

Title: Vitamin D Insufficiency: Prevalence and Clinical Correlates in the DATATOP Cohort

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Abstract: Vitamin D has been found to play a far wider role than maintenance of bone health, including immunity and cell proliferation and differentiation, and it has recently been proposed that low vitamin D levels may play a role in the pathogenesis of PD. Both 1 α -hydroxylase, the enzyme responsible for activating vitamin D, and the vitamin D receptor (VDR), are widely distributed in areas of the brain known to be affected in PD and other disorders of gait and balance. We have found a significant decrease in vitamin D levels in patients with PD compared with matched healthy controls. **However, the potential role of vitamin D in PD and other neurodegenerative diseases has not yet been widely investigated, particularly in *de novo* PD.** The objectives of this proposal are to examine vitamin D status in patients with newly diagnosed PD and to assess the motor and non-motor correlates of hypovitaminosis D. The primary hypothesis of this study is that vitamin D levels at DATATOP baseline are inversely correlated with PD-related motor and non-motor signs and symptoms, as well as disease progression. The specific aims of this study are: to estimate the prevalence of hypovitaminosis D, as well as the mean serum 25-hydroxyvitamin D [25(OH)D] level and variance in patients with *de novo* PD and to determine whether vitamin D status changes significantly over a two-year period. We will also determine whether vitamin D status, as measured by 25(OH) D, correlates with measures of motor and non-motor function in patients with *de novo* PD, and whether baseline vitamin D status correlates with progression of PD disease motor and non-motor function measures (specifically, measures of cognitive and affective symptoms) and time to need for levodopa from baseline.