

UC Irvine

UC Irvine Previously Published Works

Title

Reader Response: White Matter Hyperintensities Mediate the Association of Nocturnal Blood Pressure With Cognition

Permalink

<https://escholarship.org/uc/item/6mr741bx>

Journal

Neurology, 97(1)

ISSN

0028-3878

Authors

Fisher, Mark J
Paganini-Hill, Annlia
Kawas, Claudia H
et al.

Publication Date

2021-07-06

DOI

10.1212/wnl.00000000000012214

Copyright Information

This work is made available under the terms of a Creative Commons Attribution License, available at <https://creativecommons.org/licenses/by/4.0/>

Peer reviewed

Reader response: White matter hyperintensities mediate the association of nocturnal blood pressure with cognition

Mark J. Fisher, Professor of Neurology, UC Irvine
Annlia Paganini-Hill, Faculty, UC Irvine
Claudia H. Kawas, Professor of Neurology, UC Irvine
Maria M. Corrada, Professor of Neurology, UC Irvine
Evan Fletcher, Faculty, UC Davis

Submitted May 20, 2020

Chesebro et al.¹ report dysfunctional circadian variation of systolic blood pressure—reverse dipping, i.e., night/day BP>1—among the hypertensive subset (mean age 64 years) of their Venezuelan cohort, and they link this to periventricular white matter hyperintensities and decreased memory. In 2019, we reported associations between reverse dipping of diastolic blood pressure and both cerebral microvascular disease and decreased cognition—overall cognitive status and test of language—in an elderly (aged 90+ years) California cohort.² We found this association for all participants—which included 64% hypertensives by history, 45% by measurement—and for all white matter disease, rather than just periventricular disease. Although location of white matter disease may be relevant, previous work suggests periventricular, deep, and total white matter hyperintensities are highly correlated.³ We also described linkage of reverse dipping with cerebral microbleeds. The findings of these two groups, working independently of each other in two very different populations, emphasize the likely validity of the primary findings. An important implication of these papers relates to the timing of hypertension medications and whether patients may benefit from a nighttime dosing regimen.⁴ In addition, tract-specific location analysis of white matter hyperintensities may be fruitful for further investigation.⁵

Disclosure

The authors report no relevant disclosures. Contact journal@neurology.org for full disclosures.

References

1. Chesebro AG, Melgarejo JD, Leendertz R, et al. White matter hyperintensities mediate the association of nocturnal blood pressure with cognition. *Neurology* 2020;94:1803–1810.
2. Paganini-Hill A, Bryant N, Corrada M, et al. Blood Pressure Circadian Variation, Cognition and Brain Imaging in 90+ Year-Olds. *Front Aging Neurosci* 2019;11:54.
3. DeCarli C, Fletcher E, Ramey V, Harvey D, Jagust WJ. Anatomical mapping of white matter hyperintensities (WMH): exploring the relationships between periventricular WMH, deep WMH, and total WMH burden. *Stroke* 2005;36:50–55.
4. Thoonkuzhy C, Rahman M. New insights on chronotherapy in hypertension: Is timing everything? *Curr Hypertens Rep.* 2020;22:32.
5. Seiler S, Fletcher E, Hassan-Ali K, et al. Cerebral tract integrity relates to white matter hyperintensities, cortex volume, and cognition. *Neurobiol Aging* 2018;72:14–22.