IMPACT OF ETHNICITY ON PROBNP1-108, BNP1-32 AND NTPROBNP1-76 LEVELS IN HYPERTENSIVE CAUCASIANS AND HISPANICS

ACC Poster Contributions
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Background: BNP plays an important homeostatic role and its gene expression is increased by cardiac stress. The prohormone of BNP, proBNP1-108, is processed to the biologically active BNP1-32 and the inactive NTproBNP1-76. Genetic variation has been implicated in reduced proBNP1-108 processing in some hypertensive African Americans. Importantly, a specific assay for proBNP1-108 has been developed allowing better characterization of circulating molecular forms of BNP, especially since conventional assays for BNP crossreact with proBNP1-108. We hypothesized that Caucasian and Hispanic hypertensive adults would differ in their circulating BNP forms.

Methods: ProBNP1-108 (BioRad), NTproBNP (Roche), and BNP (Shionogi) were measured in hypertensive subjects, 45-64 years, of Caucasian (n=298) and Hispanic ethnicity (n=93) from Olmsted County, MN, and Dade County, FL. Values are mean±SD or median (25th/75th %ile).

Results: Caucasians and Hispanics were similar in age (56.9±5.1 vs. 56.8±5.2 years, p=0.88), but body mass index (BMI) was higher in Caucasians (30.5±6.1 vs 28.4±4.9 kg/m2, p=0.001). Systolic blood pressure (BP) was similar (138.5±18.7 vs 140.0±14.0 mmHg, p=0.42), whereas diastolic BP was higher in Hispanics (77.5±10.7 vs 84.9±9.8 mmHg, p<0.001). Caucasians had higher proBNP1-108 (1.1 (0.4/2.3) vs 0.3 (0/0.7) pmol/L, p<0.001) and BNP (7.2 (3.4/18.1) vs 4.6 (1.4/11.8) pmol/L, p<0.001), whereas NTproBNP was similar (6.7 (3.1/14.4) vs 6.6 (4.0/13.9) pmol/L, p=0.45). After adjusting for age, gender, BMI, systolic and diastolic BP, and diabetes, ethnicity was an independent predictor of proBNP1-108 and BNP but not NTproBNP. Ethnicity was also a predictor of the ratios of the three BNP forms.

Conclusions: In these two Caucasian and Hispanic hypertensive populations, ethnicity was a significant independent contributor of proBNP1-108 and BNP but not NTproBNP. ProBNP1-108 and BNP were lower in Hispanics even though they had higher diastolic BP and lower BMI, factors associated with increased BNP levels. It remains to be established whether these findings are caused by reduced BNP gene transcription or increased BNP processing and whether this is of pathophysiological relevance.