ACC.14
TCT@ACC-i2 | innovation in intervention

A1406
JACC April 1, 2014
Volume 63, Issue 12

Prevention

DECLINE IN VENTRICULAR FUNCTION IS NOT RELATED TO BLOOD PRESSURE CONTROL: A PROSPECTIVE STUDY IN HYPERTENSION

Poster Contributions
Hall C
Sunday, March 30, 2014, 3:45 p.m.-4:30 p.m.

Session Title: Novel Trials in Hypertension
Abstract Category: 21. Prevention: Hypertension
Presentation Number: 1218-128

Authors: *Qing Shang, John E Sanderson, Alex Pui-Wai Lee, Qing Zhang, Cheuk-Man Yu, Division of Cardiology, Department of Medicine and Therapeutics, The Chinese University of Hong Kong, Hong Kong, People's Republic of China, Institute of Vascular Medicine, The Chinese University of Hong Kong, Hong Kong, People's Republic of China*

Background: Increased blood pressure (BP) is thought to cause cardiac dysfunction in hypertensive patients. The aim of this study was to explore the progression of BP and cardiac function under routine anti-hypertensive treatment.

Methods: One hundred hypertensive patients taking standard anti-hypertensive medication were included in this 1-year prospective study. Ventricular contractility and mechanical dyssynchrony were evaluated by echocardiography (end-systolic elastance and dyssynchrony indexes) at baseline and 1 year.

Results: The age of this cohort was 54±10years at baseline and the sex ratio was near to 1. During follow-up, 70 (68.8%) patients received calcium channel blockers, 47 (46.1%) angiotensin-converting enzyme inhibitor or angiotensin receptor blockers, 53 (52.0%) beta-blockers, 41 (40.2%) diuretic and 9 (8.8%) alpha blockers. After 1-year treatment, BP had changed little and proportion of optimal BP control did not change (53.0% vs. 56.0%, p=0.897). However, left ventricle (LV) remodeling appeared to continue with a decline in contractility (end-systolic elastance) and an increase in diastolic dyssynchrony index (Table). In addition, there was no correlation between the change of BP and the progression of LV remodeling. (Table)

Conclusion: Control of BP could not completely prevent the progression of cardiac dysfunction and this study suggests that other factors independent of BP are probably affecting ventricular function.

Table Comparisons between baseline and 1year			
	Baseline	1 Year	p-Value
Systolic blood pressure, mmHg	138±17	135±17	0.102
Diastolic blood pressure, mmHg	85±11	84±11	0.547
Pulse pressure, mmHg	53±12	51±12	0.050
Mean arterial pressure, mmHg	102±11	101±11	0.425
Remodeling, Function & Dyssynchrony			
LV mass, g	157.6±38.7	166.3±48.2	0.035
LV mass index, g/m2	88.6±18.6	93.3±22.4	0.035
Relative wall thickness	0.40±0.09	0.42±0.10	0.137
LV end-diastolic volume, ml	81.0±17.5	91.4±20.4	<0.001
LV end-systolic volume, ml	29.4±8.9	33.4±10.1	<0.001
LV ejection fraction, %	64.0±5.8	63.7±6.0	0.669
End-systolic elastance, mmHg/ml	4.67±1.66	4.01±1.38	<0.001
End-diastolic elastance	0.23±0.14	0.20±0.09	0.001
E/A	1.01±0.29	1.01±0.30	0.838
E/E'	11.1±4.9	10.8±3.6	0.484
Systolic dyssynchrony index, ms	37.4±18.5	38.0±21.9	0.814
Diastolic dyssynchrony index, ms	19.9±8.5	23.0±11.6	0.002
LV, left ventricular; E/A, the early (E) to late (A) mitral inflow velocity ratio; E/E', the early mitral filling velocity (E) to early diastolic mitral annular velocity (E') ratio			