Abstract

A longitudinal study of serum 25-hydroxyvitamin D and intact parathyroid hormone levels indicate the importance of vitamin D and calcium homeostasis regulation in multiple sclerosis.


Department of Neurology, University of Turku, Kiinamyllynkatu 4-8, PL52, FIN-20521, Turku, Finland.

BACKGROUND: Past sun exposure and vitamin D3 supplementation have been associated with a reduced risk of multiple sclerosis (MS). There are no previous longitudinal studies of vitamin D in MS.

OBJECTIVES: To compare regulation of vitamin D and calcium homeostasis between patients with MS and healthy controls. To study the correlation of parameters of vitamin D metabolism with MS activity.

METHODS: We measured 25-hydroxyvitamin D (25(OH)D), parathyroid hormone (PTH), calcium, phosphate, magnesium, chloride, alkaline phosphatase, albumin and thyroid stimulating hormone in serum every 3 months and at the time of relapse over 1 year in 23 patients with MS and in 23 healthy controls. MRI burden of disease and T2 activity were assessed every 6 months.

RESULTS: Vitamin D deficiency (S-25(OH)D < or = 37 nmol/l) was common, affecting half of the patients and controls at some time in the year. Seasonal variation of 25(OH)D was similar in patients and controls, but 25(OH)D serum levels were lower and intact PTH (iPTH) serum levels were higher during MS relapses than in remission. All 21 relapses during the study occurred at serum iPTH levels > 20 ng/l (2.2 pmol/l), whereas 38% of patients in remission had iPTH levels < or = 20 ng/l. Patients with MS had a relative hypocalcaemia and a blunted PTH response in the winter. There was no correlation between serum 25(OH)D and MRI parameters.

CONCLUSIONS: The endocrine circuitry regulating serum calcium may be altered in MS. There is an inverse relationship between serum vitamin D level and MS clinical activity. The role of vitamin D in MS must be explored further.

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