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Vitamin D Deficiency Linked to Type 1 Diabetes

A study led by researchers from the University of California, San Diego School of Medicine has found a correlation between vitamin D3 serum levels and subsequent incidence of Type 1 diabetes. The six-year study of blood levels of nearly 2,000 individuals suggests a preventive role for vitamin D3 in this disease. The research appears the December issue of *Diabetologia*, a publication of the European Association for the Study of Diabetes (EASD).

“Previous studies proposed the existence of an association between vitamin D deficiency and risk of and Type 1 diabetes, but this is the first time that the theory has been tested in a way that provides the dose-response relationship,” said Cedric Garland, DrPH, FACE, professor in UCSD’s Department of Family and Preventive Medicine.

This study used samples from millions of blood serum specimens frozen by the Department of Defense Serum Registry for disease surveillance. The researchers thawed and analyzed 1000 samples of serum from healthy people who later developed type 1 diabetes and 1000 healthy controls whose blood was drawn on or near the same date but who did not develop type 1 diabetes. By comparing the serum concentrations of the predominant circulating form of vitamin D – 25-hydroxyvitamin D (25(OH)D) – investigators were able to determine the optimal serum level needed to lower an individual’s risk of developing type 1 diabetes.

Based mainly on results of this study, Garland estimates that the level of 25(OH)D needed to prevent half the cases of type 1 diabetes is 50 ng/ml. A consensus of all available data indicates no known risk associated with this dosage.

“While there are a few conditions that influence vitamin D metabolism, for most people, 4000 IU per day of vitamin D3 will be needed to achieve the effective levels,” Garland suggested. He urges interested patients to ask their health care provider to measure their serum 25(OH)D before increasing vitamin D3 intake.

“This beneficial effect is present at these intakes only for vitamin D3,” cautioned Garland. “Reliance should not be placed on different forms of vitamin D and mega doses should be avoided, as most of the benefits for prevention of disease are for doses less than 10,000

IU/day."

Garland's co-authors from UC San Diego School of Medicine and the Naval Health Research Center include Edward Gorham, PhD; Sharif Mohr, PhD; and Heather Hofflich, DO; Alina Burgi and Kenneth Zeng of the Naval Health Research Center, and Camillo Ricordi MD, of the University of Miami Diabetes Research Institute.

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