

OBJECTIVE

This project was designed to explore the relationship of clinical phenotypes of Parkinson's disease with vitamin D levels in Veterans diagnosed with Parkinson's disease.

BACKGROUND

Parkinson's disease (PD) is a heterogeneous neurodegenerative disorder in clinical presentation and progression. Etiology underlying phenotypic variation is not clear. Studies have shown that vitamin D deficiency is more prevalent in PD as compared to Alzheimer's dementia and healthy controls. It has been linked to postural instability and cognitive decline in individuals with PD. However, observations about influence of vitamin D levels on PD clinical expression are inadequate. Here, we studied the effects of vitamin D levels on PD phenotype at its onset.

METHODS

This retrospective cohort study used data from Houston's Parkinson's Disease Research, Education and Clinical Center (PADRECC) database from 2001 to 2014. A total of 1327 charts with ICD-9-CM code 332.0 (PD) were queried for laboratory analysis of vitamin D levels. Vitamin D levels were available for 127 patients. Diagnosis of PD as per UK Brain Bank Criteria was confirmed in 68 patients. Clinical features at initial presentation were extracted along with data regarding subsequent progression.

RESULTS

Twenty-five patients had vitamin D levels below 30ng/ml (25-OH vitamin D reference range: 30-100 ng/ml), while 43 patients had levels above 30ng/ml (36.8% vs 63.2%).

Average age in both groups was 74 years.

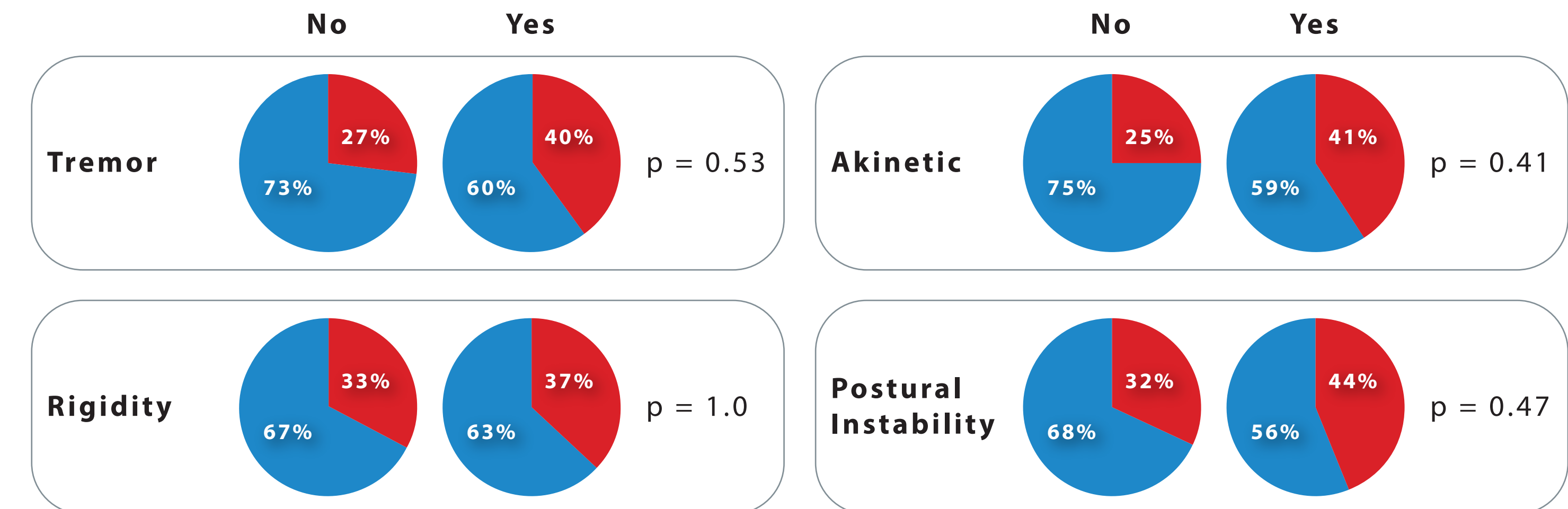
Twenty patients had tremor at initial presentation in vitamin D deficiency group, while 30 patients were noted to have tremor in group with normal vitamin D levels ($p=0.35$). Bradykinesia was noted in 18 patients at the time of initial presentation in vitamin D deficient group and 26 patients with normal vitamin D levels ($p=0.26$). Rigidity, at initial presentation, was noted in 20 and 34 patients in vitamin D deficient and normal groups, respectively ($p=1.0$). Postural instability was observed in 12 patients with vitamin D deficiency and 15 patients with normal levels ($p=0.33$).

RESULTS

Table 1: Vitamin D levels

Vitamin D lab results	N (%)	Mean	Std. Deviation	Minimum	Maximum
Deficient (< 30 ng/ml)	25 (36.8%)	21.6	5.2	14.3	29.7
Normal (\geq 30 ng/ml)	43 (63.2%)	39.6	6.6	30.6	57.3
Total	68 (100%)	33.0	10.6	14.3	57.3

Figure 1: Comparison of presence or absence initial symptom by Vitamin D status (normal vs. deficient)



CONCLUSION

In this sample from a Veteran population, the distribution of PD phenotypes was the same across groups with normal and low vitamin D levels.

REFERENCES

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2. Evatt ML. Parkinson disease: Low vitamin D and Parkinson disease-a causal conundrum. Nature Reviews Neurology 2014;10:8-9.

