LETTER TO THE EDITOR

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What is the time course of reversal of tachycardia-induced cardiomyopathy? Response

I read with great interest the case report by Han et al. describing the rapid time course (<24 h) of reversal of a patient with tachycardia-induced cardiomyopathy following an atrial fibrillation (AF) ablation.1 I wish to highlight the observation that the time course of reversal of tachycardia-induced cardiomyopathy can be highly variable and unpredictable and can vary from 1 day to several months (and even up to a year).

The time course of left ventricular (LV) function improvement is typically seen within days to weeks and maximal improvement in LV function is usually noted within 3–6 months with little improvement after that.2 However, we have previously reported a series of six patients with tachycardia-induced cardiomyopathy who had ‘late’ improvement (after 6 months) in LV systolic function after rate control of the underlying causative tachycardia.3 Four patients had ‘suboptimal’ rate control (by AFFIRM trial criteria4) of the causative tachycardia (two patients had AF and two patients had atrial tachycardia) and two patients had severe systolic dysfunction (left ventricular ejection fraction (LVEF)<20%) at diagnosis. We concluded that ‘lenient’ rate control of the tachycardia may result in a slower rate of improvement in LV function and that LV function recovery may be incomplete. Furthermore, patients with severe LV dysfunction (LVEF<20%) at initial diagnosis may have a slower rate of improvement even with effective rate or rhythm control of the causative tachycardia. These observations have implications for the practising clinician and highlight the need to perform serial measurements of LV function beyond the usual short-to-medium time period (>6 months) to assess maximal LV function improvement.

Recently, another patient with a tachycardia-induced cardiomyopathy (LVEF 33%) secondary to poorly controlled AF, had a permanent pacemaker implantation and AV node ablation for rate control. He had minimal improvement after 6 months and was documented to have a LVEF 52% at a 1-year follow-up study. All LVEF measurements were obtained by radionuclide angiography during ventricular pacing.

The factors that determine the rate of improvement of LV function remains undefined. Although unproven, it appears that a combination of genetic (currently unknown) or patient-related factors (pre-existing structural heart disease, gender) and tachycardia-related factors (type, rate, duration of tachycardia) pre-dispose to and determine the rate of development of tachycardia-induced cardiomyopathy. It is possible that the same factors are responsible for determining the rate of improvement of tachycardia-induced cardiomyopathy. Other factors that may play a role include the degree of rate control of the tachycardia and the initial severity of LV dysfunction at presentation.

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References

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