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Urate in blood and spinal fluid may predict slower decline in patients with Parkinson's disease

Higher concentration of urate (an antioxidant) in the blood and spinal fluid of patients with early Parkinson's disease is associated with slower rates of clinical decline, according to a report posted online today that will appear in the December print issue of *Archives of Neurology,* one of the JAMA/Archives journals.

Urate is an antioxidant that occurs naturally in the blood as an end product of normal metabolism. Antioxidants counteract oxygen-related cell damage, thought to contribute to the neurodegenerative process in Parkinson's disease, according to background information in the article. Therefore, urate and similar substances may provide a defense against the development and progression of Parkinson's disease. Previous studies have demonstrated that healthy individuals with higher blood urate concentrations have a lower risk of developing the condition.

Alberto Ascherio, M.D., Dr.P.H., of Harvard School of Public Health and Harvard Medical School, Boston, and colleagues studied 800 individuals with early Parkinson's disease enrolled in a clinical trial of two medications for the condition. At the beginning of the study, between 1987 and 1988, urate levels were measured in the blood of 774 participants. Cerebrospinal fluid also was collected from 713 of them and then after twenty years of freezer storage was analyzed for urate.

After two years of follow-up, 369 (48 percent) of 774 patients with blood urate measurements became disabled enough to begin therapy with levodopa—a medication used to treat symptoms of Parkinson's disease. The one-fifth of patients with the highest levels of blood urate (more than 6.2 milligrams per deciliter) had a 36 percent reduced risk of disease progression to this point when compared with the one-fifth who had the lowest levels (3.9 milligrams per deciliter or less).

Among the 713 participants with cerebrospinal fluid urate levels, 342 (48 percent) progressed to a level of disability requiring levodopa therapy. Concentration of urate in the cerebrospinal fluid also was inversely related to the likelihood of disease progression.

"Taken together, these data establish urate as the first molecular predictor of clinical progression in Parkinson's disease and provide a rationale for investigating the possibility that a therapeutic increase of urate in patients with Parkinson's disease might act favorably to slow the disease course," the authors write. Urate levels can be elevated through diet, by increasing intake of fructose (sugars found in fruits) or purines (found in many meats, foods with yeast and alcoholic beverages). Levels could also be increased pharmacologically with inosine, a precursor to urate, which is being investigated as a therapy for multiple sclerosis as well as in a new clinical trial for Parkinson's disease.

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