

The hidden treasure of 24-hours ambulatory blood pressure monitoring—Assessing BP variability

Angelo Scuteri MD, PhD^{1,2}  | Antonella Mandas MD^{1,3}

¹Post-Graduate Medical School of Geriatric Medicine, University of Sassari, Sassari, Italy

²Department of Medical, Surgical, and Experimental Sciences, University of Sassari, Sassari, Italy

³Department of Medical Sciences, and Public Health, University of Cagliari, Cagliari, Italy

Correspondence

Angelo Scuteri MD, PhD, Department of Medical, Surgical, and Experimental Science, University of Sassari, Sassari, Italy.
Email: d341elefante@virgilio.it; ascuteri@uniss.it

India, the second largest country in the world as for population, is actively acting on promoting BP measurement, improving hypertension management to achieve adequate BP control—like the India Hypertension Management Initiative in collaboration with WHO.

In the present issue, Kaul et al¹ reported trends in office and 24-hours ABPM blood pressure values in a large population in India.

The study may suggest several points to highlight and further discuss. We propose to recall the attention on the richness of information that can be extracted from a 24-hours ABPM record.

24-hours ABPM has been found to be a better predictor of hypertension-mediated organ damage² and CV fatal and nonfatal events^{3,4} than office BP. Similarly, patients with a reduced nighttime fall in BP (ie, <10% of the daytime average BP, so called “no dipper”) have a greater CV,⁵ often chronic kidney disease⁶ and multiple organ damage.⁷

In routine clinical practice, 24-hours ABPM has been considered a “compelling” test only in pre-eclampsia and/or in resistant hypertension, that is, when BP remains high in spite of adequate pharmacological treatment and confirmed adherence to therapy.

When routinely looking and/or describing the report of a 24-hours ABPM attention is mainly given to average 24h, daytime and nighttime BP values and nocturnal BP fall (dipper status). By doing this, we lack a full exploitation of the information contained and provided by a 24-hours ABPM.

For instance, 24-hours ABPM allows estimating BP variability by additional and richer parameters than standard deviation only. This is the case of BP load, that is, the percentage of measures exceeding normal values for daytime and nighttime, as well as occurrence of hypotension.⁸

Of note, most recent hypertension guidelines have broadened indications for 24-hours ABPM by including “when there is considerable variability in the office BP” and “evaluating symptoms consistent with hypotension during treatment”.⁹

BP variability has been associated with accelerated arterial aging¹⁰ and cognitive impairment.¹¹

Nonetheless, it remains a topic deserving much attention and further investigation.

Relevant question to be addressed is how age impacts on BP variability. Intervention studies should provide evidence as to whether reduction in BP variability has a favorable impact on “hard” and functional CV outcomes, thus suggesting BP variability as a target of BP treatment.

An additional aspect of great relevance for achievement of a better BP control rate in population is represented by the potential age-specific determinants of BP variability. Is it reasonable that the burden of BP variability is more attributable to BP load at younger ages and to hypotension at older ages?

In conclusion, accuracy of BP measurement is a key element for the management of hypertension burden.¹² A broader conceptualization and clinical definition of BP variability represent a key element for an increasingly personalized approach to hypertension aimed at reducing the large number of years lived with disability that is attributable to hypertension.¹³

CONFLICT OF INTEREST

None.

ORCID

Angelo Scuteri  <https://orcid.org/0000-0003-4784-5441>

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