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LETTER TO THE EDITOR

How does dementia interact with visit-to-visit blood pressure variability and hip fracture?

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The interesting recent article by Li et al. [1] describes a relationship between visit-to-visit blood pressure (BP) variability and the risk of hip fracture in older persons. They considered several mechanisms for this relationship, including stroke, retinopathy, and osteoporosis. Dementia as a possible cause of hip fracture in relation to increased BP variability was not discussed.

A cross-sectional relationship between increased visit-to-visit BP variability and cognitive impairment was reported in a high-risk elderly population with cardiovascular disease [2]. In the PROspective Study of Pravastatin in the Elderly at Risk (PROSPER) study, higher visit-to-visit BP variability was revealed as a risk of cognitive impairment [3]. Higher visit-to-visit BP variability was also described as related to carotid artery remodeling [4]. In addition, pulse wave velocity (a marker of arterial stiffness) was associated with cognitive decline [5], and increased arterial stiffness was shown to be a moderator of the relationship between visit-to-visit BP variability and cognitive decline [6].

Cerebral white matter is particularly susceptible to fluctuations and to inconsistent perfusion. The relationship between increased visit-to-visit BP variability and white matter hyperintensity (one of the surrogate markers of vascular dementia) is thus important in the elderly, who have a high prevalence of hypertension [7]. Even in normotensive individuals, high BP variability could cause ischemic damage due to hypoperfusion during periods of particularly low BP [7]. Increased visit-to-visit BP variability was associated with target cerebral damage progression [8], and white matter lesions were reported as contributing to the risk of hip fractures in the elderly [9]. Cognitive impairment may thus be a possible indicator that moderates the relationship between increased visit-to-visit BP variability and hip fracture. In fact, individuals with dementia were shown to have a greater risk of incurring a hip fracture [10]. The Li et al. study does not provide information about dementia in their patient population, and dementia is not addressed regarding the relationship between visit-to-visit BP variability and hip fracture.

Few studies have assessed the relationship between visit-to-visit BP variability and hip fracture in the elderly. The important data presented in the Li et al. report could be more informative if the precise mechanism underlying that relationship had been discussed in regard to dementia.

Compliance with ethical standards

Conflicts of interest None.

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