

THE INFLUENCE OF DIPPER AND NON-DIPPER BLOOD PRESSURE PATTERNS ON LEFT VENTRICULAR FUNCTION AND PERIPHERAL VASCULAR ARTERIAL STIFFNESS IN PATIENTS WITH HYPERTENSION

Y. Chen¹, J.H. Liu¹, M. Wu², Q.S. Lin², G.Z. Cao², R. Wang², M.Y. Liu², Z. Zhen¹, Y. Zou¹, H.F. Tse¹, K.H. Yiu¹,

¹Queen Mary Hospital, Department of Medicine, Division of Cardiology - The University of Hong Kong - Hong Kong - Hong Kong SAR People's Republic of China,

²The University of Hong Kong Shenzhen Hospital, Department of Medicine - Shen Zhen - China People's Republic of,

BACKGROUND: Non-dipper patterns blood pressure is associated with increased risk of organ damage and cardiovascular disease in patients with hypertension (HT).

PURPOSE: The aim of the present study is to investigate the left ventricular function and peripheral vascular arterial stiffness in hypertension patients with different blood pressure (BP) patterns.

METHODS: A total of 154 hypertension patients with different BP patterns were enrolled. Patients were divided into two groups: 55 patients with dipper pattern and 99 patients with non-dipper pattern. Detail transthoracic echocardiograms were performed and analyzed with advance speckle tracking 3-orthogonal direction strain analysis for systolic function and tissue Doppler derived E/e' for diastolic function assessment. Cardio ankle vascular index (CAVI) was used to assess arterial stiffness.

RESULTS: Compared with patients with dipper pattern, patients with non-dipper pattern have more impaired LV diastolic and systolic function and peripheral arterial stiffness. After multivariable analysis, non-dipper blood pressure pattern is an independent risk factor for LV systolic and diastolic function.

CONCLUSIONS: This study demonstrates that non-dipper pattern is an independent risk factor for impaired LV function in patients with HT. Treatment that could reverse non-dipper blood pressure pattern may reduce cardiovascular damage in these patients.

Table 1. Left ventricle (LV) function and arterial stiffness between dipper and non-dipper hypertension patients

Variables	Dipper (n=55)	Non-dipper (n=99)	P
Age, years	43.4±11.6	49.3±13.7	0.01
Female, (%)	19 (34.5)	41 (41.4)	0.40
Systolic blood pressure, mmHg	154.7±28.4	151.5±23.5	0.47
Diastolic blood pressure, mmHg	96.1±18.9	90.1±15.6	0.04
LV ejection fraction, (%)	64.4±4.9	63.4±5.2	0.27
E/E' ratio	7.83±2.26	8.98±2.64	0.01
LV global longitudinal strain, (%)	-19.8±2.7	-18.7±3.0	0.02
LV circumferential strain, (%)	-19.9±3.8	-18.6±3.4	0.04
LV radial strain, (%)	34.4±9.7	29.4±8.4	<0.01
Cardio ankle vascular index, m/s	7.85±1.27	8.39±1.42	0.02