Long-Term Follow-Up Of Robotically Assisted Left Ventricular Lead Implantation

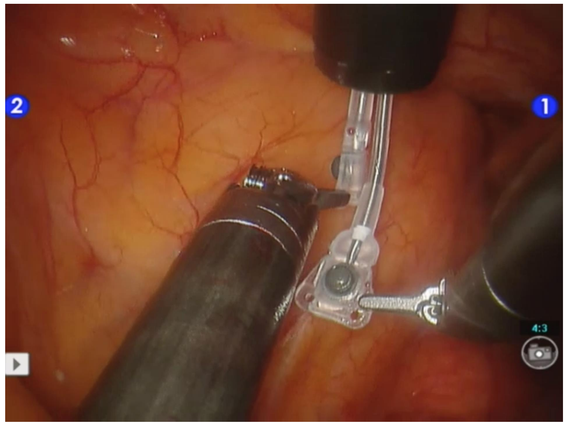
Melly L, Kalscheuer G, Dormal F, Blommaert D, Jansens JL, Eucher P, Rondelet B.

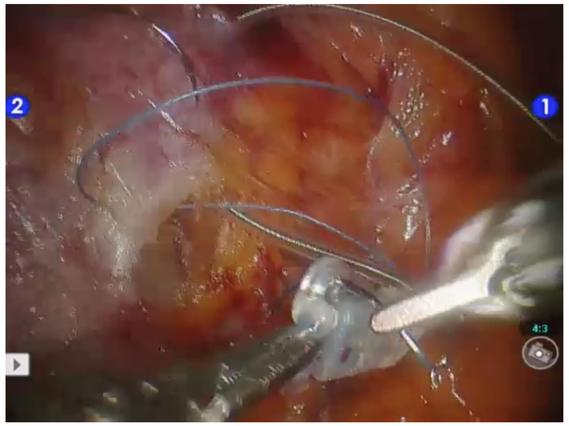
Objective

For anatomical or technical reasons, the placement of the left ventricular (LV) lead via the coronary sinus at the intended target area is sometimes not possible. A minimally invasive, robotically guided LV lead implantation is an option to avoid these drawbacks. This technique has shown good clinical response and beneficial reverse remodeling comparable with the conventional approach via the coronary sinus. Here we evaluate the long-term results at our center after the introduction of the technique.

Methods

All indications were failed implant with the endovascular approach at a single institution between March 2015 and June 2019. Robotically guided left ventricular lead implantation allowing exposition and placement of the lead on the left ventricular free wall under general anesthesia with an epicardial lead using a 3-ports thoracoscopy Da Vinci Robotic System.

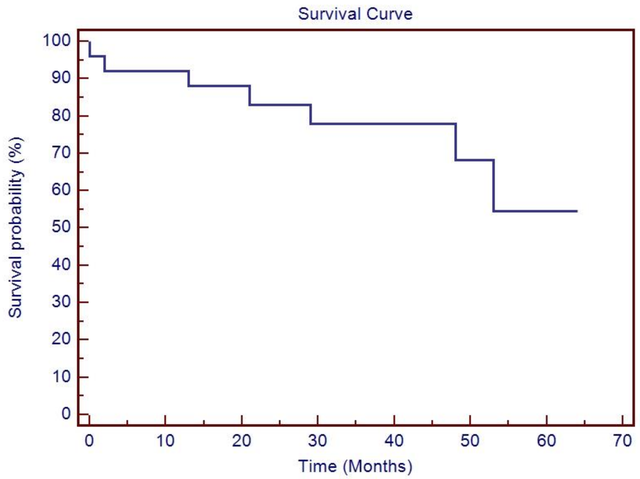




Results

25 heart failure patients: 17 men, 8 women, 72 ±8 years old. The bipolar left ventricular lead was successfully implanted in all patients. Operative time was 88 ±33 minutes. 1 conversion into a mini-thoracotomy was performed for anatomical reasons, 1 pericardial drainage was necessary postoperatively. 4 patients remained non-responders even after implantation at different sites, all others improved their LV ejection fraction (EF) compared to baseline (normo-responder), and 8 of them were even super-responders with an increase of >20% or above 45%. The survival curve of all cause mortality is displayed in the attached figure. At a follow-up of 38 ±18 months, the values (compared to 1 year follow-up) for the lead impedance remained stable at 534 ±272 Ohms (565 ±247 Ohms) with a constant threshold of 1.3 ±1.0 mV (1.3 ±0.9 mV).

All data are shown as median ± standard deviation.



Conclusion

The minimally invasive approach for the left ventricular lead implantation gives satisfactory and stable thresholds on the long-term. Accordingly, robotically-guided left ventricular lead implantation seems to offer a solid alternative when endovascular approaches are not suitable.

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