

Dr. Jonathan Shaffer

BACKGROUND: Of the novel coronary heart disease (CHD) risk markers recently explored, depression has been found in a number of prospective studies to predict new CHD events. Low levels of vitamin D similarly have shown promise as a risk marker for CHD incidence. Interestingly, depression and low vitamin D (25-hydroxyvitamin D, 25(OH)D) levels have high co-morbidity. However, no study to our knowledge has examined depressive symptoms and 25(OH)D levels simultaneously in predicting CHD incidence.

SPECIFIC AIMS: To determine if decreased levels of 25(OH)D explain the increased risk of 15-year incident CHD associated with baseline depressive symptoms, or if it more precisely identifies those with depressive symptoms at CHD risk.

HYPOTHESES: (1) The 15-year incident CHD risk associated with depressive symptoms at baseline will be substantially decreased after controlling for 25(OH)D levels and further covariate adjustment; (2) The 15-year incident CHD risk associated with baseline depression symptoms will be modified by 25(OH)D levels. **METHODS:** A randomly-sampled, population-based prospective study (the 1995 Nova Scotia Health Survey) collected baseline data 15 years ago, in which participants over the age of 18 years and with documented absence of CHD were randomly selected from the national census bureau, which includes all citizens. All standard CHD risk factors (age, sex, components of the Framingham Risk Score, body mass index) and covariates related to 25(OH)D levels (estimated sunlight hours at baseline blood draw, region of assessment) were obtained at baseline, and will be included in primary analyses. Exploratory covariates (pack-years of smoking, physical activity, medical comorbidities, inflammatory biomarkers, cardiovascular medications, and antidepressants) obtained at baseline will also be included in secondary analyses. Depressive symptoms as assessed by the Center for Epidemiological Studies Depression scale were also obtained at baseline. We propose to assay stored plasma samples for 25(OH)D from 1,794 participants, and then to statistically model the associations among depression, 25(OH)D and CHD incidence with newly collected 15-year follow-up data.

SIGNIFICANCE: Discovering if vitamin D is either a confounder or an effect modifier of the association between depression and incident CHD would provide a feasible, novel, public health treatment target for those depressed who are at risk for CHD.