

 HYPERTENSION, LIPIDS AND PREVENTION

DIFFERENTIAL EFFECTS OF AMBULATORY ISOLATED SYSTOLIC AND ISOLATED DIASTOLIC HYPERTENSION IN CARDIAC ADAPTATIONS IN THE EARLY STAGES OF HYPERTENSION

ACC Poster Contributions

Georgia World Congress Center, Hall B5

Sunday, March 14, 2010, 9:30 a.m.-10:30 a.m.

Session Title: Hypertension Effects on the Left Ventricle

Abstract Category: Hypertension

Presentation Number: 1020-105

Authors: *Efstathios Taxiarchou, Konstantinos Tsioufis, Dimitris Roussos, Dimitris Syrseloudis, Dimitris Chatzis, Anastasia Mazaraki, Eirini Andrikou, Ioannis Andrikou, Christodoulos Stefanadis, First Cardiology Clinic, University of Athens, Hippokration Hospital, Athens, Greece*

Background: Isolated systolic hypertension (ISH) has been associated with adverse cardiovascular outcome compared to isolated diastolic hypertension (IDH) or systolic-diastolic hypertension (SDH). Ambulatory blood pressure (BP) is superior to office BP in predicting target organ damage. The aim of our study was to investigate the interrelationship between specific ambulatory hypertensive patterns and alterations in cardiac structural and functional indexes.

Methods: We studied 623 consecutive subjects (aged 51 ± 10 years, 363 males) with untreated essential hypertension [office blood pressure (BP) = $148/96$ mmHg]. All the participants underwent full echocardiography study and 24-hour ambulatory BP monitoring. The study population was categorized by ambulatory BP level into three groups: those with ISH (24h-SBP >130 and 24h DBP <80 mmHg, $n=108$), those with IDH (24h SBP <130 and 24h DBP >80 mmHg, $n=195$) and those with SDH (24h SBP and DBP $>130/80$ mm Hg, $n=320$).

Results: Subjects with ISH compared to those with IDH have no difference according to age, sex, body mass index and serum lipid profile ($p=NS$ for all cases) while by definition have greater 24-h pulse pressure (60 ± 6 vs 41 ± 4 mmHg) and greater 24-systolic BP (134 ± 4 vs 123 ± 4 mmHg). Subjects with ISH compared to those with IDH have significantly increased left ventricular mass index (103 ± 26 vs 92 ± 20 gr/m², $p<0.001$) and left atrial volume index (20.2 ± 6.0 vs 18.2 ± 5.3 ml/m², $p=0.001$) while there was not difference regarding relative wall thickness ($p=NS$). In contrast subjects with IDH have significant decreased values of transmitral E/A ratio (1.02 ± 0.25 vs 1.11 ± 0.39 , $p<0.05$), and TDI E/A (0.90 ± 0.34 vs 1.00 ± 0.45 , $p<0.05$).

Conclusions: Ambulatory ISH compared to IDH is associated with more adverse structural cardiac adaptations while the latter seems to be accompanied by worsening left ventricular diastolic function in subjects with essential hypertension. The pathophysiologic pathway linking these entities and the clinical significance of these findings remains to be elucidated in future studies.