Genetically determined vitamin D levels not linked to T1DM

11 March 2021

(HealthDay)—Genetically determined vitamin D levels do not appear to have a large effect on the risk for type 1 diabetes in Europeans, according to research published online Feb. 25 in *PLOS Medicine*.

Despoina Manousaki, M.D., Ph.D., from the University of Montreal, and colleagues used Mendelian randomization (MR) to examine whether genetically reduced vitamin D levels are causally associated with type 1 diabetes. Single nucleotide polymorphisms (SNPs) that are strongly associated with 25-hydroxyvitamin D (25[OH]D) levels in a large vitamin D genome-wide association study on 443,734 Europeans were identified, and their corresponding effect estimates were examined on type 1 diabetes risk from a large meta-analysis of 12 studies.

The researchers identified 69 lead independent common SNPs as genome-wide significant for 25(OH)D; these explained 3.1 percent of the variation in 25(OH)D levels. A one-standard deviation decrease in standardized natural log-transformed 25(OH)D was not associated with an increased risk for type 1 diabetes in MR analyses. Using three pleiotropy robust MR methods and in sensitivity analyses excluding SNPs associated with serum lipid levels, body composition, blood traits, and type 2 diabetes, the results were similar.

"Our results identified no large impact of a genetically determined reduction in 25(OH)D levels on type 1 diabetes risk. This provides critical insight into a complex disease that remains poorly understood," the authors write. "Our findings imply that the observational associations between 25(OH)D and risk of type 1 diabetes might be due to environmental confounders."

One author disclosed financial ties to GlaxoSmithKline and Deerfield Capital.

More information: Abstract/Full Text