INDIVIDUAL CHARACTERISTICS INFLUENCE BLOOD PRESSURE RESPONSE TO ANTIHYPERTENSIVE DRUGS

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Introduction — Antihypertensive treatment decreases cardiovascular risk mostly through blood pressure reduction. The current prescription strategy for the choice of drug between the five main antihypertensive classes relies upon intuitive or random choice by the physician. The objective of our analysis was to explore whether systolic blood pressure (SBP) reduction with diuretics, beta-blockers (BB), and calcium channel blockers (CCB), was related to the baseline individual characteristics, and quantify these potential associations.

Methods — We used data from 32767 patients recruited in five randomized placebo-controlled clinical trials in the INDANA database. The main outcome was the SBP fall (DSBP) between randomization and first follow-up visit. Multiple linear regression analyses were used to evaluate the relationship between DSBP, treatment, baseline characteristics of patients, and interactions between these covariates and treatment. Significance level of p<0.10 was used for all analyses.

Results — The average DSBP were 10, 8, 5 mmHg with diuretics, BB, and CCB classes respectively. Baseline SBP was significantly correlated to DSBP whatever the drug class. Age and baseline diastolic blood pressure were significantly correlated to DSBP for diuretics and BB, but not for CCB. With BB, height was positively correlated to DSBP, while smoking status was negatively correlated to DSBP.

Conclusion — Some individual characteristics explain a significant part of blood pressure reduction with drugs. These results will be integrated in algorithms to predict clinical benefit from these drugs.