

Summary

Clinical Usefulness of a Dual L/N-Type Ca²⁺ Channel Blocker, Cilnidipine, in Patients with Chronic Heart Failure: Assessment with ¹²³I-MIBG Myocardial Scintigraphy

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Sympathetic nerve system is activated as a compensatory mechanism in heart failure. However, excessive activation of sympathetic nerve system deteriorates disease state. Sympathetic nerve system can be suppressed with N-type Ca²⁺ channel blocker. An antihypertensive drug, cilnidipine, is a dual L/N-type Ca²⁺ channel blocker. We studied usefulness of cilnidipine in treating with chronic heart failure with ¹²³I-MIBG myocardial scintigraphy. We enrolled 24 patients with stable chronic heart failure. Twelve patients were treated with ACE-inhibitors, diuretics and cardiotonics (control group), and the other 12 patients were treated with ACE-inhibitors, diuretics, cardiotonics and cilnidipine (cilnidipine group). We examined blood pressure, heart rate, norepinephrine level, brain natriuretic peptide (BNP) level, cardiothoracic ratio on chest X-ray, ejection fraction of left ventricle on two-dimensional echocardiography, count rate of heart to mediastinum (H/M) and washout rate (WOR)

on ¹²³I-MIBG myocardial scintigraphy before and six months after medication. Symptom was improved in 8 patients in the control group and 10 patients in the cilnidipine group after medication. And another parameters were also improved in the both groups after medication. However the degree of change in blood pressure (mmHg) was 21.2 ± 8.0 in the cilnidipine group and 10.8 ± 9.1 in the control group, that in heart rate (/min) was 24.1 ± 6.8 and 16.2 ± 11.0 , that in BNP level (pg/ml) was 65.2 ± 12.0 and 42.8 ± 11.1 , that in H/M was 0.30 ± 0.08 and 0.19 ± 0.09 , that in WOR was 19.4 ± 5.6 and 12.2 ± 7.0 , respectively. And the degree of these changes were larger in the cilnidipine group ($p < 0.05$). These findings suggested that cilnidipine, a dual L/N-type Ca²⁺ channel blocker, might be useful in treating with chronic heart failure.

Key words: ¹²³I-MIBG, Chronic heart failure, Cilnidipine, N-type Ca²⁺ channel blocker.