

# Is systolic blood pressure decrease with age in patients with Parkinson's disease?

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Hypertension is one of the major modifiable risk factors for cardiovascular (CV) morbidity and mortality. Shindo et al<sup>1</sup> showed in this issue that in patients with Parkinson disease (PD), systolic blood pressure (BP) decreases with age. In the general population, systolic BP rises continuously throughout life, in contrast to diastolic BP which rises until approximately 50 years old, tends to level off over the next decade, and may remain the same or fall later in life.<sup>2</sup> Therefore, isolated systolic hypertension is very common in the elderly. Systolic BP predicts better than diastolic BP CV morbidity and mortality in the elderly.<sup>2</sup> Is it a true decrease in systolic BP with age? What is the impact of these findings on the management of hypertension in patients with PD.

It is not clear why in patients with PD, systolic BP decreases with age. One option is that the anti-Parkinson treatment decreases BP.<sup>3</sup> This is unlikely since Shindo et al<sup>1</sup> analyzed their data in those who received and those who did not receive anti-parkinsonian treatment and found similar results. Another option is that part of BP increase with aging is weight related. In the general population, body weight increases with age and this may explain partially the BP increase observed with aging.<sup>4</sup> Patients with PD may lose weight with aging.<sup>5</sup> Weight loss may explain the decrease in systolic BP with aging observed by Shindo et al<sup>1</sup> Unfortunately, the weights were not reported in the study, and therefore, this possibility cannot be confirmed. The usual increase in systolic BP with age is a reflection of decreased vascular compliance. It is unlikely that in patients with PD, the vascular tree behaves differently. Thus, it seems that the decrease in BP in patients with PD is a reflection of autonomic failure. It is well known that patients with PD have autonomic failure and experience high

rate of orthostatic hypotension. The patients included in the study by Shindo K. et al had long-standing disease and most had various symptoms of autonomic failure.<sup>1</sup> Indeed, only seven out of 28 patients had orthostatic hypotension. However, it is possible that many patients who had autonomic failure experienced an intermediate postural BP drop below the orthostatic range. If this was the case, then the study by Shindo<sup>1</sup> is a reflection of the autonomic failure. The best way to identify autonomic failure is by a 24-h ambulatory BP monitoring (24H ABPM).<sup>6</sup> Using the 24H ABPM enables to identify the fall in BP while standing or sitting and to diagnose nocturnal hypertension. The observation of Shindo K. et al have an important impact on the management of hypertension in patients with PD. While in the general population, systolic BP increases with age and patients require more antihypertensive treatment, in patients with PD as they aged they may need less antihypertensive medications. One should be very careful when treating hypertension in patients with PD. On the one hand, their BP is low or normal when they are in the sitting or standing position but it may be elevated when they are in the lying position. Nocturnal hypertension is associated with increased CV morbidity and mortality, and therefore, it is recommended to do 24H ABPM in every patient with PD.<sup>7</sup> It is still remains a challenge how to treat hypertensive patients with PD and supine hypertension and symptomatic orthostatic hypotension.<sup>8</sup> There are no guidelines to answer this dilemma, but it is clear that one has to weigh the balance between the long-term benefit of lowering BP vs. the short-term risk of symptomatic fall in BP during sitting or standing.<sup>9</sup> Sleeping with the head of the bed tilted upright and using short-acting antihypertensive agents before sleep may be beneficial.<sup>9,10</sup>

Editorial to manuscript # JCH- 20-0464R1 entitled "Age-related changes in blood pressure and heart rates of patients with Parkinson's disease"

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**CONFLICT OF INTEREST**

None.

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