Abstract

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Vitamin and carotenoid status in older women: associations with the frailty syndrome.

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OBJECTIVE: We investigated the relationship of micronutrient deficiencies with the frailty syndrome in older women living in the community.

METHODS: Frailty status and serum micronutrients were assessed in a cross-sectional study of 754 women, 70-80 years old, from the Women's Health and Aging Studies I and II.

RESULTS: Among nonfrail, prefrail, and frail women, respectively, geometric mean serum concentrations were 1.842, 1.593, and 1.376 micromol/L for total carotenoids (p <.001); 2.66, 2.51, and 2.43 micromol/L for retinol (p =.04); 50.9, 47.4, and 43.8 nmol/L for 25-hydroxyvitamin D (p =.019); 43.0, 35.8, and 30.9 nmol/L for vitamin B(6) (p =.002); and 10.2, 9.3, and 8.7 ng/mL for folate (p =.03). Frail women were more likely to have at least two or more micronutrient deficiencies (p =.05). The age-adjusted odds ratios of being frail were significantly higher for those participants whose micronutrient concentrations were in the lowest quartile compared to the top three quartiles for total carotenoids, alpha-tocopherol, 25-hydroxyvitamin D, and vitamin B(6). The association between nutrients and frailty was strongest for beta-carotene, lutein/zeaxanthin, and total carotenoids (odds ratio ranging from 1.82 to 2.45, p =.05), after adjusting for age, sociodemographic status, smoking status, and body mass index.

CONCLUSION: Frail women are more likely to have relatively low serum carotenoid and micronutrient concentrations and are more likely to have multiple micronutrient deficiencies. Future longitudinal studies are needed to examine the relationships between micronutrient concentrations and frailty in older women.

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