Proceedings of the British Pharmacological Society at http://www.pA2online.org/abstracts/Vol12Issue3abst210P.pdf

Diagnostic and Therapeutic Value of Supervised Dosing in Resistant Hypertension

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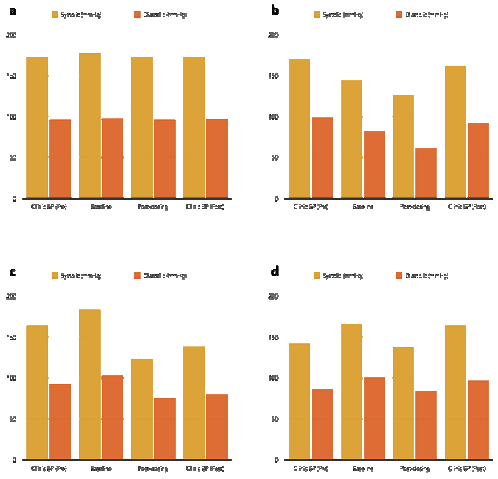
INTRODUCTION: Resistant hypertension remains a challenge. Defined as sub-optimal blood pressure (BP) control in patients on at least three, maximally tolerated, anti-hypertensive drugs, it represents a significant risk for patients and an economic burden to health care services. However, 'true' resistance is often masked by non-adherence. This may be delineated through supervised dosing (SD).

METHODS: A retrospective study was conducted in 15 patients with resistant hypertension, in whom SD had been carried out between June 2009 and August 2014. All BP data were based on the mean of three individual readings at any given time point, with the same arm utilised on all occasions. A mean BP was calculated for all clinic visits prior to (pre-) and post-SD (mean number of clinic visits: 5, 5.5; respectively). On the day of SD, the "baseline" BP was recorded consistently within 30 minutes of arrival to clinic. "Post-dosing" BP was the lowest systolic blood pressure (SBP) achieved throughout SD.



RESULTS: Of 15 patients evaluated, six (40%) demonstrated BP profiles consistent with 'true' resistant hypertension, i.e., no discernible change in BP during or after SD (Figure 1). The remaining nine patients (60%) displayed pseudo-resistance, albeit as part of three discreet groups. The first of these groups (n=4), demonstrated a reduced 'baseline' SBP (mean reduction: 15.7%) on the day of SD relative to previous mean clinic values. This group also showed a further 12.5% reduction in mean SBP during SD, and 5.1% improvement in subsequent clinic SBP relative to those recorded prior to SD. The second group (n=2), also demonstrated pseudo-resistance with a mean 32.8% fall in SBP during SD and a 15.3% improvement in subsequent clinic readings relative to those observed before SD; however, in this instance, the 'baseline' SBP at SD was not lower than the mean at prior clinic visits. The final group (n=4), demonstrated 'sustained pseudo-resistance' with 16.7% reduction in mean SBP during SD, but a 13.7% increase in SBP in subsequent clinic readings relative to those before SD.

Figure 1. Effects of supervised dosing on blood pressure in patients with "resistant" hypertension. a) True resistance (n=6); b) Pseudo-resistance with reduced baseline SBP on the morning of supervised dosing (n=4); c) Pseudo-resistance with improved SBP during clinic visits subsequent to supervised dosing (n=2); d) Sustained pseudo-resistance (n=4).

DISCUSSION: From a small sample of patients with resistant hypertension, we have demonstrated that only 40% exhibit 'true resistance'. The remaining 60% are pseudo-resistant, in keeping with published data (1). Whilst SD can distinguish between these two groups, we report its potential utility as a therapeutic intervention in 40% of patients with previously resistant hypertension and describe three discreet BP profiles associated with pseudo-resistance. As non-adherence is integral to our findings, further studies into the psychology of these three groups, may offer therapeutic insights.

REFERENCES: (1) Bunker J *et al.* (2011). *J Hum Hypertens* **25:** 137-140