

Resistant hypertension and central aortic pressure

Michael F. O'Rourke^{a,b}, Michel E. Safar^c, and Audrey Adji^{a,d}

Dr Campese [1] suggests that the diagnosis of 'resistant hypertension' be tightened in patients considered for invasive treatment by catheter-based renal denervation or carotid baroreceptor activation. He proposes eight additional steps for modification of the American Heart Association definition [2]. In his proposal, he does not consider the need to exclude persons with isolated systolic hypertension under age 60 for whom no outcome benefit has been established, and whose elevated SBP may be due to extreme amplification of the pressure pulse in the arm [3–5].

Surely, measurement of central aortic pressure is desirable in such patients before proceeding to invasive therapies, and appears warranted on the basis of European Society of Hypertension/European Society of Cardiology 2013 Guidelines [6].

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Conflicts of interest

M.F.O.R. is a founding director of AtCor Medical P/L, manufacturer of pulse wave analysis system, SphygmoCor, and of Aortic Wrap P/L, developer of methods to reduce aortic stiffness, and consultant to Novartis and Merck. M.E.S. and A.A. have no disclosures.

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Reply to 'Resistant hypertension and central aortic pressure'

Vito M. Campese

I totally agree with the suggestion contained in the letter [1].

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Nocturnal blood pressure dipping: systolic, diastolic or both?

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O'Brien *et al.* [1], on behalf of the European Society of Hypertension Working Group on Blood Pressure Monitoring, provided a thorough,

updated, comprehensive and clear review of ambulatory blood pressure monitoring. The study is enriched by a number of recommendations regarding several practical issues, including why, when and how ordering, performing and interpreting an ambulatory blood pressure monitoring. Given that diurnal blood pressure variation is thought to be of clinical and prognostic relevance, it is not unexpected that the issue is dealt with in a long and detailed chapter. Yet, we were surprised that the different patterns of diurnal blood pressure variation as identified by ambulatory blood pressure monitoring are defined in an ambiguous way. In particular, the authors suggest that a normal diurnal pattern is present when 'nocturnal blood pressure falls >10% of daytime values, or night-day blood pressure ratio is <0.9 and >0.8', and similar statements are used for defining the other dipping patterns. However, no indication is found in the text or table (Box 9) as to which blood pressure component should be used for classifying a particular individual as having a normal, extreme, reduced blood pressure dipping or a nocturnal blood pressure rising.

In the past, dipping patterns have been defined according to mean arterial pressure, systolic pressure, diastolic pressure or a combination of systolic and diastolic pressure, and this led to divergent classification of participants on the basis of which criterion is used. The issue is of considerable relevance, as the prognostic impact of night-day ratio is not the same when the definition is based on SBP or DBP [2,3]. The extent of percentage nocturnal reduction is on average greater for DBP than for SBP [4], and this may lead to serious problems of misclassification. It has also been suggested that the systolic night-to-day ratio may be similar in auscultatory and oscillometric recordings, whereas this could not be the case for the diastolic night-to-day ratio [5].

We feel that an elucidation of which blood pressure component(s) should be preferably used for defining the different dipping patterns is necessary in order to appreciate the important clinical implications of the study [1].

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Response to: Nocturnal blood pressure dipping: systolic, diastolic or both?

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We thank Dr Schillaci and his colleagues for their general comments on the European Society of Hypertension Position Paper on ambulatory blood pressure monitoring [1] and in particular for drawing attention to an area of importance, namely, which pressure to use to define nocturnal dipping. Indeed, there were a number of issues relating to ambulatory blood pressure monitoring on which we were unable to make definitive statements based on the available evidence. Nocturnal dipping was one such example and in the light of the comments by Dr Schillaci and his colleagues and recent correspondence with other experts, we believe it would have been less ambiguous if we had stated that dipping phenomena should be based on 'systolic and/or diastolic' blood pressure. We believe, moreover, that we do not have evidence to ignore either the DBP or SBP in the dipping phenomena. Perhaps the use of SBP in the elderly is justifiable on the basis of data collected in several studies, given that DBP is low in most patients in this age group. However, even this line of reasoning is flawed simply because it is not practical to give different definitions for different ages and there are old patients with SBP and DBP elevation.

We regret, therefore, the ambiguity on this issue but welcome the line or reasoning that would now suggest that nocturnal dipping phenomena should be based on 'systolic and/or diastolic' blood pressure.

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REFERENCE

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