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Pieces coming together in Parkinson's, cholesterol puzzle

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In 2006, University of North Carolina at Chapel Hill researchers published a study that found people with low levels of LDL cholesterol are more likely to have Parkinson's disease than people with high LDL levels.

But that study could not answer the question of whether low LDL (low-density lipoprotein) levels were present in study participants before they were diagnosed with Parkinson's, or if they developed low LDL levels after being diagnosed.

Now a follow-up study led by UNC researchers in collaboration with colleagues in Virginia, Hawaii and Japan has found that low LDL levels were present in a group of men of Japanese ancestry long before these men were diagnosed with Parkinson's.

"This finding gives us one more piece in the puzzle about the role of cholesterol in Parkinson's disease," said Dr. Xuemei Huang, the study's principal investigator. Huang is also medical director of the Movement Disorder Clinic at UNC Hospitals and an assistant professor of neurology in the UNC School of Medicine.

"What makes these results especially useful is the fact that most of the men in this study were not taking cholesterol-lowering drugs such as statins," Huang said. "This suggests that the association between low LDL levels and Parkinson's exists independently from statin use, which helps answer another important question raised by our earlier study."

The new study was published online this week by the journal Movement Disorders. Huang is the lead author. Her co-authors include Drs. G. Webster Ross and Helen Petrovitch, who are both with the Pacific Health Research Institute, the Veterans Affairs Pacific Islands Health Care System and the University of Hawaii; Dr. Robert D. Abbott of the University of Virginia and Shiga University in Japan; and Dr. Richard B. Mailman, a professor of psychiatry and pharmacology at the UNC School of Medicine.

Low levels of LDL cholesterol are clearly associated with good cardiovascular health. Huang's research adds to a growing literature indicating that people with low LDL may be at greater risk for developing Parkinson's.

"Our study again shows an association between low cholesterol and the risk of Parkinson's disease, but we have not shown cause and effect," Huang said. "People taking statins for valid medical reasons should not stop simply to avoid Parkinson's."

For this prospective study, fasting lipids were measured from 1991 to 1993 in a group of 3,233 men of Japanese ancestry who took part in a long-running study called the Honolulu-Asia Aging Study. These data were collected before statin therapy for lowering cholesterol was widely available. When followed for about ten years, the incidence of Parkinson's disease increased with decreasing levels of LDL cholesterol.

After adjusting their statistical analysis for age, smoking, coffee intake and other factors, the researchers calculated that the relative odds of Parkinson's for men with lower LDL levels (85 milligrams per deciliter) was about twice that of those with higher LDL levels (135 milligrams per deciliter). They concluded that this study supports the hypothesis that low LDL levels are associated with an increased future risk of Parkinson's.

Huang said more research is needed to confirm these findings, with logical next steps including conducting studies with larger sample sizes and that include women and African-Americans.

Source: University of North Carolina at Chapel Hill