Abstract

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1,25-Dihydroxycholecalciferol inhibits the progression of arthritis in murine models of human arthritis.

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OBJECTIVE: 1,25-Dihydroxycholecalciferol [1,25-(OH)2D3] has been shown to inhibit the progression of experimental autoimmune encephalomyelitis (EAE). Here we tested the possibility that 1, 25-dihydroxycholecalciferol might be therapeutic for another autoimmune disease, arthritis.

METHODS: Two different animal models of arthritis were tested, namely, murine Lyme arthritis and collagen-induced arthritis

RESULTS: Infection of mice with Borrelia burgdorferi (the causative agent of human Lyme arthritis) produced acute arthritic lesions including footpad and ankle swelling. Supplementation with 1,25-dihydroxycholecalciferol of an adequate diet fed to mice infected with B. burgdorferi minimized or prevented these symptoms. Mice immunized with type II collagen also developed arthritis. The symptoms of this disease were also prevented by dietary supplementation with 1,25-dihydroxycholecalciferol. 1, 25-Dihydroxycholecalciferol given to mice with early symptoms of collagen-induced arthritis prevented the progression to severe arthritis compared with untreated controls.

CONCLUSIONS:These results suggest that 1,25-dihydroxycholecalciferol and/or its analogs may be a valuable treatment approach to this disease.

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