Effective Ambulatory Blood Pressure Control in Medical Practice

Good News To Be Taken With Caution

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A large number of studies has addressed the question of how effective is blood pressure (BP) control in the hypertensive population,\textsuperscript{1–3} with a consistent and unequivocal answer. That is, BP control is disappointingly low, because only a small fraction of patients diagnosed as having a BP elevation show on-treatment BPs $<140$ mm Hg systolic and $90$ mm Hg diastolic, which are the target values for treatment recommended by international guidelines.\textsuperscript{4,5} This is the case regardless of whether patients are followed by general practitioners or specialists\textsuperscript{6,7} and have a low or high cardiovascular risk profile.\textsuperscript{8–10} The latter condition making the need of BP control even more compelling given the imminent risk of a cardiovascular event. Reality is obviously even worse when the lower BP targets that have been shown to be additionally protective in high-risk hypertensive patients, that is, $<130/80$ mm Hg, are considered.\textsuperscript{5,6} In a recent study performed in Italy, for example, we have shown that in diabetic (and, thus, high risk) hypertensive patients followed by general practitioners, an on-treatment BP $<130/80$ mm Hg was achieved in only 3% of the sample,\textsuperscript{7} the conclusion being that in the clinical practice these targets are, at present, no more than a “mirage.”

Evidence is available that hypertensive patients in whom BP is uncontrolled by treatment have a cardiovascular risk only modestly less than that of untreated individuals,\textsuperscript{11} possibly also because in several instances treated BP levels remain quite high, that is, patients are frequently not barely but badly uncontrolled.\textsuperscript{5,7,12} This has led scientific societies to consider a substantial increase of BP control in the hypertensive population as a public health goal even more important to pursue than that of discovering new treatments via scientific studies. In this context, the article of Banegas et al\textsuperscript{13} published in this issue of *Hypertension* is good news. This is because although office BP was controlled in only 23.6% of the 12,897 hypertensive patients treated by Spanish primary care centers (a figure in line with the low rate reported in other studies), control of daytime BP values was found to be adequate in 51.6% of the cases, that is, a percentage $>2$ times as large. The authors concluded that in a considerable number of treated hypertensive patients in whom BP measured by the physician remains high, daily life BPs are within the normal reference range, suggesting that the BP elevation found in the clinic environment may be a transient phenomenon (eg, a white-coat effect) and giving the problem of low BP control a more optimistic perspective.

The article by Banegas et al\textsuperscript{13} has several merits that make its conclusions reliable. First, I am not aware of any other study that has examined BP control not only by office but also by a much more complex method, such as ambulatory BP monitoring, in such a large number of patients. Furthermore, selection of patients and physicians was such as to truly reflect the state of hypertension management in the country involved. Finally, the technical requirements for acceptance of ambulatory BP monitorings were such as to make the data quality adequate, a task particularly difficult to achieve in the clinical practice setting. Some considerations, however, may limit the optimistic implications of these results for BP control in the clinical practice. First, although ambulatory BP was recorded for 24 hours, data on nighttime BP values were not reported, which keeps open the possibility that in some subjects in which daytime BP was controlled, nighttime values remained above their normal limits. This may be clinically relevant, because night BP is prognostically important and its relationship with cardiovascular outcome steeper than that of daytime values.\textsuperscript{14–16} Second, the pattern characterized by an elevated office and a normal ambulatory BP may have preceded treatment because of the high prevalence ($\geq30\%$), in the untreated hypertensive population, of white-coat or isolated office hypertension.\textsuperscript{17} In other words, in at least part of the treated subjects of the study, the greater rate of ambulatory BP normality could have been present before the therapeutic intervention rather than resulting from it. Finally, there is evidence that individuals in whom ambulatory BP is normal but office BP is elevated are at greater cardiovascular risk than those in which ambulatory and office BPs are both normal.\textsuperscript{18–20} Indeed, analysis of the data obtained in the Pressioni Arteriose Monitorate E Loro Associazioni (PAMELA) population shows that, compared with subjects in whom office, home, and 24-hour BPs are all normal, the 12-year rate of cardiovascular death was progressively greater when 1, 2, or all 3 of these BPs were elevated (Figure),\textsuperscript{19} the differences occurring also after adjustment for between-group discrepancies in age and gender. This supports the clinical importance of the data obtained by Banegas et al,\textsuperscript{13} because patients with an increased office BP and a normal ambulatory BP appear to be at lower risk than those in whom also ambulatory BP is elevated. It also emphasizes,
Incidence of cardiovascular fatal events in subjects of the PAMELA population sample (n=2051) followed for 148 months. Data are shown for subjects in whom: (1) clinic, home, and ambulatory BP values were all normal; (2) 1 or 2 BPs were elevated regardless whether the elevation involved clinic, home, or ambulatory values; and (3) all 3 BPs were elevated before (left) and after (right) adjustment for differences in age and gender. P values refer to trend. Data from Reference 19.

Disclosures

None.

References
