [±2.7%] change in TWEAK level per year, p=0.08). We continue to evaluate more pre- and post-vaccination samples. We have also begun exploring TWEAK expression by circulating immune cells (T and B lymphocytes and monocytes) and potential impact of influenza immunization in older adults.

THE ASSOCIATION BETWEEN VITAMIN K STATUS AND CARDIOVASCULAR DISEASE IN OLDER ADULTS

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A role for vitamin K in cardiovascular disease (CVD) has been proposed because vitamin K-dependent proteins are present in vascular tissue. We evaluated the association between vitamin K status and incident CVD and mortality in older adults from the Health, Aging, and Body Composition Study (Health ABC), and conducted a replication analysis using the Multi-ethnic Study of Atherosclerosis (MESA). In both cohorts circulating phylloquinone (vitamin K1), measured from baseline fasting blood samples, was categorized as ≤0.5nM, >0.5-≤1.0nM, and >1.0nM. Multivariable Cox proportional hazards models assessed the association between circulating phylloquinone and risk of a composite of CVD and mortality. In Health ABC (n=1246, mean age 74 years, 57% female, 58% Caucasian), over a median 11.5 follow-up years, participants with ≤0.5 nM plasma phylloquinone (n=351) had a 27% higher risk for CVD and mortality compared to those with >1.0nM (n=457) [adjusted hazard ratio (95% confidence interval) (HR(95%CI)): 1.27(1.06-1.52)]. However, the risk for CVD and mortality did not differ between those with >0.5-≤1.0nM (n=438) and with >1.0nM plasma phylloquinone [HR(95%CI): 1.03(0.87-1.52)]. Serum phylloquinone was similarly associated with CVD and mortality in MESA, over a median 12.1 follow-up years (n=764, mean age 62 years, 54% female, 35% Caucasian) [HR(95%CI), compared to those with >1.0nM (n=368): <0.5nM (n=253): 1.54(1.03-2.32); 0.5-≤1.0nM (n=153): 1.23(0.76, 1.98)]. Lower circulating phylloquinone was associated with a higher CVD and mortality risk in two independent cohorts. Additional studies are needed to corroborate our findings and clarify if certain segments of the population can derive cardiovascular benefit from improving vitamin K status.

CARDIOVASCULAR HEALTH AND SUCCESSFUL AGING: THE MULTI-ETHNIC STUDY OF ATHEROSCLEROSIS

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Individual risk factors have been shown to be associated with successful aging. However, the combined effect of behaviors and biomarkers on successful aging remains unclear. By using the Multi-Ethnic Study of Atherosclerosis (MESA) dataset, this study was to examine the association of AHA's Cardiovascular Health (CVH) with successful aging. A total of 1,597 who were followed from baseline (2000-2002) at age 49-64 through exam 6 (2016-2018) at age 65-80 were included. CVH, including smoking, body mass index (BMI), physical activity, diet, blood pressure, cholesterol, and blood glucose, was measured at baseline. The CVH score, ranging from 0-14, was divided into ideal (11–14), intermediate (9–10), and poor (0–8) groups. Normal or successful aging, defined as avoiding major disease (including cancer, cardiovascular, or severe lung or kidney diseases), no disability, high cognitive function, high physical functioning, and engagement with life, was assessed at exam 6. We compared the cumulative incidence of successful aging among three groups. Modified Poisson regression model was employed to estimate relative risk (RR) adjusting for age, gender, race, education, income, marital status, and alcohol consumption. Among study participants at baseline, 36% were in ideal, 39% in Intermediate, and 25% in poor CVH. By exam 6, only 18% met the criteria for successful aging. Compared with the poor group, the adjusted RRs (95 % CI) of successful aging for the intermediate and ideal groups were 1.78 (1.23-2.56) and 2.56 (1.79-3.67). Our data suggest that CVH in midlife is associated with successful aging in later life.