The magnitude of left ventricular (LV) dilatation, as determined by the LV end-diastolic diameter (LVDd) in echocardiography, is an established prognostic factor for patients with chronic heart failure (CHF) in a manner independent of contractile indices such as LV ejection fraction (LVEF). We examined whether LVDd and LVEF correlate with long-term prognosis for Japanese CHF patients. We reviewed the clinical courses and periodical echocardiography in 125 patients with systolic LV dysfunction (EF < 40%) who had been stable at least 2 years after the enrollment (hence, patients with overt cardiac cachexia were omitted) and were followed in our clinics between 1994 and 2003 (mean follow-up period: 5.8 ± 2.1 years). There occurred 23 cardiovascular deaths (CVD). LVEF showed a significant difference between the CVD patients and survivors (mean values: 27.6 ± 7.0% vs. 31.4 ± 6.2%, p = 0.0128, Cox univariate analysis). In contrast, LVDd by itself had no prognostic power to distinguish these two subgroups (60.9 ± 6.1 mm vs. 59.7 ± 6.1 mm, p = 0.3986). Interestingly, however, when we reassessed LVDd values by normalizing them with body surface area (BSA), the index (LVDd/BSA) showed a distinctive difference (40.3 ± 6.1 mm²/m² vs. 37.0 ± 5.1 mm²/m², p = 0.0046). The CVD occurred more frequently in populations with lower BSA (1.53 ± 0.19 m² vs. 1.63 ± 0.18 m², p = 0.0279) and with lower body mass index (BMI) (20.87 ± 3.49 kg/m² vs. 22.58 ± 3.36 kg/m², p = 0.0208). Therefore, the actual magnitudes of LV enlargement in these CVD patients had been underestimated because of their smaller body sizes. CVD was also more common in older patients; however, age did not correlate with BSA or BMI. Sex (MF: 149/40 vs. 73/29, p = 0.2798) or ischemic/non-ischemic disease ratio (7/16 vs. 29/73, p = 0.7494) did not differ between these two subgroups. Japanese CHF patients in this study were not predominantly obese (mean BMI: 22.43 ± 3.40 kg/m²) and were quite different from patients reported in international mega-trials whose mean BMI were 27.28 kg/m². Unlike general consensus obtained from epidemiology in western countries, but intriguingly consisting with recent reports regarding “obesity paradox”, small and lean Japanese CHF patients had poorer prognoses relative to heavier patients. The underlying mechanism such as beneficial effects of adipocytokines should await further examinations.

Key Words: body mass index, prognosis, chronic heart failure

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NITRATES MAY ATTENUATE BLOOD PRESSURE LOWERING BY STATINS
Hiroaki Kawano, Katsuysuke Yano. Department of Cardiovascular Medicine, Nagasaki University, Nagasaki, Nagasaki, Japan.

Statins, 3-hydroxy-3-methylglutaryl coenzyme A (HMG-CoA) reductase inhibitors have pleiotropic effects that may contribute to their favorable clinical results. Recent studies have shown that statins can reduce blood pressure (BP) significantly. It has been suggested that statins improve NO-mediated endothelial function. To assess the effect of statin on blood pressure via NO, we examined the blood pressure change before and after the treatment with statins in patients with or without nitrates (N). Seventy-one consecutive patients with hyperlipidemia and hypertension who had already treated with anti-hypertensive agents at least for one year (male patients, female patients, age 37-78 years, mean age 63±10 years) participated in this study. We compared the blood pressure change in these patients treated with statins for 6 months (pravastatin 45 patients, simvastatin 19, fluvastatin 7). Anti-hypertensive agents were not changed during this study. These patients were divided into two groups; N (+) (21 patients), and N (-) (50 patients), and we also compared the blood pressure change in these groups. Statistical analysis was performed by paired t-test.

Results: In all patients in this study, systolic BP (SBP) (136 ± 17 to 130 +/- 13 mmHg, P<0.0001) and diastolic BP (DBP) (79 +/-11 to 76 +/- 9 mmHg, P<0.0001) were significantly lowered by statin treatment as well as LDL-C (171 + 28 to 125 + 20 mg/dl, P<0.0001). In N (+) group, SBP (137 +/- 18 to 129 +/- 13mmHg, P<0.0001), DBP (79 + 12 to 76 + 10mmHg, P<0.05), and LDL-C (172 +/- 28 to 132 +/- 24 mg/dl, P<0.0001) were also significantly lowered. However, there was no significant changes of SBP (134 +/- 16 to 132 +/- 14mmHg, n.s) and DBP (78 +/- 10 to 77 +/- 6 mmHg, n.s) in N (+) group although LDL-C (174 +/- 26 to 126 +/- 18 mg/dl, P<0.0001) were significantly lowered. In conclusion, the results of this study suggest that the additional blood pressure reduction observed in patients treated with statins may be related to NO system.

Key Words: LDL, statins, hypertension