Blood pressure control through monotherapy in treatment-naïve patients with arterial hypertension

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Introduction: Four different antihypertensive agent classes are equivalently recommended in the guidelines for first-line treatment of arterial hypertension (AHT). However, it is unclear, if one of these agents is more potent than the others to reach blood pressure (BP) control. Aim of the analysis was to compare response rates and BP control in these four classes.

Methods: Patients with newly diagnosed grade 1 or 2 AHT on 24h-BP measurements (ABPM) were randomized in a 1:1:1:1 fashion to either perindopril (ACE), olmesartan (ARB), amlodipin (CCB) or hydrochlorothiazide (HCT). ABPM were checked at baseline (BL), after 4 weeks of half dose (TP1) and after 4 weeks of full dose (TP2), if BP control was not reached after TP1. Patients were classified as controlled if mean 24h BP was < 130/80 mmHg, awake BP < 135/85 mmHg and asleep BP < 120/70 mmHg.

Results: 80 patients were randomized: 20 (25.0%) to ACE, 20 (25.0%) to ARB, 21 (26.3%) to CCB, and 19 (23.8%) to HCT. Mean age was 48 (±14) years, mean BMI 26.5 (±3.7) kg/m2. Mean 24h systolic BP (sBP) was 141.8 (± 9.1) mmHg, diastolic BP (dBP) 87.8 (± 7.6) mmHg. Mean decrease from BL to TP1 was -10.5 (± 11.6) and --5.6 (± 6.5) mmHg, from BL to TP2 -11.6 (± 11.2) and -5.6 (± 6.7) mmHg, from TP1 to TP2 -5.8 (± 12.0) and -2.8 (± 5.4) mmHg, for mean 24h sBP and dBP, respectively. BP control rate at TP1 was 26.3 % (n=21) and after TP2 30% (n=24), p=0.250 (Figure). There were no significant differences between the agents regarding systolic BP control, but diastolic BP control rates were significantly lower for HCT in comparison to the other agents after TP1 (p=0.013), after TP1 and TP2 (p=0.003).

Conclusions: Half dose of the most common antihypertensive treatments lead to 24 h BP control in 26% of patients with grade 1 or 2 AHT. Control rates were not significantly improved when increasing to full dose. HCT was the least, whereas ACE, ARB and CCB were comparably effective.

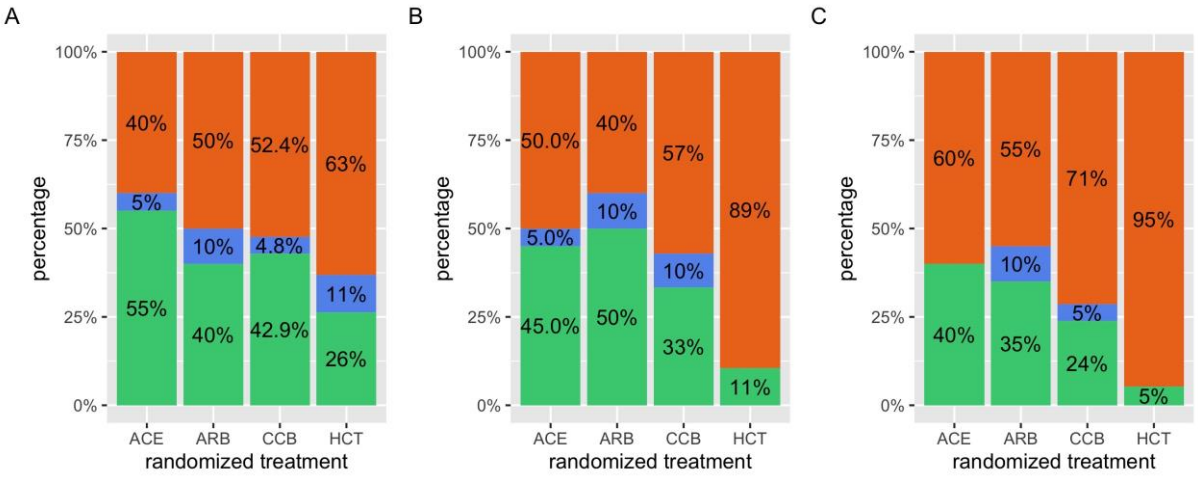

Figure: Percentage of patients with controlled BP after TP1 (green), after TP 2 (blue), and uncontrolled BP (orange) regarding systolic (panel A), diastolic (panel B), and systo-diastolic BP control (panel C), separated for perindopril (ACE), olmesartan (ARB), amlodipin (CCB) or hydrochlorothiazide (HCT).