

Abstract

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Neuropsychological function in relation to serum parathyroid hormone and serum 25-hydroxyvitamin D levels. The Tromsø study.

Jorde R, Waterloo K, Saleh F, Haug E, Svartberg J.

Department of Internal Medicine, Institute of Clinical Medicine, University of Tromsø, Tromsø, Norway.

BACKGROUND: There are receptors for parathyroid hormone (PTH) and 1,25-dihydroxyvitamin D in the brain, and there are clinical and experimental data indicating that PTH and vitamin D may affect cerebral function.

METHODS: In the present study 21 subjects who both in the 5th Tromsø study and at a follow-up examination fulfilled criteria for secondary hyperparathyroidism (SHPT) without renal failure (serum calcium < 2.40 mmol/L, serum PTH > 6.4 pmol/L, and normal serum creatinine) and 63 control subjects were compared with tests for cognitive and emotional function.

RESULTS: Those in the SHPT group had significantly impaired performance in 3 of 14 cognitive tests (Digit span forward, Stroop test part 1 and 2, and Word association test (FAS)) as compared with the controls, and also had a significantly higher depression score at the Beck Depression Inventory (BDI) (items 1-13). In a multiple linear regression model, a high serum PTH level was significantly associated with low performance at the Digit span forward, Stroop test part 1 and 2, and Digit Symbol tests. A low level of serum 25-hydroxyvitamin D was significantly associated with a high depression score.

CONCLUSION: In conclusion, a deranged calcium metabolism appears to be associated with impaired function in several tests of neuropsychological function.

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