Prevalence of vitamin D deficiency in pre-type 1 diabetes and its association with disease progression.

Vitamin D deficiency is common in people with type 1 diabetes, but its role in disease progression is unclear. Our aim was to assess the prevalence of vitamin D deficiency in prediabetes (defined as the presence of multiple islet autoantibodies), and investigate whether or not progression to type 1 diabetes is faster in children with vitamin D deficiency and multiple islet autoantibodies. Levels of 25-hydroxyvitamin D [25(OH)D] were measured in 108 children with multiple islet autoantibodies within 2 years of islet autoantibody seroconversion, in 406 children who remained islet autoantibody-negative and in 244 patients with newly diagnosed type 1 diabetes. Children with multiple islet autoantibodies were prospectively followed for a median of 5.8 years (interquartile range 3.4-8.6 years) to monitor progression to type 1 diabetes. In the cross-sectional analysis, 25(OH)D levels were lower and the prevalence of vitamin D deficiency (<50 nmol/l) was higher in children with prevalent multiple islet autoantibodies than in islet autoantibody-negative children (59.9 ± 3.0 vs 71.9 ± 1.5 nmol/l; p < 0.001; 39.8% vs 28.3%; p = 0.021). The differences in vitamin D levels between the groups were greatest in summer. The cumulative incidence of type 1 diabetes at 10 years after seroconversion was similar between children with vitamin D deficiency and those with sufficient vitamin D levels.
(51.8% [95% CI 29.3, 74.3] vs 55.4% [95% CI 35.5, 72.3], p = 0.8). Vitamin D levels were lower in children with multiple islet autoantibodies and in children with type 1 diabetes than in autoantibody-negative children. However, vitamin D deficiency was not associated with faster progression to type 1 diabetes in children with multiple islet autoantibodies.