

Questioning the Innocence of White Coat Hypertension

MÓNICA G. DÍAZ

White coat hypertension (WCH), a currently well-known condition defined as hypertension in the clinical setting with normal values of home blood pressure, has been considered a benign entity for many years with no influence in patient cardiovascular prognosis. This concept has been changing gradually, especially due to the better understanding of the relationship between ambulatory blood pressure (BP) and target organ damage. Studies like the PAMELA (Pressioni Arteriose Monitorate e Loro Associazioni Study) trial have demonstrated that, in patients with WCH, the presence of long-term target organ damage and the incidence of cardiovascular events are intermediate between normotensive (NT) subjects and patients with established hypertension (HT). Other authors, as Verdecchia et al., have demonstrated that the incidence of stroke is comparable in WCH and normotensive groups during the first 3 or 4 years of follow-up. Then, the curves diverge and the incidence of stroke is greater in the group of patients with WCH. Of note, these patients are more likely to present associated risk factors and to develop other conditions linked with greater cardiovascular risk, as type 2 diabetes mellitus, HT and left ventricular hypertrophy. Therefore, the concept of “benign” condition has evolved with the better understanding of WCH. Probably, these findings might be due to the fact that patients with WCH have office and home BP values that are intermediate between normotension and sustained hypertension. As it is well-known that the risk of cardiovascular disease increases continuously when systolic BP is greater than 115 mm Hg, the risk of these patients is higher than that of NT subjects, and lower than that of hypertensive patients; yet, they are classified as NT subjects due to the currently used cutoff values. Recently, the NICE guidelines have clearly incorporated the concept of WCH in the daily practice, by establishing that the correct diagnosis of HT requires office blood pressure measurements > 140/90 mm Hg and confirmation by ambulatory blood pressure monitoring (ABPM). (1)

However, as frequently occurs in medicine, controversial results have been reported on the presence of target organ damage in subjects with WCH compared to NT patients. Probably, this controversy may be partially related to the fact that many longitudinal studies designed to evaluate morbidity and mortality in these patients have been conducted on small populations with few cardiovascular events and short-term follow-up. However, as the prevalence of WCH is between 20% and 45%, it is extremely necessary to obtain clear information on the outcome

of this condition. (2) In this sense, Páez et al. (3) report in this issue of the Journal, results of a local population, which is an interesting topic to consider.

Comparing patients with WCH versus NT patients, they found that most patients with WCH remained with the same diagnosis at 10-year follow-up; however, 40% (a significant number) of patients with WCH compared to only 19% of patients with normotension developed sustained HT after 10 years. Therefore, the following observations arise using the old concept that WCH is a “benign” condition compared to normotension: 1) although most patients with WCH at the beginning of the study did not develop sustained HT, a significant number (40%) did so, and 2) the likelihood of developing HT was greater in patients with WCH compared to NT patients [RR 2.5 (95% CI 1.2-4.2)]. Hypertension produces a linear increase in the risk of cardiovascular disease when systolic BP is greater than 115 mm Hg; for this reason, there is a tendency in this (3) and other studies to abandon the concept that WCH is a benign or innocent clinical condition, at least for a significant percentage of patients. If these patients with WCH had not been followed-up, they would have lost the chance to be diagnosed as hypertensive patients and be properly treated. The study by Páez et al. (3) remarks the importance of a correct diagnosis and a stricter follow-up of patients with this clinical entity. The information obtained by the authors agree with the results of the PAMELA study published by Mancia et al., (4) one of the most complete trials in this topic evaluating the incidence of sustained HT after 10 years in a group of patients with WCH. This study revealed that 42.6% of these patients (similarly to the present study) developed sustained HT, with an OR of 2.51. However, the PAMELA study used a different ABPM value. The characterization of WCH as “low cardiovascular risk” is mainly due to the level of daytime BP established as normal by ABPM. This means that the higher the values of daytime BP chosen as normal, the greater the likelihood of developing organic involvement. Staessen et al. defined WCH when daytime BP on ABPM was $\geq 146/91$ mm Hg, and Pickering et al. with levels $\geq 134/90$ mm Hg. In this study, the authors considered normal BP when the value of daytime BP on ABPM was $\leq 135/85$ mm Hg. In this way, they avoided overestimating target organ damage in patients with WCH, strengthening the significance of their results.

These results, together with those previously published by the same group (5) and a great proportion of studies reported in the literature, suggest that WCH

should be considered a condition with intermediate cardiovascular risk between normotension and sustained HT, and not as an entity with risk comparable to that of normotension. Finally, the study By Dr. Olga Páez et al. (3) evaluating the cumulative incidence of sustained HT in NT subjects and in patients with WCH is interesting from different points of view: firstly, it is a prospective study documenting the outcome of WCH after 10 years; secondly, it incorporates a significant number of patients with limited loss during follow-up; thirdly, the study provides information from a local population and, finally, it discusses a controversial topic in the field of HT, demonstrating that WCH is not “innocent”. Thus, these patients should undergo a stricter follow-up in order to detect earlier those subjects with greater cardiovascular risk.

REFERENCES

1. Zanchetti A, Mancia G. Longing for clinical excellence: a critical outlook into the NICE recommendations on hypertension management is nice always good? *J Hypertens* 2012;30(4):660-8.
2. Pickering TG, James GD, Boddie C, Harshfield GA, Blank S, Laragh JH. How common is white coat hypertension? *JAMA* 1988;259:225-8.
3. Páez OB, Puleio PA, Gorosito MG, Visser M, Schiavone M, Majul CR. Hipertensión de guardapolvo blanco: evolución a hipertensión sostenida luego de 10 años de seguimiento. *Rev Argent Cardiol* 2012;80:XXX-XXX.
4. Mancia G, Bombelli M, Facchetti R, Madotto F, Quarti-Trevano F, Polo Friz H, et al. Long-term risk of sustained hypertension in white-coat or masked hypertension. *Hypertension* 2009;54:226-32.
5. Majul CR, Paez OB, De María ME, Cragolino RJ, López AC, Gorosito MG, y col. Hipertensión por guardapolvo blanco. ¿Es una entidad intermedia entre normotensos e hipertensos sostenidos? *Rev Argent Cardiol* 2001;69:260-6.