Teaching Video NeuroImages: The underrecognized diphasic dyskinesia of Parkinson disease

Leo Verhagen Metman,
MD, PhD
Alberto J. Espay, MD,
MSc, FAAN

Correspondence to
Dr. Verhagen Metman:
lverhage@rush.edu

Figure Time course of diphasic dyskinesia according to 3 different theoretical plasma levodopa (LD) concentrations (A, B, and C)

At the lowest dose (C), diphasic dyskinesia becomes dominant between LD doses and may be clinically mistaken as peak dose. Pharmacotherapeutic strategies will differ in each scenario: LD dose should be reduced (or amantadine considered) in A but increased in C; LD dose interval may be shortened in B.

Dyskinesia is a common motor complication in levodopa-treated Parkinson disease (PD), associated with higher doses, greater disease severity, and longer disease duration.¹ Often assumed to be a peak-dose phenomenon, the diphasic (beginning-of-dose or end-of-dose) variant may be ignored, as exemplified by a patient with PD whose dyskinesia was initially interpreted as peak-dose (video at Neurology.org). Rapid improvement with apomorphine, a short-acting levodopa-equipotent dopamine agonist, confirmed its diphasic nature.² Recognition of dyskinesia subtype based on the relationship with levodopa dose

cycles (figure) facilitates their differing management in PD: while dopaminergic stimulation needs reduction in peak-dose dyskinesia, it should be increased in diphasic.

AUTHOR CONTRIBUTIONS

Dr. Verhagen Metman: acquisition of data, analysis and interpretation, critical revision of the manuscript for important intellectual content.
Dr. Espay: Report analysis and interpretation, critical revision of the manuscript for important intellectual content.

STUDY FUNDING

No targeted funding reported.

Supplemental data
at Neurology.org

Download teaching slides:
Neurology.org

From the Department of Neurological Sciences (L.V.M.), Rush University, Chicago, IL; and Department of Neurology (A.J.E.), Gardner Family Center for Parkinson Disease and Movement Disorders, University of Cincinnati, OH.

Go to Neurology.org for full disclosures. Funding information and disclosures deemed relevant by the authors, if any, are provided at the end of the article.

DISCLOSURE

L. Verhagen Metman has received compensation from Medtronic, St. Jude Medical, Britannia, US WorldMeds, and Cynapsus for consulting services. He has received financial support for research activities from Medtronic, Boston Scientific, Adamas, Osmotica, Pfizer, WorldMeds, NIH, and Michael J. Fox Foundation in a role as PI for research studies. None of the above disclosures is relevant to the manuscript. A. Espay has received grant support from NIH (K23MH092735), Great Lakes Neurotechnologies, and the Michael J. Fox Foundation; personal compensation as a consultant/scientific advisory board member for AbbVie, TEVA, Impax, Merz, Acadia, Cynapsus, Lundbeck, and US-WorldMeds; publishing royalties from Lippincott Williams & Wilkins, Cambridge University Press, and Springer; and honoraria from

AbbVie, UCB, USWorldMeds, Lundbeck, Acadia, the American Academy of Neurology, and the Movement Disorders Society. None of the above disclosures is relevant to the manuscript. Go to Neurology.org for full disclosures.

REFERENCES

1. Verhagen Metman L. Recognition and treatment of response fluctuations in Parkinson's disease: review article. *Amino Acids* 2002;23:141–145.
2. Durif F, Deffond D, Dordain G, Tournilhac M. Apomorphine and diphasic dyskinesia. *Clin Neuropharmacol* 1994; 17:99–102.

Neurology®

Teaching Video *NeuroImages*: The underrecognized diphasic dyskinesia of Parkinson disease

Leo Verhagen Metman and Alberto J. Espay

Neurology 2017;89:e83-e84

DOI 10.1212/WNL.0000000000004238

This information is current as of August 14, 2017

Updated Information & Services	including high resolution figures, can be found at: http://n.neurology.org/content/89/7/e83.full
Supplementary Material	Supplementary material can be found at: http://n.neurology.org/content/suppl/2017/08/14/WNL.0000000000004238.DC1 http://n.neurology.org/content/suppl/2017/08/14/WNL.0000000000004238.DC2
References	This article cites 2 articles, 0 of which you can access for free at: http://n.neurology.org/content/89/7/e83.full#ref-list-1
Subspecialty Collections	This article, along with others on similar topics, appears in the following collection(s): Chorea http://n.neurology.org/cgi/collection/chorea Parkinson's disease/Parkinsonism http://n.neurology.org/cgi/collection/parkinsons_disease_parkinsonism
Permissions & Licensing	Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: http://www.neurology.org/about/about_the_journal#permissions
Reprints	Information about ordering reprints can be found online: http://n.neurology.org/subscribers/advertise

Neurology® is the official journal of the American Academy of Neurology. Published continuously since 1951, it is now a weekly with 48 issues per year. Copyright © 2017 American Academy of Neurology. All rights reserved. Print ISSN: 0028-3878. Online ISSN: 1526-632X.