

PP-016

Association Between Blood Pressure Variability and Neutrophil/Lymphocyte ratio (NLR in Hypertensive and Normotensive Patients)

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Aim: Blood Pressure (BP) variability has been reported to be associated with hypertensive (HT) target organ damage and cardiovascular events. Neutrophil/lymphocyte ratio (NLR) is a new inflammatory marker which has been associated with adverse events in cardiovascular disease. This study was designed to investigate the association between BP variability and NLR in HT and normotensive patients.

Method: 223 patients (104 male, 119 female, mean age=52.1±5.2 years) with untreated essential HT enrolled in this cross-sectional study. 24-hour ambulatory blood pressure monitoring (24h-HBPM), transthoracic echocardiography examination and blood samples were obtained. According to 24h-HBPM participants were divided into four investigated categories on the basis of dipping status (dipper vs. non-dipper) and ambulatory BP. Group 1 Normotensive Dipper (ND) Group 2 Normotensive Non-dipper (NN) group, 3) Hypertensive Dipper (HD) group, 4) Hypertension Non-dipper (HN) group.

Results: Comparison of baseline, clinical and 24h-HBPM results are showed in Table I. The highest NLR values were determined in the HN group compared with ND, NN and HD groups. NLR was associated with night SBP ($r=0.178$, $p=0.03$), night DBP ($r=0.176$, $p=0.03$), Mean BP variable ($r=-0.246$, $p=0.003$), blood urea nitrogen (BUN) ($r=0.266$, $p=0.002$) and triglyceride levels ($r=0.19$, $p=0.03$). Multiple linear regression analysis showed that BUN ($\beta=0.234$, $p=0.012$), and Mean BP variable ($\beta=0.525$, $p=0.04$) were independent predictors of high NLR value.

Discussion: In the present study, we have found that NLR levels were significantly higher in the non-dipper HT group compared with those of the dipper HT, non-dipper normotensive and dipper normotensive groups. This finding implies that NLR as a inflammation marker may be a mediator for the link between BP variability and target organ damage.

Comparison of baseline, clinical and ambulatory blood pressure characteristics

Variables	Group I (n=32)	Group II (n=37)	Group III (n=39)	Group IV (n=42)	f	P value
AGE (year)	50,3±17.9	52,3±15.0	48.8±14.5	57.3±14.2	2.14	0.09
Gender (female)	21 (66%)	21 (57%)	24 (62%)	21 (51%)	0.57	0.63
Total Time SBP (mmhg)	121.4±6.9	118.6±6.4	143.6±8.9	148.3±13.3	93.68	<0.01
Total Time DBP (mmhg)	78.0±5.2	76.1±4.7	90.4±9.4	91.1±11	35.42	<0.01
Mean difference (mmhg)	14.7±4	4.2±5.6	13.5±3.4	4.12±4.6	59.59	<0.01

Comparison of laboratory characteristics of patients.

Variables	Group I (n=32)	Group II (n=37)	Group III (n=39)	Group IV (n=42)	f	P value
WBC (K/ul)	7.4±1.9	8.3±3	8.0±2.8	7.8±1.9	0.73	0.53
Neutrophils, (mm3)	4.3±1.5	4.9±1.5	4.7±1.9	4.9±1.5	0.96	0.41
Lymphocytes, (mm3)	2.3±0.6	2.5±1.6	2.5±0.9	2.0±0.7	1.67	0.17
NLR	2.02±0.83	2.23±0.9	1.88±0.6	2.71±1.18	6.10	0,001
HGB (mg/dl)	13.6±1.5	13.3±1.6	13.9±1.8	13.2±1.5	1.43	0.23
HTC (%)	40.1±4.4	41.2±4.6	41.2±4.6	39.8±7.8	0.79	0.49

PP-017

Role of Autonomic Dysfunction and Relation with Diastolic Dysfunction in Resistant Hypertensives

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Aim-Rationale: There may be a role of autonomic dysfunction and sympathetic overactivity in the development of hypertension. The risks of cardiovascular events and target organ damage are much more in resistant hypertension. In recent years; renal denervation therapies have become more popular for drug-resistant hypertensives. In our study; we aim to investigate the association between resistant hypertension and autonomic dysfunction and its relationship with diastolic dysfunction.

Method: Among 87 patients enrolled in this study, 28 were resistant hypertensives (group-1); 27 were controlled hypertensives (group-2) and 32 were normotensives (group-3). 24 hour Holter ECG recordings were obtained from each case for detecting autonomic dysfunction. SDNN, SDANN, RMSSD, triangular index values were obtained from the time domain analysis at 24 hour ECG recordings. Transthoracic echocardiography was performed to each case and diastolic parameters were assessed. (E/A; E/E'; LV mass index; LA volume index). Heart rate variability values were compared between groups. Association between heart rate variability and diastolic dysfunction was researched in resistant hypertensives.

Results: In resistant hypertensive group SDNN and Triangular index values were significantly lower than normotensive group ($p<0.03$ and $p<0.005$). Also; in controlled hypertensive group SDNN value is significantly lower than normotensive group ($p<0.02$). Heart rate variability values were similar between resistant hypertensive and controlled hypertensive groups. Although heart rate variability values were significantly lower in resistant hypertensive group; there were no significant correlation between heart rate variability values and diastolic dysfunction parameters in resistant hypertensives.

Conclusion: Our study showed that autonomic dysfunction exists in resistant hypertensives and controlled hypertensives but it is not related to diastolic dysfunction in resistant hypertensives.

Comparison of Heart Rate Variability Values Between Resistant Hypertensives and Normotensives

	Normotensive (n:32)	Resistant Hypertensive (n:28)	P
SDNN	149,02±43,78	113,74±26,71	0,03
SDANN	136,22±40,95	131,28±82,24	0,94
RMSSD	37,71±15,86	47,29±25,97	0,18
HRV TRIANGULAR INDEX	39,30±14,01	29,71±8,73	0,005
MEAN HEART RATE	74,81±9,21	74,57±9,28	0,9

One-Way Anova Test was performed.

Comparison of Heart Rate Variability Values Between Normotensives and Controlled Hypertensives

	Normotensive (n:32)	Controlled Hypertensive (n:27)	P
SDNN	149,02±43,78	121,20±47,96	0,02
SDANN	136,22±40,95	113,75±44,47	0,3
RMSSD	37,71±15,86	40,34±20,1	0,88
HRV TRIANGULAR INDEX	39,30±14,01	35,24±12,7	0,44
MEAN HEART RATE	74,81±9,21	75,07±6,58	0,9

One-Way Anova Test was performed

Comparison of Heart Rate Variability Values Between Resistant Hypertensives and Controlled Hypertensives

	RESISTANT HYPERTENSIVES (n:28)	CONTROLLED HYPERTENSIVES (n:27)	P
SDNN	113,74±26,71	121,2±47,96	0,77
SDANN	131,28±82,24	113,75±44,47	0,5
RMSSD	47,29±25,97	40,34±20,1	0,43
HRV TRIANGULAR INDEX	29,71±8,73	35,24±12,7	0,16
MEAN HEART RATE	74,57±9,28	75,07±6,58	0,9

One-Way Anova Test was performed