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White coat UnControlled Hypertension, Masked UnControlled Hypertension, and TrueUnControlled Hypertension, phonetic and mnemonic terms for treated hypertension phenotypes

Running title: WUCH, MUCH, TUCH, new phenotypes terms

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Dear Editor,

Physicist and philosopher Ernst Mach said that a well-chosen word can economize thought [1]. However, when faced with multiple terms for naming an entity many people could get confused about meaning and semantics, then, becomes an issue. This could be the case for the inflated world of terms used for hypertension phenotypes, i.e., white coat hypertension and masked hypertension.

The rationale for constructing new terms for variants of these phenotype conditions is that they could represent clinically different entities. For example, the condition called white coat hypertension is theoretically only possible for an *untreated* individual whose blood pressure (BP) is elevated in the office or clinic but normal under ambulatory blood pressure monitoring (ABPM). A treated hypertensive patient with the same diagnostic definition for clinic and ABPM-based BP as the untreated, could not appropriately be termed a white coat hypertensive. This is because he or she may well have been a sustained hypertensive subject before starting treatment (with both clinic and ambulatory BP elevated) whose ambulatory BP, but not their clinic BP, was controlled on treatment, thus, simulating white coat hypertension. That is the main reason why, increasingly, authors and guidelines often recommend saving the use of “white coat hypertension” for untreated individuals. This label was proposed by Pickering and colleagues at the beginning of the 1980s [2], paralleling the “alarm reaction” (transient increase in BP during doctor´s visit) elegantly demonstrated by Mancia and colleagues in 1983 [3].

The term “white coat hypertension” is probably a misnomer and a misconception, as Mancia and Zanchetti have argued [4], since it does not necessarily reflect, or at most partially, an alerting reaction or white coat effect and it is not purely emotional in nature. However, as Zanchetti ironically commented, the acceptance of a more descriptive name for this condition

(e.g., isolated clinic hypertension) is a lost war [5], and the term is so commonly used that we probably do right in using it as well.

Thus, new names have been proposed for treated white coat hypertensive patients such as pseudoresistant hypertension by Myers, false resistant hypertension or treated normalized hypertension due to white coat effect by Franklin and colleagues, and office resistance by Pickering [6-8]. Some of these terms have been recently incorporated in guidelines [9,10]. Almost all these terms recognize the existence of BP control resistance in the clinic in the presence of a good control of ambulatory BP under treatment. Further, Ben-Dov and colleagues used the term "white coat uncontrolled hypertension" for treated patients with clinic BP elevated alone [11], mimicking white coat hypertension. We now propose to summarize this term as WUCH (White coat UnControlled Hypertension) which we think has phonetic and mnemonic advantages, in the context of the other acronyms we propose below for the other two phenotypes.

Regarding the condition of normal clinic BP but elevated ambulatory BP in untreated individuals, Pickering and colleagues introduced the term masked hypertension [12]. We proposed the acronym MUCH (Masked UnControlled Hypertension) [13] for masked hypertension in treated patients. These patients are treated hypertensive, thus their hypertension is not masked, instead what *is* masked is the lack of ambulatory BP control despite seemingly well-controlled clinic BP.

Lastly, there are two other conditions at play in the cross-classification of hypertension status according to clinic BP and ABPM, one where both clinic and ambulatory BP are elevated and the other where both are normal. In untreated individuals, the commonly used terms sustained hypertension and normotension seem adequate for these two conditions, respectively. However, in treated patients we may well use the term true uncontrolled hypertension for those patients who are uncontrolled at both in-office and out-of-office settings. Here we propose the acronym TUCH (True UnControlled Hypertension), phonetically consonant with the previous

acronyms WUCH and MUCH and thus supposedly easier to recall. As seen, these terms share the common last name "uncontrolled hypertension" (UCH) preceded by the words white coat (W), masked (M), or true (T), respectively, in a coherent fashion to easily recall these names even without acronyms. Finally, for people with both clinic and ambulatory BP controlled under treatment the term controlled hypertension could apply.

Far from adding noise in terminology by creating neologisms or abbreviating already existing terms, we aim at introducing user´s friendly acronyms for treated hypertension phenotypes that potentially improve communication among clinicians and researchers while economizing thought and time. Time will have the last word.

References

1.-Annual report of the Board of Regents of the Smithsonian Institution. Available at: http://www.archive.org/stream/annualreportboa83unkngoog/annualreportboa83unkngoog_djvu.txt Accessed 12 May 2017.

2.-Pickering TG, James GD, Boddie C, Harshfield GA, Blank S, Laragh JH. How common is white coat hypertension? JAMA. 1988;259:225–228.

3.- Mancia G, Bertinieri G, Grassi G, Parati G, Pomidossi G, Ferrari A,Gregorini L, Zanchetti A. Effects of blood-pressure measurement by the doctor on patient's blood pressure and heart rate. Lancet. 1983;2(8352):695–698.

4.-Mancia G, Zanchetti A. White-coat hypertension: misnomers, misconceptions and misunderstandings. What should we do next? J Hypertens. 1996;14:1049-1052.

5.-Zanchetti A. White coat hypertension: the history of the irresistible, resistible ascent of a misnomer. In: Mancia G, Grassi G, Parati G, Zanchetti A (ed). In: White coat hypertension. An unresolved diagnostic and therapeutic problem.New York: Springer, 2015: 137-147.

6.- Myers MG. Pseudoresistant hypertension attributed to white-coat effect. Hypertension. 2012;59:532-533.

7.- Franklin SS, Thijs L, Hansen TW, O´Brien E, Staessen JA. White-coat hypertension.New insights from recent studies. Hypertension. 2013;62:982-987.

8.-Pickering TG. White coat hypertension. In: Izzo JL Jr, Black HR, eds. Hypertension Primer: The Essentials of High Blood Pressure. 3rd ed.Dallas, TX: American Heart Association; 2003:296–298.

9.-O'Brien E, Parati G, Stergiou G, Asmar R, Beilin L, Bilo G, et al. European Society of Hypertension Working Group on blood pressure monitoring. European Society of Hypertension position paper on ambulatory blood pressure monitoring. J Hypertens. 2013;31:1731–1768.

10.-Parati G, Stergiou G, O'Brien E, Asmar R, Beilin L, Bilo G, et al. European Society ofHypertension Working Group on blood pressure monitoring and cardiovascular variability. European Society of Hypertension practice guidelines for ambulatory blood pressure monitoring. J Hypertens. 2014;32:1359–1366.

11.-Ben-Dov IZ, Kark JD, Mekler J, Shaked E, Bursztyn M.The white coat phenomenon is benign in referred treated patients: a 14-year ambulatory blood pressure mortality study. J Hypertens. 2008;26:699-705.

12.- Pickering TG, Davidson K, Gerin W, Schwartz JE. Masked hypertension. Hypertension. 2002;40:795-796.

13.-Banegas JR, Ruilope LM, de la Sierra A, De la Cruz JJ, Gorostidi M, Segura J, et al. High prevalence of masked uncontrolled hypertension in people with treated hypertension. EurHeart J. 2014;35:3304-3312.