ORIGINAL ARTICLE

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Anti-tachycardia therapy can improve altered cardiac adrenergic function in tachycardia-induced cardiomyopathy

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We investigated whether anti-tachycardia therapy might improve the altered cardiac adrenergic and systolic function in tachycardia-induced cardiomyopathy (TC) in contrast to dilated cardiomyopathy (DCM). The subjects were 23 patients with heart failure, consisting of 8 patients with TC (43.6 ± 10.0 yrs) and 15 with DCM (45.3 ± 8.2 yrs). TC was determined as impairment of left ventricular function secondary to chronic or very frequent arrhythmia during more than 10% of the day. All patients were receiving anti-tachycardia treatment. Cardiac ^{123}I-MIBG uptake was assessed as the heart/mediastinum activity ratio (H/M) before and after treatment. LVEF was also assessed. In the baseline study, H/M and LVEF showed no difference between TC and DCM (2.21 ± 0.44 vs. 2.10 ± 0.42, 35.3 ± 13.1 vs. 36.0 ± 10.9%, respectively). After treatment, the degree of change in H/M and LVEF differed significantly (0.41 ± 0.34 vs. 0.08 ± 0.20, 20.5 ± 14.4 vs. −2.1 ± 9.6%, $p < 0.01$). In TC, heart failure improved after a shorter duration of treatment ($p < 0.05$). In conclusion, anti-tachycardia therapy can improve altered cardiac adrenergic function and systolic function in patients with TC over a shorter period than in those with DCM.

Key words: tachycardia-induced cardiomyopathy, iodine-123-metaiodobenzylguanidine (^{123}I-MIBG), adrenergic function, dilated cardiomyopathy, congestive heart failure