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## Decrease in serum zinc levels may cause inflammation among HIV positive individuals

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In a new study, University of Massachusetts Amherst researchers Krishna Poudel and colleagues report that zinc deficiency may contribute to chronic inflammation among HIV-positive individuals. Theirs is believed to be the first investigation to explore the association between serum zinc levels and inflammation among people with human immunodeficiency virus (HIV) infection, while taking their anti-retroviral therapy (ART) into account.

As the authors note, zinc functions as an anti-inflammatory agent, and zinc deficiency is a common micronutrient abnormality seen in people with HIV. But more work is needed to determine whether zinc supplements might help to reduce inflammation and further, to identify a subpopulation of patients who might benefit from this, they add.

Poudel, an associate professor of community health education at UMass Amherst's School of Public Health and Health Sciences, with his colleagues epidemiologist Elizabeth Bertone-Johnson and Kalpana Poudel-Tandukar of the UMass Amherst College of Nursing, report in the current issue of Biological Trace Element Research that they observed a significant relationship between serum zinc concentration and serum C-reactive protein (CRP) concentration in HIV-positive individuals: higher zinc concentrations were associated with lower CRP levels.

CRP is a biomarker of inflammation that has been associated with several parameters of HIV disease progression and the focus of extensive epidemiologic investigation because it is also an independent survival predictor, Poudel says.

"The fact that several studies have suggested that zinc might be something important for us to be aware of led us to analyze this micronutrient in HIV-positive patients," Poudel says. "We hypothesized that lower concentrations of serum zinc would be associated with increased CRP concentrations in HIV-positive individuals, taking into account of ART."

For this work and several other studies, Poudel established a cohort of about 322 people living with HIV in the Kathmandu, Lalitpur and Bhaktapur districts in Nepal's Kathmandu Valley, the Positive Living with HIV (POLH) Study. The UMass Amherst team conducted a cross-sectional survey among 311 HIV-positive POLH participants, 177 men and 134 women, 18-60 years old. They measured serum and zinc CRP concentrations by standard methods and used a questionnaire, in-person interviews, blood samples and Indian food tables to estimate dietary zinc intake and CRP levels.

Using linear regression statistical analyses and adjusting for demographic, lifestyle and HIV-clinical factors, they found average CRP concentration significantly decreased as serum zinc concentrations increased in men and women and in all age groups.

Poudel and colleagues recommend more research, in particular that more powerful prospective design studies be conducted rather than cross-sectional, which will allow them to rule out the possibility that inflammation may influence zinc levels rather than the other way around.

But overall, the authors say this finding, if confirmed, may lead to intervention strategies to reduce inflammation and improve health and quality of life for those HIV-positive people, including those who take ART to control the disease.

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Source:

University of Massachusetts at Amherst

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