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A Case Report on Donepezil Induced Cervical Dystonia

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ABSTRACT

Cervical dystonia, is a neurological condition characterized by involuntary neck muscle contractions, abnormal head and neck postures. This case report describes a 63-year-old male with Parkinsonism and early dementia who developed severe cervical dystonia after starting Donepezil, a cholinesterase inhibitor used to manage cognitive impairment. The patient came with complaints of difficulty in sitting, mild rigidity and anterior neck flexion. Discontinuation of Donepezil led to significant improvement; subsequent treatment with Trihexyphenidyl was effective. This case underscores the importance of monitoring for rare but serious side effects of cholinesterase inhibitors and highlights the need for further research into their mechanisms and risk factors.

Keywords: Donepezil, Cervical Dystonia, Parkinsonism, Trihexyphenidyl.

INTRODUCTION

Spasmodic torticollis, a different term for cervical dystonia, is a severe neurological condition characterized by sporadic, unbearable neck muscular spasms. This medical condition can result in severe cervical pain and discomfort along with prolonged, repetitive head twisting or tilting[3]. It can negatively affect daily functioning and quality of life[1] .Certain individuals may be more prone to developing movement disorders like cervical dystonia when their cholinergic systems are modulated by drugs like Donepezil [4].Donepezil is commonly used to treat Alzheimer's disease and parkinsonism by inhibiting acetylcholinesterase. Donepezil-induced cervical dystonia likely arises due to cholinergic overactivity, which disrupts the balance between neurotransmitters, especially in the basal ganglia, leading to abnormal muscle contractions. Amongst nervous system disorders, 20% of all ADRs are reported globally in which only 48 cases of dystonia have been reported in the Vigiaccess database.

CASE REPORT

A 63-year-old male patient came to neurology department with complaints of slowness of movements, tremors and postural imbalance on 5th March, 2021. He was diagnosed with Parkinsonism and started the

therapy with Tab. Pramipexole 0.25 mg, two tablets three times daily. He is a known case of type 2 diabetes mellitus (15 years), systemic hypertension (more than 10 years) and BPH (1 year**)**. He has a history of panhypopituitarism and was on replacement therapy (4 years). On follow up, Tab. Pramipexole 0.25 mg was replaced by Tab. Donepezil 5 mg once daily from 14th July, 2022 and then increased to 10 mg once daily from 29th December, 2022 as patient developed parkinsonism with early dementia. While he was on Donepezil he developed cervical dystonia with severe anterocollis. He experienced difficulty getting up from sitting posture, mild rigidity and has anterior neck flexion. Upon diagnosis, the patient was found to have cervical dystonia (suspected due to donepezil). Donepezil withheld and patient started on Trihexyphenidyl therapy at a dose of 0.5 mg, two times daily for 1 month.

Upon evaluation at our Adverse Drug Reaction (ADR) Monitoring Center, the causality was determined to be "probable" using the WHO-UMC Causality Assessment Scale[8] .The type of ADR was classified as "Type C" according to the Rawlins–Thompson classification[9] and was assessed as "Level 3, Moderate" in terms of severity based on the Hartwig's scale.[10] As per the WHO criteria, [8]the seriousness of the reaction was categorized as "other medically important," and the outcome of the reaction was "Recovering." In addition, according to the Schumock and Thornton scale[11] the ADR was deemed"nonpreventable"As per Naranjo's adverse drug reaction probability assessment scale it is possible ADR . The assessment of causality and other attributes of the ADR was conducted using established scales and criteria to ensure comprehensive and standardized evaluation scale

DISCUSSION

Donepezil, a cholinesterase inhibitor, helps to treat dementia in Parkinson's disease and related cognitive impairment [2] . A rare side effect of Donepezil is dystonia. When Donepezil 5 mg/day was administered to a patient with probable dementia with Lewy bodies (DLB), the patient developed cervical dystonia, specifically anterocollis. After quitting donepezil, the dystonia improved which indicates that donepezil may cause cervical dystonia in DLB patients [4]. Donepezil induced cervical dystonia in patient with Parkinson's disease , Alzheimer's disease are rarely seen and should be properly monitored for such conditions.

CONCLUSION

This case report highlights the occurrence of Donepezil-induced cervical dystonia in a patient with parkinsonism and early dementia. Health-care professionals should be vigilant in monitoring drug induced dystonia in patients receiving cholinesterase inhibitors and promptly identify and manage adverse events to ensure optimal patient care. Further research is warranted to better understand the mechanisms and risk factors associated with donepezil induced cervical dystonia

REFERENCE

1. Ikeda K, Yanagihashi M, Sawada M, Hanashiro S, Kawabe K, Iwasaki Y. Donepezil-induced cervical dystonia in Alzheimer's disease: a case report and literature review of dystonia due to cholinesterase inhibitors. Internal Medicine. 2014;53(9):1007-10.
2. Baba T, Takeda A, Murakami A, Koga T, Isomura T, Mori E, Hisanaga K, Ugawa Y, Hattori N, Murata M, Hasegawa K. Effect of donepezil for dementia prevention in Parkinson's disease with severe hyposmia (The DASH-PD study): A randomized long-term placebo-controlled trial. EClinicalMedicine. 2022 Sep 1;51.

3. Crowner BE. Cervical dystonia: disease profile and clinical management. Physical therapy. 2007 Nov 1;87(11):1511-26.
4. Hasegawa, N., Shimada, K., Yamamoto, Y., Maeda, K. A case of dementia with Lewy bodies presenting with cervical dystonia after administration of donepezil hydrochloride. Clinical Neurology. 2010;50(3):147-50.
5. Ravina B, Putt M, Siderowf A, Farrar JT, Gillespie M, Crawley A, Fernandez HH, Trieschmann MM, Reichwein S, Simuni T. Donepezil for dementia in Parkinson's disease: a randomised, double blind, placebo controlled, crossover study. Journal of Neurology, Neurosurgery & Psychiatry. 2005 Jul 1;76(7):934-9.
6. Burt T. Donepezil and related cholinesterase inhibitors as mood and behavioral controlling agents. Current psychiatry reports. 2000 Dec;2(6):473-8.
7. Baik K, Kim SM, Jung JH, Lee YH, Chung SJ, Yoo HS, Ye BS, Lee PH, Sohn YH, Kang SW, Kang SY. Donepezil for mild cognitive impairment in Parkinson's disease. Scientific reports. 2021 Feb 26;11(1):4734.
8. Availablefrom:https://who-umc.org/media/164200/who-umccausality-assessment_new-logo.pdf. [Last accessed on 2024 Jun 11].
9. Adversedrugreactions[Internet].2015.Availablefrom:https://clinicalgate.com/adverse-drugreactions/#:~:text=Rawlins%E2%80%93Thompson%20,classification,pharmacological%20effects%20of%20a%20drug. [Last accessed on 2024 Jun 11].
10. Petrova G, Stoimenova A, Dimitrova M, Kamusheva M, Petrova D, Georgiev O. Assessment of the expectancy, seriousness and severity of adverse drug reactions reported for chronic obstructive pulmonary disease therapy [Internet]. U.S. National LibraryofMedicine;2017.Availablefrom:https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5308439/. [Last accessed on 2024 Jun 11].
11. Iftikhar S, Sarwar MR, Saqib A, Sarfraz M. Causality and preventability assessment of adverse drug reactions and adverse drug events of antibiotics among hospitalized patients: A Multicenter, cross-sectional study in Lahore, Pakistan [Internet]. U.S. NationalLibraryofMedicine;2018.Availablefrom:https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6021047/. [Last accessed on 2024 Jun 11].