Allopurinol may cut risk for neurodegenerative diseases

May 19 2023, by Elana Gotkine

Xanthine dehydrogenase/oxidase blockers may reduce the risk for

neurodegenerative diseases, according to a study published online May 17 in *PLOS ONE*.

Yizhe Song, from the Washington University School of Medicine in St. Louis, and colleagues conducted a population-based, case-control study of U.S. Medicare beneficiaries in 2009 to identify prescription medications associated with a lower risk for three neurodegenerative diseases: Parkinson disease, Alzheimer disease, and amyotrophic lateral sclerosis. The analysis included 42,885 patients with neurodegenerative disease and 334,387 randomly selected controls. All filled medications were categorized according to their biological targets and mechanisms of action of those targets using medication data from 2006 to 2007. The odds ratios were estimated for 141 target-action pairs and each neurodegenerative disease. For target-action pairs inversely associated with diseases, replication was attempted in a cohort, including an active comparator group.

The researchers found that the most consistent inverse association across all three neurodegenerative diseases was for xanthine dehydrogenase/oxidase blockers, tied to the gout medication allopurinol. In multinomial regression, allopurinol was associated with a 13 to 34 percent lower risk for each neurodegenerative disease group and a mean reduction of 23 percent overall compared with those not using allopurinol. In the replication cohort, there was a 23 percent reduction for neurodegenerative diseases observed in the fifth year of follow-up comparing allopurinol users versus nonusers; with an active comparator group, more marked associations were seen.

"The medication associations we studied relate to disease risk," a co-author said in a statement. "Further research will be necessary to examine whether this mechanism slows progression of these diseases."

More information: Yizhe Song et al, Biologic targets of prescription

medications and risk of neurodegenerative disease in United States Medicare beneficiaries, *PLOS ONE* (2023). DOI: 10.1371/journal.pone.0285011