

Resting Blood Pressure is an Essential Determinant of Blood Pressure Response to Exercise

To the Editor,

I read with great interest the article titled “Assessment of Cardiovascular Parameters on Submaximal Treadmill Exercise in Obese versus Nonobese Adults” by Gupta *et al.* In this article, the authors reported that systolic and diastolic blood pressure (BP) measurements along with heart rate recovery parameters increased in obese adults more than in nonobese adults with submaximal treadmill exercise test.^[1] They suggested that this increase in cardiovascular parameters was primarily associated with autonomic dysfunction and increased sympathetic hyperactivity. We would like to highlight the factors that should be considered when comparing BP responses to exercise test between patient groups with different phenotypes. As emphasized by Gupta *et al.*, the most important mechanism in the development of exaggerated BP response to exercise is the lack of a sufficient decrease in peripheral vascular resistance despite the increased cardiac output with exercise.^[2] Although the most likely cause of this insufficient decrease in peripheral vascular resistance is thought to be autonomic dysfunction and increased sympathetic hyperactivity, metabolic and inflammatory factors should also be investigated.^[3,4] Abnormalities in fasting blood glucose, high sensitive C-reactive protein or thyroid hormone levels may affect the BP response to exercise test through impairing endothelial functions and blunting the expected decrement in peripheral vascular resistance.

In current ACC/AHA guidelines for hypertension suggested “normal” BP as systolic BP <120 mmHg and diastolic BP as <80 mmHg.^[5] In the study conducted by Gupta *et al.*, the mean preexercise BP values of the participants in the obese group were given as 122.5 and 82.9 mmHg. In other words, the preexercise BP values of those in the obese group were already above normal. Additionally, the preexercise blood pressure in obese group was also higher than in non-obese group (122.5/82.9 mmHg vs. 113.9/76.1 mmHg, *P* values both for systolic and diastolic BP were 0.001). Resting BP is an essential determinant of increased BP response to exercise. There was a statistical significance regarding the preexercise blood pressure between obese and non-obese groups. Patients with BP above “normal” at rest are also at risk for the presence of masked hypertension.^[6,7] Therefore, resting BP and the possible masked hypertension should be searched strictly

in patients with an increased BP response to exercise. In studies investigating BP response to exercise, it may be useful to enrol the study patients under the guidance of 24-h ambulatory BP monitoring to eliminate the baseline variability between groups.

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Conflicts of interest

There are no conflicts of interest.

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