



# THE ANNALS OF THORACIC SURGERY



## **Recommendation for IMA use in dialysis patients with ipsilateral fistula: Reply**

Hiroshi Kato and Seiichiro Ikawa  
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#### Alternative Energy Sources for Atrial Fibrillation

To the Editor:

The publication by Thomas and colleagues [1] and the accompanying editorial by Damiano [2] highlight critically important challenges in the development of new surgical approaches for the treatment of atrial fibrillation. In an experimental model, Thomas and co-workers observed that epicardial application of dry, unipolar radiofrequency energy to a beating heart produced transmural atrial lesions in only 13% of sheep. Lesion depth was influenced by epicardial fat, intracavitary blood cooling the endocardium, and, possibly, blood circulating within the atrial tissue. In contrast, 92% of endocardial lesions were transmural.

These findings have important implications for the development of minimally invasive epicardial approaches to the surgical ablation of atrial fibrillation. Such procedures are on the horizon. Currently, most surgical treatment of atrial fibrillation is undertaken in patients requiring concomitant cardiac surgical procedures. At The Cleveland Clinic Foundation, 291 patients had surgical treatment of atrial fibrillation in 2002; only 11% had lone atrial fibrillation as the indication for operation. To be able to offer curative surgical therapy to the millions of people afflicted by lone atrial fibrillation, surgeons must develop a minimally invasive approach that is both effective and safe. Such a procedure will be performed on the beating heart from the epicardial surface through small incisions or endoscopes. An assessment of lesion transmural, conduction block, or both is a critical component of such a procedure. The data from Thomas

and colleagues clearly demonstrate that we cannot simply assume transmural when applying heat-based energy sources to the epicardium. Devices designed to produce transmural lines of conduction block with endocardial application may not produce such lesions when placed on the epicardium of a beating heart.

Successful minimally invasive surgical ablation of atrial fibrillation requires a focused effort to develop tools for ablation and lesion assessment designed specifically for an epicardial beating-heart approach. As Damiano emphasized, such development must be guided by sound scientific principles with meticulous experimental testing to confirm safety and efficacy. If properly performed, this work will culminate in successful and safe minimally invasive approaches to atrial fibrillation, thus offering the possibility of ablation to large numbers of patients.

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#### Recommendation for IMA Use in Dialysis Patients With Ipsilateral Fistula

To the Editor:

I enjoyed the case report about internal mammary artery steal in a patient requiring dialysis by Kato and associates [1]. I have been intrigued by whether the ipsilateral internal mammary artery should be used as a coronary bypass graft in a patient with an arteriovenous (AV) fistula. My colleagues and I recently saw 2 patients who had a left internal mammary artery graft to the left anterior descending coronary artery and an AV fistula in the left arm. They underwent nuclear study during dialysis with no reported redistribution. In addition, I have used a left internal mammary artery graft in patients with an ipsilateral fistula, and these patients have not had anginal symptoms.

Crowley and co-workers [2] reported a left internal mammary artery "steal" in a patient with a left AV fistula. I am not convinced that a mammary artery "steal" was demonstrated or that the angina was due to mammary artery "steal." Assuming a "steal" was present, it was likely due to the flow of 2.5 L/min through the AV fistula.

Kato and coauthors reported "steal" in the native internal mammary artery. I suspect that the demonstrated steal was secondary to the construction of the fistula in the antecubital fossa rather than the wrist resulting in flows that were higher than usual. My contention is that the AV fistula flow should be 1 L/min or less if the ipsilateral mammary artery is to be used as a coronary conduit and that if the AV fistula flow is too high, it will cause a left internal mammary artery "steal."

I have had a favorable clinical experience with left internal mammary artery bypass grafting in patients with a left AV

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