Prevalence and Risk Factors of Masked Hypertension Identified by Multiple Self-Blood Pressure Measurement

Hae-Young Lee and Jeong Bae Park

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To the Editor:

With great interest we read the article by O’Brien, comprehensively reviewing implementation of out-of-office blood pressure (BP) measurement, i.e., ambulatory BP measurement and self-BP measurement (SBPM), for more precise evaluation and management of hypertension. Clearly, ambulatory BP measurement provides a greater amount of BP information and, thus, can be more sensitive than SBPM. However, ambulatory BP measurement is more expensive and may cause discomfort, interfering with subjects’ normal activity, which limit its routine use.

Here, we introduce our investigation of the diurnal BP pattern and its determining factors by implementing a multiple SBPM strategy. A total of 5009 hypertension patients in 500 primary care clinics in Korea, whose recent BP during the last 2 visits was stable without change in medication, were enrolled. This study was performed by multicenter, prospective, observational design. To minimize possible confounding factors and to compare the differential effect of various classes of antihypertensive agents, 2 strategies were used. First, enrolled patients were prescribed with only 1 kind and 1 tablet dose of antihypertensive agents, including a fixed-dose combination. Second, enrollment was performed by continuous registration method, which means that, after initiation of the study, 8 consecutive patients with essential hypertension in each clinic were enrolled.

Two office BP values that were measured before and after 7 days of SBPM, which were duplicated daily in the morning and in the evening as recommended, were evaluated. SBPM was standardized by using the unified electronic devices from Omron (Omron M5).

Of 5009 patients initially enrolled, acceptable SBPM values, recorded >10 times of a total 14 times of scheduled measurement, were acquired in 4435 patients. The means ± SDs of the values of SBPM were 131.4 ± 12.0 mm Hg in systolic BP and 80.7 ± 11.9 mm Hg in diastolic BP.

For all of the patients (mean age: 57.1 ± 10.7 years; male: 48.8%), the mean systolic/diastolic BP values were 131.4/80.7 mm Hg for the office BP, 131.0/80.7 mm Hg for the morning home BP, and 128.9/78.5 mm Hg for the evening home BP, respectively. The morning home BP was nearly identical to morning home BP, and 128.9/78.5 mm Hg for the evening home BP. This work was supported by a research grant for Korean Epidemiology Study on Hypertension II (KEY II) from GlaxoSmithKline Pharmaceuticals Korea.

In summary, as excellently reviewed by O’Brien, out-of-office BP measurement provided valuable data on circadian variations of BP and, therefore, revealed the patients with masked hypertension, having increased cardiovascular risk, which could not be diagnosed by office BP measurement. Remarkably, a substantial difference in diurnal BP pattern among various antihypertensive classes was observed through out-of-office BP measurement. In this regard, ambulatory BP measurement, as well as SBPM, if measured after a proper training process, could be widely used in future clinical trials focusing on the efficacy of antihypertensive agents in high-risk patients, as well as in the high-risk circadian period.

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Hae-Young Lee

Department of Internal Medicine
Seoul National University Hospital
Seoul, Korea

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