The study by Niiranen et al1 in this issue of the Journal addressed an important clinical issue. The research question was whether equally effective hypertension control can be achieved by treatment adjustment on the basis of daytime ambulatory blood pressure (dABP) or home blood pressure (HBP) measurement.

The main conclusion of the authors that there were no significant between-group differences (dABP versus HBP group) is correct. However, because of low study power, several clinically important differences probably did not reach statistical significance (eg, regarding HBP decline, control rates, triple therapy). For example the 14.2% between-group difference in control rates was nonsignificant but is clinically important. In fact the 95% confidence intervals include a difference in control rates as high as 34%.

Another conclusion of the authors that requires special attention is the nonsignificant trend to a larger proportion of patients reaching the target pressure in the HBP group. This statement is correct because in the HBP group the HBP goal was reached in 57.7% of subjects, whereas in the dABP group the dABP goal was reached in 43.5% of subjects. On the other hand it is wrong because if both measurement methods are considered, there is a consistent trend for more effective control in the dABP group, with HBP and dABP targets reached in 60.9% and 43.5% respectively, compared with 57.7% and 38.5% respectively in the HBP group.

This puzzling finding is probably attributed to the fact that at randomization dABP was higher than HBP by >4/3.5 mm Hg (systolic/diastolic). Despite this difference the target blood pressure (BP) was the same for dABP and HBP (diastolic BP <80 mm Hg). Thus in the dABP group dABP had to be reduced by ≥14.4 mm Hg, whereas in the HBP group HBP had to be reduced by ≥10.5 mm Hg. One might have predicted that subjects in the dABP group would receive more intensive treatment (triple therapy was more frequently prescribed) and would thereby achieve better control of both dABP and HBP.

Given that HBP is measured after a few minutes of sitting rest and always at home whereas dABP is measured under ambulatory conditions and also at work, one might predict that HBP would be lower than dABP. However current guidelines recommend the same threshold for HBP and dABP.2 As mentioned by Niiranen et al,1 the normal range of HBP is uncertain because it has been defined using statistical evaluation of cross-sectional data3 instead of outcome data.4

Therefore an important message from this study that should not be missed is that treatment adjustment based exclusively on HBP and using the currently recommended threshold might underestimate BP and lead to undertreatment. Unfortunately, because of the small sample size, this study suggests but cannot prove this hypothesis.

As Niiranen et al mentioned, prognostic data are urgently needed to define decision thresholds for HBP. Until these data become available, treatment decisions in hypertension should not be based solely on HBP measurements. Although HBP is a useful adjunct to office measurements,5 if the two methods lead to different conclusions regarding the hypertension management, decisions should be based on dABP monitoring.

References

