

Epicardial Implantation of Biventricular Leads

To the Editor:

We would like to share in this letter our initial experience in implanting epicardial leads for left and biventricular pacing as well as congratulate the authors¹ for the excellent results obtained. In our experience with our last four patients, it is possible to obtain a better view of the working area by making a higher incision, in the second or third intercostal space (in the left subclavicular region), to insert the video-assisted thoracoscopy device. In this way, instead of having the camera almost perpendicular (as shown in the photos from the cited article) and requiring different angles to see the different sectors, we can position the camera parallel to the long axis of the thorax leaving it effectively fixed there (with the help of a second operator who kept it fixed by simply placing the head of the device on the left shoulder of the patient) thereby considerably expanding the field of vision. Furthermore, as the incision is performed approximately in the same area where the generator will be implanted, the remaining scar is smaller, since once the endoscope is removed we only have to expand the incision and to make the pocket for the generator in the same place. The rest of our technique was effectively the same.

Theoretically, the epicardial approach allows us to choose at will the best possible place to implant the leads, although up to the present there is no clear evidence regarding how to choose the best implantation site (the basal posterolateral region is large). Thanks to the input of Julio Spinelli (an engineer at Guidant, United States) we have also modified our technique (for both endocardial and epicardial implants) as follows: we connect the patient to the programmer (we use a Medtronic programmer) in order to have at least one surface lead in it. Once the best possible anatomical site is chosen, we connect the lead for setting thresholds and take note of whether the sensor of our left lead coincides with the end-half of the native QRS complex of the patient. In this way we at least confirm we are in an area of electrical delay. Otherwise, we will not be "resynchronizing" but possibly creating further asynchronism. Although the ultrasound scan tries to find out how to optimally guide the bi-ventricular pacing,² the problem is that the settings are adjusted once the leads have been implanted in a given place. If the principle is to resynchronize areas with electromechanical delay

by electric stimulation, it seems logical not to stimulate an area where there is no electric delay, even if this is a good anatomical site.

Once again, we would like to congratulate you for your excellent work.

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REFERENCES

1. Fernández AL, García-Bengochea JB, Ledo R, Vega M, Amaro A, Álvarez J, et al. Implante de electrodos epicárdicos en ventrículo izquierdo para resincronización mediante cirugía mínimamente invasiva asistida por videotoracoscopia. *Rev Esp Cardiol* 2004; 57:313-9.
2. Macías A, Gavira JJ, Alegría E, Azcárate PM, Barba J, García Bolao I. Efecto de la localización del electrodo ventricular izquierdo sobre los parámetros ecocardiográficos de asincronía en pacientes sometidos a terapia de resincronización cardíaca. *Rev Esp Cardiol* 2004;57:138-45.

Response

To the Editor:

We congratulate Drs Ayala and Greentree for their experience and we totally agree that in order to obtain optimal ventricular systolic resynchronization the areas to be stimulated should be those with electromechanical delay in the left ventricle. In our work¹ the posterolateral region was chosen based on the echocardiographic study and the pre-intervention left catheterization. With tissue Doppler echocardiography it is possible to identify with high accuracy the segments with greater electromechanical activation delay. Regarding catheterization, we carried out temporal endocardial pacing in different segments of the left ventricle in order to determine which anatomical site provides the best improvement in dP/dt.

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REFERENCES

1. Fernández AL, García-Bengochea JB, Ledo R, Vega M, Amaro A, Álvarez J, et al. Implante de electrodos epicárdicos en ventrículo izquierdo para resincronización mediante cirugía mínimamente invasiva asistida por videotoracoscopia. *Rev Esp Cardiol* 2004;57:313-9.