

Dietary patterns and health outcomes among African American maintenance hemodialysis patients

ABSTRACT

The association between dietary patterns and health outcomes, such as quality of life (QOL), in maintenance hemodialysis (MHD) patients with certain racial backgrounds has not been studied in detail. QOL is a powerful outcome measure in which dietary patterns could be a modifying factor. This study is a secondary analysis examining the association between dietary patterns and health outcomes in 101 African American (AA) maintenance hemodialysis (MHD) patients participating in the Palm Tocotrienols in Chronic Hemodialysis (PATCH) study. Quality of life (QOL) was assessed using the Kidney Disease Quality of Life 36-item survey (KDQOL-36™). Blood samples were analyzed for lipids, lipoprotein subfractions, and inflammatory markers. Food intake was measured using six non-consecutive 24-h dietary recalls over 15 months. Implausible energy intake reports were screened out by comparing reported energy intake (rEI) with predicted total energy expenditure (pTEE). Cluster analysis, using the k-means algorithm, identified two distinct dietary patterns in the study population: a high “sugar sweetened beverage” pattern (hiSSB) and a low “sugar sweetened beverage pattern” (loSSB). In the hiSSB group, consumption of SSB accounted for ~28% of energy intake, while SSB represented only 9% of energy intake in the loSSB group. The hiSSB group was characterized by a higher intake of total calories, sugar and percentage of kilocalories from carbohydrates, whereas the percentage of kilocalories from protein and fat was lower. While additional micronutrient intakes differed between groups (vitamin C, zinc, chromium), these were significantly lower than recommended values in the entire cohort. Patients in the hiSSB group presented with lower high-density lipoprotein cholesterol (HDL-C), lower large HDL particles and smaller low density lipoprotein (LDL) particle diameters. Antidepressant usage was significantly higher in the hiSSB group. Patients in the hiSSB group scored lower across all five KDQOL domains and scored significantly lower in the mental composite domain. MHD patients following a hiSSB dietary pattern had smaller dense LDL particles, lower HDL-C, and a lower QOL. Suboptimal intakes of fruits, vegetables, and grains as well as key micronutrients were evident in both patterns.

Keyword: Hemodialysis; Maintenance hemodialysis; Dietary patterns; Cluster analysis; Quality of life; Lipoproteins; Inflammation