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New Concepts in Hypertrophic Cardiomyopathies

To the Editor:

We found the excellent review, "New concepts in hypertrophic cardiomyopathies,"^{1,2} very stimulating, although in our opinion, one issue needs further clarification in light of existing evidence in the literature (or lack thereof). The authors state (page 2249, first paragraph) that "because the LVOT [left ventricular outflow tract] obstruction is dynamic, patients in whom the disease is suspected and who do not have a gradient at rest should undergo provocation maneuvers with agents such as dobutamine to determine the severity of the gradient."²

Dobutamine-induced gradients are common in hypertrophic cardiomyopathy (HCM)³⁻⁵ as well as in other cardiac conditions.⁶ To our knowledge, however, no convincing evidence exists that dobutamine echocardiography provides reliable pathophysiological or prognostic information in patients with HCM. In our own experience with 20 HCM patients who had no basal outflow obstruction, a substantial proportion (n=11) showed inducible gradients during dobutamine infusion, associated with systolic anterior movement and mild to moderate degrees of mitral regurgitation. However, this finding had no correlation with symptoms nor functional limitation at exercise testing and had no relevance in predicting outcome after an average follow-up of over 2 years. Therefore, we doubt that dobutamine echocardiography should be recommended for routine decision-making in HCM patients until the prognostic impact of inducible gradients (if any) has been validated. Although as yet untested, exercise echocardiography might represent a more clinically accurate alternative to dobutamine infusion for the evaluation of dynamic outflow obstruction in HCM.

At present, one can reasonably speculate that, in the absence of adequate prospective validation, the high proportion of (false?) positive results potentially associated with dobutamine echocardiography will inevitably cause over-treatment in the era of nonsurgical septal reduction.

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inducible obstruction with dobutamine. The symptoms of obstructive hypertrophic cardiomyopathy particularly may occur initially only with exercise, and for decades, the diagnosis of obstruction has been confirmed by pharmacological stimulation. The procedure of septal alcohol ablation³ is recommended only for patients with symptoms and documented left ventricular outflow tract obstruction (LVOT). The criterion for obstruction is a gradient of 30 mm Hg at rest or 60 mm Hg induced by dobutamine. In control individuals, dobutamine stimulation at 20 $\mu\text{g}/\text{kg}$ min induced either no or minimal gradient. Based on these data, we selected 60 mm Hg. Further evidence supporting our selection of 60 mm Hg gradient as significant has been confirmed in the follow-up studies. Patients undergoing this procedure exhibit relief of obstruction and experience marked reduction in symptoms.⁴ Recently, in a 2-year follow-up, in addition to reduction of the gradient and relief of symptoms, there was a significant reduction in ventricular wall thickness, namely, hypertrophy.⁵ The extent of benefit observed in patients with symptoms and a gradient induced only by dobutamine⁶ was similar to that observed in patients with a gradient at rest. We thank Drs Cecchi and Olivotto for highlighting this point, because the beneficial effects of this procedure in those patients with an inducible significant gradient may not have been realized had the only means of relieving obstruction remained myectomy. Secondly, preventing progression of hypertrophy or induction of regression may ultimately be shown to be a major beneficial effect of this nonsurgical procedure. The beneficial effect of the procedure has been shown utilizing each individual as his or her own control rather than the preferred randomized, placebo-controlled clinical trial. Further confirmation of these results by other investigators is desirable. Nevertheless, hypertrophy regardless of its cause has been shown to be a major independent risk factor for morbidity, mortality, and sudden death. We hope that with further research using either this procedure or other therapies physicians can provide treatment early and prevent the development of hypertrophy, or at least attenuate its rate of development.

1. Roberts R, Sigwart U. New concepts in hypertrophic cardiomyopathies: part I. *Circulation*. 2001;104:2113-2116.
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Response

We appreciate the interest in our review, "New concepts in hypertrophic cardiomyopathies,"^{1,2} and also the concern of the significance of