Massive Brain Calcifications Associated with Vitamin D Deficiency

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Key words: vitamin D deficiency, brain calcification

(Intern Med 50: 2693, 2011)
(DOI: 10.2169/internalmedicine.50.6306)

A 50-year-old thin, pale-skin woman was referred for evaluation of vitamin D deficiency. She denied any neurological symptoms such as movement disorder, cognitive impairment or ataxia. Her family history was negative for hereditary disease. Blood tests were unremarkable with normal levels of calcium, phosphorus, parathyroid hormone, but reduced levels of 25-hydroxy-vitamin D [<4.0 ng/mL (normal >30.0)] and 1,25-dihydroxy-vitamin D [<2.0 pg/mL (normal 15.9-55.6)]. Non-contrast computed tomography (Picture) revealed massive symmetric calcifications in the striatum, thalamus and pons, as well as scattered calcifications in subcortical cerebral hemispheres. Vitamin D is a steroid hormone with important functions in the brain. Clinically, hypovitaminosis D associated with hypocalcemia and hyperparathyroidism is accompanied by massive calcifications affecting the basal ganglia, cerebral cortex and cerebellum (1). Furthermore, calcium deposits have been reported in the basal ganglia of patients with normal calcium and phosphorus levels but a reduced vitamin D level (1). In laboratory study, vitamin D receptor knockout mice showed symmetric thalamic calcifications with numerous calcium-containing laminated bodies (2). Finally, the absence of a family history for neuromuscular disease rules out a familial striopallidodentate calcinosis or Fahr’s disease.

The authors state that they have no Conflict of Interest (COI).

References


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Received for publication August 2, 2011; Accepted for publication August 10, 2011
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