

Disputes & Debates: Editors' Choice

Steven Galetta, MD, FAAN, Section Editor

Editors' note: The efficacy of nonpharmacologic intervention for orthostatic hypotension associated with aging

In "The efficacy of nonpharmacologic intervention for orthostatic hypotension associated with aging," Drs. Newton and Frith reported that when 56% of participants over age 60 consumed 480 mL of tap water 20 minutes before lying supine, they experienced significantly less systolic blood pressure drops upon standing than when they did not ingest the water. However, drinking water before transitioning from lying to standing had no significant effect on diastolic blood pressure drop or symptoms. Dr. Gupta responded to these findings by noting that improving the drop in systolic blood pressure is irrelevant if the rate of syncope development is unchanged. He further questioned the benefits of water consumption, stating that water cannot be fully absorbed within 5 minutes. Drs. Newton and Frith responded that even in the absence of syncope, symptoms of orthostatic hypotension (OH) lead to impairment. They also noted that water consumption is beneficial because it acts on osmoreceptors to stimulate the sympathetic nervous system. Drs. Gupta, Newton, and Frith agree, however, that skeletal muscle compression can prevent OH through improvement of venous return. When interpreting the results of this study, Dr. Vilanilam cautions that (1) OH should be defined as a systolic blood pressure drop of 30 mm Hg in patients with preexisting hypertension and (2) confounding factors, like bilateral carotid artery stenosis, minimize the effect of nonpharmacologic interventions on OH.

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Reader response: The efficacy of nonpharmacologic intervention for orthostatic hypotension associated with aging

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I read with interest the nonpharmacologic manipulations for management of orthostatic hypotension (OH) detailed by Drs. Newton and Frith.¹ Regardless of guidelines,² OH is clinically meaningless in the absence of regular or inevitable syncope, as systolic blood pressure (SBP), syncope, and cerebral arteriosclerosis do not necessarily run *pari passu*. While fall in SBP is a part of the guidelines, it is the diastolic blood pressure (DBP) that determines steady cerebral blood flow. A total of 480 mL tap water consumed within 5 minutes will neither be fully absorbed by the gastrointestinal system nor will be retained fully by the renal tubular system. No wonder only 56% of participants of a tiny cohort responded with a modest rise in SBP while DBP remained unaffected.¹ While standing cross-legged is truly enigmatic, will abdominal compression and elastic stockings improve or worsen venous return in uncomplicated hypotensive nonobese elderly?

Water consumption attenuates arginine-vasopressin (AVP) release, an absolute neuroendocrine relation.³ AVP is a powerful vasoconstrictor.³ What are we achieving here?

The calf muscle is the peripheral heart granted to humans. Every morning, I compress the gastrocnemius muscle with rhythmic dorsiflexion for approximately 5 minutes. If I forget to do so, I pay the price of OH-related unsteadiness and presyncope.

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Author response: The efficacy of nonpharmacologic intervention for orthostatic hypotension associated with aging

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We thank Dr. Gupta for the interest in our recent study.¹ It is incorrect to state that orthostatic hypotension (OH) is meaningless in the absence of syncope. OH results in a broad range of symptoms and can impair even simple activities of daily living.²

The underlying mechanism through which water exerts its pressor response is not via volume expansion. Water acts via osmoreceptors in the portal circulation, which stimulate the sympathetic nervous system.³

The calf muscle is just one small component of the skeletal muscle pump. All muscles are capable of “pumping” venous blood back towards the heart. Indeed, while the ejection fraction of the calf is approximately 60% and that of the thigh approximately 20%, the absolute volume of the thigh is much greater.⁴ Using multiple muscles is likely to have a synergistic effect.⁵

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Reader response: The efficacy of nonpharmacologic intervention for orthostatic hypotension associated with aging

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I read, with interest, the article by Drs. Newton and Frith,¹ which demonstrated bolus water drinking as a potential first-line nonpharmacologic management for aging-related orthostatic hypotension (OH). It is also clear that one of the unbridged gaps in knowledge lies in the effective management of patients with varying etiologies of OH.

Did the study group consist of patients with baseline hypertension? In patients with preexisting hypertension, a reduction of systolic blood pressure of 30 mm Hg is more appropriate

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to define OH.² Uncontrolled hypertension, more often than controlled hypertension, results in the manifestation of a more severe symptomatic OH.³ It is plausible that a lower, if not a different, response can be expected in a subgroup of patients with aging-related OH with uncontrolled hypertension due to a higher degree of impaired compensatory mechanisms than those without hypertension.⁴ In addition, confounding factors, such as undiagnosed carotid bilateral stenosis leading to baroreceptor dysfunction,² might blunt the effect of nonpharmacologic treatment options in OH.

Coexistent hypertension and OH pose a frustrating therapeutic dilemma for which bolus water drinking could be the answer. It would be interesting to look for a systematic correlation between bolus water drinking and varying severity of OH.

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RETRACTION

Lucky and the root doctor

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The journal retracts the article “Lucky and the Root Doctor,”¹ a Reflections piece. Articles within our Humanities section of *Neurology*® seek to edify; this article did not achieve that goal and should not have been published. We sincerely apologize for our error.

This story, a recollection by a doctor of a former patient, contains racist characterizations. This has prompted a re-evaluation of our peer review process for Humanities articles, and we are redoubling our efforts to make sure such material is never published again.

We deeply regret this error and offer our sincerest apologies to those who have been offended. We promise to do better in the future.

Reference

1. Campbell WW. Lucky and the root doctor. *Neurology* 2019;92:341–342.

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