Short report

High levels of discordance between office-based and ambulatory blood pressure measurements for diagnosing optimal blood pressure control in high-risk diabetic populations from a developing country

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Abstract

This study investigated the concordance between office-based blood pressure (BP) readings and ambulatory BP monitoring (ABPM) in 51 consenting type 2 diabetes patients (25 males) in Cameroon with hypertension who had been receiving stable treatment for at least 3 months. The prevalence of optimal BP control was 63% based on office measurements and 23% based on ABPM. Agreement between the two methods was poor (kappa statistic: 0.15; 95% confidence interval: $-0.08$ to 0.29). Using ABPM as the standard, office BP was helpful for ruling out optimal BP control (specificity: 75%), but not for ruling it in (sensitivity: 41%). Our results suggest that ABPM should be recommended in such settings as ours only for those patients who have already achieved stable optimal BP control according to office measurements.

Keywords: Type 2 diabetes; High blood pressure; ABPM; BP measurement; Africa

Dear Editor,

The recently published guidelines of the UK National Institute for Health and Clinical Excellence (NICE) on hypertension recommend the use of out-of-office blood pressure (BP) measurements to diagnose hypertension [1]. This is based on the existing and growing evidence that out-of-office BP measurements are superior to office-based measurements in predicting clinical outcomes. Furthermore, it has been shown that the anticipated high cost of diagnosing hypertension based on ambulatory BP monitoring (ABPM) would translate into long-term cost-savings as a result of better targeted treatment subsequent to more accurate diagnoses [2].
Fig. 1. Reclassification of 51 adults with type 2 diabetes into those at their optimal blood pressure (BP) target and those not on target, according to ambulatory BP monitoring (ABPM), within the equivalent categories based on office BP measurements.

The available evidence therefore tends to herald a global shift towards more reliance on ABPM and home BP monitoring (HBPM) for hypertension diagnosis and treatment monitoring, including the primary-care setting [2]. This, however, has huge implications for resource-poor settings where the burden of hypertension is growing [3], and where the cost of devices would be a limiting factor in the uptake of strategies based on out-of-office BP measurements. One way around this might perhaps consist of tailoring such strategies to the segment of the population at higher risk, such as people with diabetes, who are likely to derive the most benefit from being diagnosed and optimally treated for hypertension [4].

A recent publication by Gorostidi et al. [5], based on a large cross-sectional sample of patients followed in primary-care settings in Spain, has highlighted the high frequency of ABPM abnormalities in patients with diabetes, thereby lending support to ABPM as a more appropriate basis for BP control strategies in those with diabetes. Also, knowledge of the magnitude of the discrepancy between office-based and out-of-office BP measurements in similar high-risk populations in resource-poor African countries might set the stage for more constructive debates over the applicability of out-of-office BP monitoring in such settings.

For this reason, we investigated 51 consenting type 2 diabetes patients (25 males) in Cameroon who had hypertension (median duration: 5 years) and who had been taking stable treatment for at least 3 months. The prevalence of optimal BP control (systolic < 130 mmHg and diastolic < 80 mmHg) was 63% based on office measurements, and 23% based on ABPM. Agreement between the two methods was poor (kappa statistic: 0.15; 95% confidence interval: −0.08 to 0.29). Using ABPM as the standard, office BP was useful for ruling out optimal control (specificity: 75%), but not for ruling it in (sensitivity: 41%; Fig. 1).

Our findings suggest that high-risk diabetics in this setting are not enjoying the full benefits of BP-lowering treatment as the result of having their treatment tailored to office-based BP measurements. Our findings further suggest that any improvement in the situation would most likely invite more targeted, rather than universal, use of out-of-office BP monitoring in diabetes cases, which has implication in terms of cost-savings. Indeed, ABPM in this context would be useless as long as BP remained above the optimal office-based BP targets, but would become relevant and of paramount importance in cases of alleged good control based on office BP measurements.

Therefore, unlike Gorostidi et al. [5], we recommend the use of out-of-office BP monitoring in our situation only for those patients who have already achieved stable optimal control based on office measurements. We should, however, mention that the limitations of our present study are its low statistical power, and the need for replication in other, larger diabetic populations.

Disclosure of interest

The authors declare that they have no conflicts of interest concerning this article.

References