Parkinson's Neuropathy: To Medicate or not to Medicate?

Dr. Uday Mathur, M.D., Dr. Jeremy Jacobs, D.O.,
Memorial Rehabilitation Institute at Memorial Regional Hospital South, Hollywood, Florida

Introduction

Parkinson's Disease is a pathology well known to the medical community. It is a neurodegenerative disorder characterized by a loss of dopaminergic transmission in the substantia nigra of the brain. Its hallmark characteristics are tremors, bradykinesia, cogwheel rigidity, and ataxia. Another hallmark leading to challenging medical management is dysautonomia. This dysautonomia can include orthostatic hypotension, urinary incontinence, and constipation to name a few. Orthostasis has been observed in 20% to 50% of Parkinson's patients and is thought to be due to loss of sympathetic neurotransmission and failure of the baroreceptor reflex. While thought to be worsened by Levodopa treatment or other dopaminergic agonists, it can present as a great barrier to functional status in the face of a disease which already places large challenges in the realm of mobility and function.

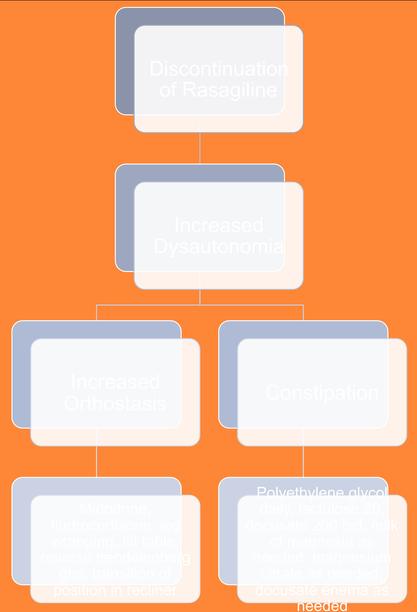
Case Description

71 year old male with a past medical history of Parkinson's Disease on Rasagiline admitted to Inpatient Rehabilitation following a left femoral neck fracture with left hemiarthroplasty. On presentation the patient complained of vivid, organized visual hallucinations and orthostasis so severe it prevented any out of bed evaluation by the therapists. After discontinuation of Rasagiline due to emotional distress caused by the visual hallucinations, the patient's visual hallucinations improved however his Parkinson's related neuropathy worsened. This resulted in increased orthostasis and refractory constipation. The challenge presented during his acute rehabilitation stay resided in the management of his Parkinsonian complications in conjunction with improving his functional status with out of bed therapies.

Treatment

The initial challenge with this patient was his organized visual hallucinations. Per neurology recommendations, Rasagiline was discontinued due to the above stated adverse effect. While the hallucinations resolved, his Parkinsonian dysautonomia worsened. His orthostasis prevented him from participating in out of bed therapies. Alone, Fludrocortisone 0.3 mg daily combined with scheduled Midodrine 10 mg three times per day were ineffective in resolving this issue. We then began employing more aggressive nursing and physical therapy measures. Continuous leg wrapping and angling the bed in reverse Trendelenburg to 10 degrees while sleeping combined with tilt table activities with PT began showing improvement after 1 week. The patient was also put in a reclining chair in a supine position in the morning and gradually converted to a modified Fowler's position through the course of the day. Combined with an optimization of his bowel regimen, his functional status improved from max assist for bed to wheelchair transfers and total assist for ambulation to moderate assistance for bed to wheel chair transfers by the time of discharge. His total acute rehabilitation stay spanned 30 days.

Progression of Interventions



Results

FIM	Initial Score	Score on Discharge
Eating	5	6
Grooming	5	5
Bathing	0	3
UE Dressing	1	5
LE Dressing	1	1
Toileting	1	1
Bladder	3	1
Bowel	7	1
Bed/Wheelchair Transfer	2	3
Toilet Transfer	0	3
Tub/Shower Transfer	0	3
Walking	0	2
Wheelchair	2	5
Stairs	0	0
Comprehension	4	5
Expression	4	5
Social Interaction	5	5
Problem Solving	2	3
Memory	2	3

Discussion

This case demonstrates the extent of Parkinson's neuropathy and the balance between the effects of anti-Parkinsonian medications and the ability to participate in therapy. It also demonstrated the multiple modalities and multidisciplinary care that can be employed in managing Parkinson's neuropathy in an acute rehabilitation setting. After failing conventional pharmacological modalities, it was non pharmacological management that eventually allowed the patient to participate in out of bed therapy. Multidisciplinary approaches to refractory Parkinsonian symptoms can therefore salvage quality of life for patients and maximize the chance for discharge to home. It must be noted that a longer length of stay was also required for our patient to achieve his therapy goals as compared with a typical orthopedic patient.

References

1. Goldstein, David S. "Dysautonomia in Parkinson disease." *Comprehensive Physiology* vol. 4,2 (2014): 805-26. doi:10.1002/cphy.c130026