Alcohol Septal Ablation for Hypertrophic Obstructive Cardiomyopathy

The Joys Are Brief: The Results Are Lasting

The recent article by Kwon et al. (1) in JACC: Cardiovascular Interventions provokes mixed feelings. It is encouraging to note that 55 high-risk patients with hypertrophic obstructive cardiomyopathy, who were surgical rejects underwent alcohol septal ablation (ASA) without any periprocedural mortality. However, the rate of development of complete heart block (CHB) requiring permanent pacemaker implantation was alarmingly high. If we exclude 11 patients who had permanent pacemaker implantation at baseline, then the rate of new permanent pacemaker implantation is actually 32% (14 of 44), which is highly unacceptable today. We believe that there are 2 possible explanations for this high rate of development of CHB. First, all the surgical rejects were subjected to alcohol septal ablation, irrespective of the anatomy of the first septal unit (2). Alcohol septal ablation remains successful only when anatomy of the first septal unit is suitable. Performing ASA in all patients irrespective of the anatomy of the first septal unit is bound to have higher complication rates. Second, the amount of alcohol used during the procedure clearly determines the complication of CHB (3). There was no mention of the amount of alcohol used for ASA, so it may be an important explanation for the very high complication rate. Because these cases were done between 1997 and 2000, it is very possible that the amount of alcohol used was not judicious. The relationship between amount of alcohol used and development of CHB has been well established only recently.

Further, this study was done at a center where surgical expertise and experience for myectomy is one of the best available in the world and only surgical rejects were treated with ASA (4). This means very serious patients indeed underwent ASA. This is in contrast to the real-world setting wherein surgical expertise and experience is not easily available. Only ASA rejects or poor anatomical candidates undergo myectomy. It is because of these differing practice patterns that operators achieve differing levels of expertise in this procedure (5,6).

In today’s world, surgical expertise remains limited to a few centers, practicing patterns remain diagonally opposite (primarily ASA vs. primarily myectomy), and patient preference remains inclined for a less invasive procedure. It is clear that the joys of alcohol are brief; the results are lasting indeed! This procedure has been shown to be highly effective in surgical rejects as well.

References


Reply

We thank Drs. Parakh and Bhargava for their interest in our paper (1). Their letter highlights the long-standing controversy regarding alcohol septal ablation (ASA) versus surgical myectomy for optimal management of patients with hypertrophic obstructive cardiomyopathy (HOCM). We feel that the concerns raised by Drs. Parakh and Bhargava are a bit presumptuous. The mean amount of alcohol injected, even by 1997 to 2000 standards for our study population (1), was very low and the operators were extremely judicious in its use (mean volume: 2.65 ± 0.81 cc). The pacemaker implantation rate is high, although our study shows similar incidence to studies from a comparable U.S. center (2).

The likely reason for high pacemaker rate could be the possibility that these patients were relatively older, with more conduction abnormalities at baseline (12 of 55 patients had either left or right bundle branch block). Also, the assumption on the part of Drs. Parakh and Bhargava that we subjected all surgical “rejects” indiscriminately to ASA, irrespective of septal perforator anatomy, is wrong. All the alcohol injections were targeted to the contact point of the mitral valve to the septum, using echocardiographic (including contrast) guidance. The success rate of the procedure proves that the procedure was performed appropriately (1).

As a high-volume practice, we do feel strongly that the choice of procedural treatment of HOCM should be made after thorough multimodality imaging evaluation of the actual cause of dynamic outflow tract obstruction. According to some estimates, up to 20%
of patients have persistent symptoms due to left ventricular outflow tract (LVOT) obstruction following ASA, which is likely due to suboptimal procedural result (3–5). A recent study demonstrated that patients undergoing ASA usually end up with a basal interseptal (as opposed to the preferred anteroseptal) infarction, as compared with patients who undergo myectomy (6). That study also demonstrated that myectomy resulted in a "more complete" relief of LVOT obstruction than did ASA (6). Another issue that needs attention, and perhaps should be studied in the future, is that of myocardial scarring that is induced by ASA and the potential for ventricular tachyarrhythmias. Also, there are many other potential reasons for suboptimal results following ASA. A recent study (7) highlighted other important mitral subvalvular aspects leading to a failed ASA. It demonstrated the multifactorial etiology of dynamic LVOT obstruction, which includes mitral apparatus abnormalities, such as anterior displacement of the papillary muscles leaflet elongation and anteriorly displaced coaptation of the mitral valve leaflets. We have also observed abnormal chordae attachment to the base of the anterior mitral leaflet resulting in systolic “buckling” of and dynamic LVOT obstruction, even in the setting of a normal-sized upper septum. In fact, 1 large surgical series identified abnormalities of the mitral valve in 19% of patients undergoing surgical myectomy, which required further modification of surgical technique to relieve obstruction (8). A priori identification of such abnormalities might be crucial for an optimal result following ASA.

As aptly described in a recent editorial by Sigwart (9), “ASA was never devised to replace surgery for symptomatic patients with HOCM. It was intended to provide those patients, young and old, who have favorable (and accessible) anatomy, with an alternative to open heart surgery through the induction of a meaningful septal necrosis.” In conclusion, we stand by our assertion that at present, based on all the available data, surgical myectomy is the preferred option for young patients with drug refractory HOCM and for those with additional structural changes in the mitral valve, papillary muscles, and coronary arteries. Furthermore, the most important step in the management of patients with HOCM, even before they get to either the surgical suite or the catheterization laboratory, is to identify the exact etiology of dynamic outflow tract obstruction.

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REFERENCES

Sirolimus-Eluting Stents or Vascular Brachytherapy for In-Stent Restenosis After 3-Year Follow-Up of the SISR (Sirolimus-Eluting Stent Versus Vascular Brachytherapy for In-Stent Restenosis) Trial

A Call for Caution?

We read with interest the article by Holmes et al. (1) in JACC: Cardiovascular Interventions. The main finding of the study was that in patients with bare-metal stent (BMS) restenosis, the use of sirolimus–eluting stents (SES) versus vascular brachytherapy (VBT) was associated with a significant reduction of target lesion revascularization (TLR) without major differences in hard end points such as death or myocardial infarction (MI).

We would like to raise several issues and concerns that we have with the methodology, the results, and the conclusions of this study.

First, due to slow enrollment in the vascular brachytherapy arm, historic control from the Gamma One (Localized Intracoronary Gamma Radiation Therapy to Inhibit the Recurrence of Restenosis After Stenting) study, the first pivotal trial, was used to support