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Peripheral neuropathy in Parkinson's disease: Association between levodopa treatment and vitamin deficiency

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Background and aims

Long-term levodopa treatment of Parkinson's disease (PD) probably leads to development of polyneuropathy (PN). We investigated the relationship between clinical PD features (including levodopa treatment and disease duration) and serum vitamin B9, vitamin B12 and Hcy levels in PD patients with and without polyneuropathy.

Methods

Electrodiagnostic criteria for distal sensory polyneuropathy (DSP) were used to distinguish study and control groups of patients. PD severity was determined using the Unified Parkinson's Disease Rating Scale (UPDRS) Part III and the Hoehn and Yahr (H&Y) scale.

Results

Study results

Demographic & clinical/ investigational characteristics	Polyneuropathy PD group (n = 4)	Control PD group (n = 4)
Current age (years), mean ± SD	67.5 ± 1.29	60.5 ± 10.3
Duration of levodopa-treatment (month), mean ± SD	103.7 ± 60.9	46.15 ± 27.5
LEDD (mg/day), mean ± SD	1433.8 ± 625.3	1070.8 ± 802.3

Vitamin supplementation results

Clinical/diagnostical characteristics of investigational group	Before supplementation treatment	After 30 consequent days of supplementation treatment
H&Y stage, median	3	2.3
UPRDS, Part III, mean ± SD	45.3 ± 3.0	38.75 ± 4.6
B9 level (ng/mL), mean ± SD	2.6 ± 0.8	2.9 ± 0.3
B12 level (pg/mL), mean ± SD	168 ± 9.2	215.5 ± 25.1
Homocysteine level (mcmol/L), mean ± SD	36,2 ± 9.9	17.45 ± 2.1

Conclusions

Levodopa exposure is associated with Hcy elevation and, serum B9 and, B12 deficiencies and sensorimotor neuropathy in PD patients. Vitamin replacement should be considered to protect against development of PN in PD patients, as it is easily reversible and may improve functional ability.

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Chronic inflammatory demyelinating polyradiculopathy treated with autologus haematopoetic stem cell transplantation: A case report and patient's real world experience

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Background and aims

Typical relapsing chronic inflammatory demyelinating polyradiculoneuropathy (CIDP) is a rare, debilitating autoimmune disease of the peripheral nervous system with a high economic burden. Approximately one third of patients are unresponsive to first line therapies with no consensus guidelines for immunomodulation in refractory cases. Here, we describe the case of a patient with refractory CIDP with sustained remission since autologous haematopoietic stem cell transplantation (aHCST) punctuated with her real-world experience.

Methods

A 49-year-old female diagnosed with CIDP in 2005 experienced an aggressive early disease course resulting in tetraplegia. Despite some improvement, five years of rotating immunosuppression including intravenous and oral glucocorticoids, intravenous immunoglobulin, plasma exchange, mycophenolate and azathioprine led to short periods of stability. Further relapses in 2013 resulted in significantly impaired hand function and lower limb weakness necessitating the use of a walking stick and bilateral ankle–foot orthoses, with neurophysiology showing ongoing demyelination, conduction block and axonal changes. aHSCT was delivered with non-myeloablative conditioning with cyclophosphamide and anti-thymocyte globulin followed by an unselected autologous graft.

Results

Freedom from immunosuppression, improvements in ambulation, such that she can walk 2 miles unaided, quality of life, clinical examination and neurophysiology have been sustained for 8 years. *"I can function pretty darned normally. I am just about independent."*.

Conclusions

This report illustrates how the morbidity in refractory CIDP patients, can be reversed despite long-standing disease. Furthermore, our case falls in line with those before it, demonstrating the high efficacy and safety profile of aHSCT as a method for reducing the morbidity and economic cost of CIDP.

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