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AC082

Adult Cardiology & Clinical Cardiovascular Medicine • Poster Presentation

CORRELATES OF LEFT ATRIAL RESERVOIR STRAIN IN A NIGERIAN HYPERTENSIVE COHORT

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Background Left atrial (LA) reservoir strain (LARS), measured by four-dimensional automated LA quantification (4D Auto LAQ), reflects dynamic LA deformation during ventricular systole. Its physiological correlates in African hypertensives, a population with a high burden of hypertensive heart disease, have not been characterised.

Methods 101 consecutive hypertensives (57 male; mean age 52±12 years; BMI 30±7 kg/m²; SBP 130±13 mmHg) underwent comprehensive 3D echocardiography with 4D Auto LAQ software. LARS (longitudinal component) was correlated with age, BMI, SBP, DBP, LVMI, LAEF, E/e', GLS, biplane LAVI, and 3D LAVI using Pearson and Spearman analyses. Independent predictors were identified by multivariable linear regression.

Results Mean LARS was 22.9±7.7% (range 10.0–56.0%). On univariable analysis, LARS correlated significantly with age (r=?0.398; p<0.001), LAEF (r=+0.379; p<0.001), LVMI (r=?0.221; p=0.026), biplane LAVI (r=?0.196; p=0.049), and LV GLS (?=?0.211; p=0.034). Left atrial reservoir strain did not correlate with SBP, DBP, E/e', or 3D LAVI. On multivariable regression (R^2=0.282; adjusted R^2=0.220), only age (?=?0.190; 95% CI ?0.305 to ?0.076; p=0.001) and LAEF (?=+0.299; 95% CI +0.130 to +0.468; p=0.001) were independent predictors of LARS. Sex did not significantly influence LARS (p=0.165).

Conclusions In Nigerian hypertensives, 4D LARS is principally determined by age-related LA mechanical decline and LA ejection function, independent of loading conditions or LV geometry.

Keywords: Left atrial reservoir strain; 4D Auto LAQ; hypertension; echocardiography