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Micronutrient supplements reduce risk of HIV disease progression and illness

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Long-term (24-month) supplementation with multivitamins plus selenium for human immunodeficiency virus (HIV)-infected patients in Botswana in the early stages of disease who had not received antiretroviral therapy delayed time to HIV disease progression, was safe and reduced the risk of immune decline and illness, according to a study appearing in the November 27 issue of *JAMA*.

"Micronutrient deficiencies, known to influence immune function, are prevalent even before the development of symptoms of HIV disease and are associated with accelerated HIV disease progression. Micronutrient supplementation has improved markers of HIV disease progression (CD4 cell count, HIV viral load) and mortality in clinical trials; however, these studies were conducted either in the late stages of HIV disease or in pregnant women," according to background information in the article.

Marianna K. Baum, Ph.D., of Florida International University, Miami, and colleagues examined whether specific supplemental micronutrients enhance the immune system and slow HIV disease progression during the early stages of the disease in antiretroviral therapy (ART)-naive adults. They randomized 878 HIV patients to supplementation with daily multivitamins (B vitamins and vitamins C and E), selenium alone, multivitamins with selenium, or placebo for 24 months. The vitamins (vitamins B, C and E, and the trace element selenium) are nutrients essential for maintaining a responsive immune system. Selenium may also have an important role in preventing HIV replication.

Participants receiving the combined supplement of multivitamins plus selenium had a lower risk compared to placebo of reaching a CD4 cell count 250/μL or less (a measure that is consistent with the standard of care in Botswana for initiation of ART at the time of the study). This supplement also reduced the risk of a combination of measures of disease progression (CD4 cell count ≤ 250/μL, AIDS-defining conditions, or AIDS-related death, whichever occurred earlier).

"This evidence supports the use of specific micronutrient supplementation as an effective intervention in HIV-infected adults in early stages of HIV disease, significantly reducing the risk for disease progression in asymptomatic, ART-naive, HIV-infected adults. This reduced risk may translate into delay in the time when the HIV-infected patients experience immune dysfunction and into broader access to HIV treatment in developing countries," the authors conclude.

The researchers add that their "findings are generalizable to other HIV subtype C-infected cohorts in resource-limited settings where the provision of ART is being scaled up, rolled out, or not yet available to all in conditions similar to those in Botswana at the time of this study."

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