HAVE WE BEEN OVERESTIMATING FALL RATES IN PARKINSON'S DISEASE?

Mélanie L Beaulieu PhD,[1] Martijn LTM Müller PhD,[1,3] Nicolaas I Bohnen MD PhD,[1,2,3,4]

[1] Department of Radiology, University of Michigan, Ann Arbor, MI, USA

[2] Department of Neurology, University of Michigan, Ann Arbor, MI, USA

[3] University of Michigan, Morris K Udall Center of Excellence for Parkinson's Disease Research, Ann Arbor, MI, USA

[4] Neurology Service and GRECC, VAAAHS, Ann Arbor, MI, USA

Corresponding Author:

Mélanie L Beaulieu, PhD
Mailing address: PO Box #362
24 Frank Lloyd Wright Dr.
Ann Arbor, MI 48106
USA
Telephone: +1-734-998-8424
Email: mbeaulie@umich.edu

Word Count: 298 words

Financial Disclosure/Conflict of Interest: Nothing to report.

Study Funding Source: None

Letter to Editor Re:

Predicting first fall in newly diagnosed Parkinson's disease: Insights from a fall-naïve cohort

We read with interest Lord et al.'s article 'Predicting first fall in newly diagnosed Parkinson's disease: Insights from a fall-naïve cohort',[1] which provides unique insights in fall risk in fall-naïve mild-to-moderate Parkinson's disease (PD) patients and may provide a clinical tool for preventing falls in these patients. We noted that the authors found a three-year fall rate of 61% in this cohort. This is particularly interesting as this rate is much lower than previously reported fall rates in PD[2,3] and that in fact, it is comparable to that of older adults (> 65 years old) without PD.[4,5] Based on previously reported annual fall rates of 68% in PD[3] and 33% in normal older adults[4], 3-year predicted fall rates can be as high as 97% and 70% for PD patients and normal older adults, respectively (Table 1). Both predicted rates exceed the 3-year fall rate in PD reported in this study. It is also noteworthy that Lord et al. excluded a group of 26 (22%) participants from their cohort because they reported at least one fall in the year prior to the start of the study, and thus were not fall-naïve. This shows that in the cohort of consecutively recruited patients with mild-to-moderate PD their one-year baseline fall rate of 22% is much lower than that reported in PD, and even somewhat lower than that reported in older adults (Table 1). Fall rates in PD may need to be reexamined as currently reported rates may be overestimates, especially in a population with mild-to-moderate PD. Rates in this population may actually be comparable to that in older adults without PD. We suggest that it is only during later and more severe stages of Parkinson's disease that fall frequency significantly increases above that of the normal fall rate of older adults.

AUTHORS' ROLES

Drafting of the letter: ML Beaulieu

Revision of the letter: ML Beaulieu, MLTM Müller, and NI Bohnen.

FINANCIAL DISCLOSURES (for preceding 12 months)

All authors have active grant support from the National Institutes of Health, the United States Department of Veterans Affairs, and Axovant Sciences, Ltd. MLTM Müller and NI Bohnen also have active grant support from the Michael J Fox Foundation.

REFERENCES

1. Lord S, Galna B, Yarnall AJ, Coleman S, Burn D, Rochester L. Predicting first fall in newly diagnosed Parkinson's disease: Insights from a fall-naive cohort. Mov Disord 2016;31:1829-1836.
2. Bloem BR, Grimbergen YA, Cramer M, Willemsen M, Zwinderman AH. Prospective assessment of falls in Parkinson's disease. J Neurol 2001;248:950-958.
3. Wood BH, Bilclough JA, Bowron A, Walker RW. Incidence and prediction of falls in Parkinson's disease: a prospective multidisciplinary study. J Neurol Neurosurg Psychiatry 2002;72:721-725.
4. Allan LM, Ballard CG, Rowan EN, Kenny RA. Incidence and prediction of falls in dementia: a prospective study in older people. PLoS One 2009;4:e5521.
5. Ambrose AF, Paul G, Hausdorff JM. Risk factors for falls among older adults: a review of the literature. Maturitas 2013;75:51-61.

TABLES

Table 1. Actual(†) and predicted(‡) fall rates in older adults (OA) and individuals with Parkinson's disease (PD).

Literature	1-Year Fall Rate		3-Year Fall Rate	
	OA	PD	OA	PD
Allan et al.[4]	33%$^{\dagger a}$	N/A	70%$^{\ddagger b}$	N/A
Wood et al.[3]	N/A	68%†	N/A	97%$^{\ddagger b}$
Lord et al.[1]	N/A	33%$^{\ddagger c}$-45%$^{\ddagger d}$	N/A	61%†

[a]Fall rate for non-demented control participant without PD

[b]Calculated from 1-year fall rate ($1Yr_{FR}$) [$100*1Yr_{FR} + Y2_{NF}*1Yr_{FR} + Y3_{NF}*1Yr_{FR}$; $Y2_{NF}$: number of non-fallers at start of year 2 ($100-100*1Yr_{FR}$); $Y3_{NF}$: number of non-fallers at start of year 3 ($Y2_{NF}-Y2_{NF}*1Yr_{FR}$)]

[c]Calculated from fall-naïve data (n = 77) if fall-naïve participants with recurrent falls in the 3-year period (n = 29) had two falls during this period [(18/3 + 29*2/3)/77*100 = 33%]

[d]Calculated from fall-naïve data (n = 77) if fall-naïve participants with recurrent falls in the 3-year period (n = 29) had at least three falls during this period [(18/3 + 29)/77*100 = 45%]