Is the J-Shaped Curve Related to Vascular Mortality?

To the Editor:

We have read recently with interest the article by Dorresteijn et al concerning the relationship between blood pressure values and vascular events. The data for this article originate from Second Manifestations of Arterial Disease Study, which was designed to focus on the prevalence and incidence of additional cardiovascular disease in patients who had a previous manifestation of arterial disease or who were at high risk to develop symptomatic arterial disease. The authors showed that blood pressure levels below and above 143/82 mm Hg are independent risk factors for recurrent events in patients with symptomatic vascular disease and the relationship between systolic blood pressure (SBP) or diastolic blood pressure and vascular events followed as J-shape curve. According to the authors, these values of blood pressure were established on the basis of blood pressure measurements taken every 4 minutes during a total of 25 minutes in the daytime period, and this is, first of all, an optimal method for arterial stiffness evaluation compared with assessment of hypertension. Therefore, it seems that these borderline values (especially for SBP) are not appropriate for assessment of cardiovascular risk, and their usefulness may be limited because they provide only 1 or 2 measurements of blood pressure during a standard patients’ office visit.

According to actual American and European guidelines, hypertension is recognized when SBP is >140 mm Hg and/or diastolic blood pressure is >90 mm Hg in office measurements. If hypertension is recognized, it is an independent risk factor for vascular events, but according to Dorresteijn et al., SBP <143 mm Hg may be an independent risk factor for vascular events. So if a patient has SBP on the level of 140 mm Hg, should dose of antihypertensive drugs be reduced?

In addition, previous studies have shown that the highest frequency of vascular events is connected with morning values when an extreme increase of blood pressure values is observed. In addition, Kario et al have revealed that extreme fall of nighttime values of blood pressure may contribute to the heart and central nervous system ischemic episodes. Therefore, not only daytime but also nighttime values of blood pressure should be taken into consideration in determining the J-shape curve. On these data it can be argued that 24-hour blood pressure measurement is a much better method to assess the J-shape curve than the measurement of blood pressure values every 4 minutes during a total of 25 minutes.

We are not convinced by these data that 143 mm Hg is the value of SBP where the risk of vascular events is the lowest in patients with symptomatic vascular disease. It is proved that the mechanisms of blood pressure regulation in the central nervous system and the coronary circulation are different. Generally, the cerebral circulation is more powerful in blood pressure control than the coronary circulation. We are confident that these 2 groups of patients should be considered separately in assessment of blood pressure values connected with an increase of vascular risk.

Disclosures

None.

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