less than in our patients. The importance of systolic compression of septal branches is unknown, and it would be difficult to assess in the presence of important LAD bridging and underfilling of septal perforators. There would be expected to be important collinearity (correlation) between the presence of LAD bridging and septal perforator compression, which would complicate entry of both variables into multivariable models.

Likewise, significant collinearity would be expected between septal wall thickness and septal perforator compression. It would appear that LV outflow gradients were skewed in distribution and would require a normalizing data transformation before analysis. The analysis and conclusions are therefore flawed. It is suspected that further analysis restricted to their subgroup of patients with near complete systolic compression of the proximal to mid-LAD would show similar findings to our study.

Our greatest concern is that the investigators have not performed a comparable study and have not provided comparable evidence to refute our finding that significant bridging of the LAD is an important and treatable cause of myocardial ischemia and sudden death in selected children with hypertrophic cardiomyopathy. Uncritical acceptance of their findings may mislead clinicians and patients. We reassert that resolution of this controversy will require a well-designed prospective cohort study, followed by a clinical trial of surgical division of clinically significant myocardial bridges.

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REPLY
The report by Yetman et al. (1) that bridging of the left anterior descending (LAD) artery causes myocardial ischemia, arrhythmia, and sudden death in children with hypertrophic cardiomyopathy (HCM) prompted us to examine the clinical correlates of myocardial bridging in a larger population of HCM children using current techniques and risk evaluation (2).

Myocardial bridging was present in 40% of our children, and it frequently affected arteries other than the LAD. Myocardial ischemia was also common, being present in 65% of the children. Notably, however, the distribution of myocardial perfusion abnormalities, identified by exercise thallium scintigraphy, was unrelated to the presence, severity, or distribution of coronary bridging. Instead, we found that myocardial bridging was more common in children with more severe cardiac disease. Indeed, multivariate analysis suggested that the severity of the cardiac hypertrophy and the compression of septal branches were independent predictors of myocardial ischemia.

We were unable to confirm that myocardial bridging was associated with greater symptoms, prolonged myocardial repolarization, higher incidence of ventricular tachycardia (VT) during ambulatory electrocardiographic monitoring, or VT induced at electrophysiologic study, or, importantly, that it affected prognosis.

The different findings may be attributed to several limitations of the study of Yetman et al. (1): 1) children treated as early as the 1950s were included; 2) two-thirds of the children were excluded due to inadequate data; 3) bridging was diagnosed by, presumably, aortography rather than selective coronary angiography (only severe and mid-LAD bridging were detected); 4) survival was calculated from diagnosis of HCM rather than related to age (the children with bridging were older and in a more at-risk age group than were the children without bridging); and 5) compression of the septal perforators, an important determinant of myocardial perfusion in our study, was not considered. Further, given the limitations of angiography, we have reservations about the validity of measurements of early diastolic coronary artery compression.

In children, HCM is a complex disease, and myocardial ischemia is one of several identified potential causes of sudden death in this subgroup (3). Additionally, several factors unrelated to bridging have also been implicated in myocardial ischemia (4). Our study indicates that it is unlikely that bridging is an independent predictor of prognosis in HCM children. We therefore recommend caution in advising its surgical correction.

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