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Home Blood Pressure Measurements Will or Will Not Replace 24-Hour Ambulatory Blood Pressure Measurement

Eoin O'Brien

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Letter to the Editor

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To the Editor:

I am pleased that the protagonists in this controversy largely negate the question posed in the title by agreeing that the techniques are complementary rather than one being an alternative for the other, with Verdecchia et al acknowledging that, "Home BP [blood pressure] and 24-hour ABP [ambulatory BP] should be possibly considered as complimentary techniques, to be used with the precise aim of exploiting the best that each technique can provide,"[1] and Parati et al stating that, "The current position is that HBPM [home BP monitoring] and ABPM [ABP monitoring] should coexist and be used as complimentary tools, providing different information on a subject's BP status."[2]

I would like to draw attention to 2 aspects of the debate, which were not considered. First, HBPM is a demanding procedure for patients. To obtain a measurement approximating to mean daytime ABPM for clinical decision making, the subject must make 2 measurements in the morning and evening on 7 consecutive days, discard the first day of measurement, and average the measurements of the last 6 days.[3] At the end of this demanding routine, the subject has no indication of nighttime BP, which is now recognized as being the most sensitive predictor of outcome.[4] Is this routine for obtaining 1 facet of the 24-hour profile preferable to 1 day of ABPM with the given advantages conferred by that technique? Unfortunately, the misconception prevails that an occasional HBPM will give equivalency to ABPM, which is clearly not the case, and such measurements may be every bit as misleading as the inaccurate technique of conventional BP measurement.

The expense of ABPM is acknowledged by both sides as a disadvantage, but the means of making ABPM less expensive was not addressed. The cost of devices is reducing quite significantly and could be favorably influenced by reimbursement incentives by healthcare providers. Of equal importance is the presentation and reporting of ABPM data. I have been developing the dabl ABPM system over many years, not only to standardize the presentation of ABPM data on a comprehensive 1-page report but also to provide a computer-generated report interpreting the data and thereby removing the considerable expense of requiring a doctor to make a report.[5] These developments will greatly facilitate the use of ABPM in clinical practice.

In keeping with the helpful analyses and opinions expressed in these "controversy" articles, I join my colleagues in their efforts to propagate out-of-office measurements so as to improve the control of hypertension, which we all admit is deplorable throughout the world.

Disclosures

None.

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Response to Home Blood Pressure Measurements Will or Will Not Replace 24-Hour Ambulatory Blood Pressure Measurement

Gianfranco Parati and Grzegorz Bilo

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We have read with interest the letter by O'Brien[1] contributing to the debate on the respective role of home blood pressure (BP; HBP) monitoring (HBPM) and ambulatory BP (ABP) monitoring (ABPM) in the clinical management of hypertensive patients.[2,3] We largely agree with O'Brien's[1] observations, although with a slightly different perspective.

First, we agree that isolated HBP measurements are of limited clinical value. Indeed, only the average of repeated HBP readings carries diagnostic and prognostic information, which may be partly comparable to that provided by 24-hour ABPM,[4] with most outcome studies being based on structured HBPM schedules including a consistent number of measurements. The recent European guidelines on HBPM recommend that HBP data from ≥3 (and ideally 7) days of measurements performed twice daily should be used, disregarding the values obtained on the first day.[4] This task does not appear to be particularly demanding for patients, and it could be made even easier by supplying them with a structured logbook, where HBP values collected during the week preceding each physician's visit can be stored, or by using automated BP measuring devices equipped with specific software tools able to follow the HBPM schedule recommended by recent guidelines[4] and providing the average value of the HBPM week after discarding the initial day. It has to be acknowledged that many patients perform HBPM without doctor's guidance, often measuring their HBP much too frequently. The recent European Society of Hypertension and American Heart Association recommendations on HBPM[4,5] strongly advise HBPM to be performed always under a physician's supervision, and the currently recommended schedule indeed represents a simplification of the HBPM habits often self-implemented by patients, rather than a "demanding routine."

We also share the view that the availability of ABPM should be increasing with its cost being less prohibitive, a point clearly emphasized at the end of our article.[3] A wider availability of ABPM might allow this diagnostic tool to become a more frequent companion to the HBPM implementation in daily practice, complementing the information that it provides. Indeed, whereas HBPM allows BP to be measured over a relative long time span, ABPM provides unique assessment of the 24-hour ABP profile, including nighttime and morning BP and BP variability.

Finally, we acknowledge the possible usefulness of software tools supporting adequate ABPM reporting. Indeed, although international hypertension guidelines recognize the diagnostic and prognostic values of average ABP, only vague reference is made to other potentially relevant information provided by analysis of 24-hour ABP profiles. Clear and evidence-based indications on which clinically relevant features of 24-hour ABP should be included in the final report thus have to be provided by national and international scientific societies, and software tools able to make this information easily available to physicians would be welcome.

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Response to Home Blood Pressure Measurements Will or Will Not Replace 24-Hour Ambulatory Blood Pressure Measurement

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We thank O'Brien[1] for his interest in our article and his comments. The title of our position was "Home blood pressure measurements will not replace 24-hour ambulatory blood pressure monitoring," and we held such position throughout the entire article. For example, we wrote that "It is out of question that the prognostic value of 24-hour ambulatory blood pressure (BP) is more strongly supported than that of home BP," and that "A strong case for 24-hour ambulatory BP monitoring in almost all subjects would be the initial assessment for untreated individuals with a clinical diagnosis of hypertension," and, finally, that, "24-hour ABP [ambulatory BP] monitoring may be useful, in our opinion, also for untreated subjects with office hypertension and normal home BP who lack target-organ damage. There is no evidence supporting the prognostic value of home BP in these subjects."

Therefore, we never contradicted the point that home BP will not replace ambulatory BP. We remarked on the undeniable argument that, in the majority of longitudinal outcome-based studies in hypertensive individuals, the initial 24-hour ambulatory BP monitoring was undertaken in untreated subjects. Consequently, the inferences regarding the prognostic value of white-coat hypertension, nighttime BP, pulse pressure, and so forth most properly apply to untreated subjects. This may draw a preferential place for 24-hour BP monitoring in the initial assessment of the majority of hypertensive patients. In contrast, home BP measurements may be more indicated in the long-term management of treated hypertensive patients. In addition, we recognized that 24-hour ambulatory BP may also be helpful in a number of conditions in treated subjects, as suggested by guidelines.

These considerations form the basis of our statement that 24-hour BP monitoring and home BP measurement are complementary, rather than alternative, techniques.

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