

Type 1 diabetes: Vitamin D deficiency occurs in an early stage

February 27 2014

Vitamin D is known as a major regulator of calcium levels and bone metabolism. Furthermore, it also influences the immune system. Previous studies have shown that patients with recently diagnosed type 1 diabetes have significantly lower vitamin D levels.

Scientists from the Institute of Diabetes Research (IDF) and the Helmholtz Zentrum München, a member of the German Center for Diabetes Research (DZD), as well as from the Diabetes Research Group at the Technische Universität München (TUM) examined whether a vitamin D deficiency occurs during an early stage of [type 1 diabetes](#), defined by the presence of multiple diabetes-specific [islet](#) autoantibodies. Furthermore they also determined whether vitamin D deficiency influences the progression to type 1 diabetes in children with multiple islet autoantibodies.

Vitamin D deficiency already exists in prediabetes

Children who had not yet developed clinical type 1 diabetes but who have multiple positive autoantibodies in their blood were found to have lower vitamin D levels than children without diabetes-specific autoantibodies. Interestingly, the differences in vitamin D levels were most prevalent in the summer months. These results were obtained from the BABYDIET, BABYDIAB, TEENDIAB and DIMELLI* diabetes studies. The team of scientists headed by Jennifer Raab, Dr. Christiane Winkler and Professor Anette-Gabriele Ziegler compared the vitamin D

measurements taken from 108 children who were tested positive for islet autoantibodies with 406 children without autoantibodies. Lower vitamin D levels were also found in 244 children who had recently been diagnosed with type 1 diabetes.

Progression of the disease remains unaffected

Prediabetes is defined as the presence of multiple islet autoantibodies. If and when the disease progresses, however, does not seem to be influenced by the vitamin D levels. Within the group of children with positive autoantibodies, a few children quickly developed type 1 diabetes – however this was independent from their vitamin D levels.

Recommendation of vitamin D supplementation at an early stage of type 1 diabetes may be considered

"Vitamin D deficiency precedes the onset of type 1 diabetes. This may be a consequence of an immune response," Professor Ziegler says. "In the case of prediabetic children, we must therefore be mindful of the risk of vitamin D deficiency and consider recommending [vitamin D](#) supplementation at an early stage of type 1 [diabetes](#)."

Provided by Helmholtz Association of German Research Centres

Citation: Type 1 diabetes: Vitamin D deficiency occurs in an early stage (2014, February 27) retrieved 25 April 2024 from

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