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Isolated systolic hypertension versus combined systolic-diastolic hypertension as predictors of atrial fibrillation: Data from a 8-year-follow-up study

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Background/Introduction: Isolated systolic hypertension (ISH) and combined systolic-diastolic hypertension (CH) are related with increased cardiovascular risk.

Purpose: The aim of the present study was to compare the predictive role of ISH and CH for the incidence of atrial fibrillation (AF) in a cohort of essential hypertensive patients.

Methods: We followed up 1605 essential hypertensives with office systolic blood pressure (BP)=140 mmHg [mean age 58.1 years, 842 males, office BP=153/92 mmHg] for a mean period of 8 years. All subjects had at least one annual visit and at baseline underwent echocardiographic study and blood sampling for estimation of metabolic profile. Patients with baseline ISH exhibited office systolic BP =140 mmHg and office diastolic BP <90 mmHg, while those with CH had office systolic BP =140 mmHg and office diastolic BP =90 mmHg. Moreover, new-onset AF was defined as hospitalization for AF or compatible electrocardiographic tracings.

Results: The incidence of new-onset AF over the follow-up period was 3.4% (n=55). Patients with ISH (n=510) compared to those with C? (n=1095) were older (65±10 vs 55±11 years, p<0.0001), had at baseline lower waist circumference (95.5±12 vs 98±12 cm, p<0.0001), office systolic BP (149±10 vs 155±13 mmHg, p<0.0001), office diastolic BP (80±5 vs 98±7 mmHg, p<0.0001), while did not differ regarding left ventricular mass index and lipid levels (p=NS for all). Univariate Cox regression analysis revealed that baseline ISH (hazard ratio=4.612, p=0.013) and CH (hazard ratio=1.794, p=0.036) predicted new-onset AF. However, in multivariate Cox regression model, age (hazard ratio=1.078, p<0.001), left ventricular mass index (hazard ratio 1.012, p=0.014), left atrium diameter (hazard ratio=1.102, p<0.001) and ISH (hazard ratio=1.551, p=0.035) but not CH turned out to be independent predictors of new-onset AF episodes. Conclusions
In essential hypertensive patients, ISH but not CH exhibits independent prognostic value for AF. These findings support that ISH constitutes a hypertensive phenotype of particularly increased arrhythmia risk needing careful evaluation and treatment.