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CAN MULTIPOINT™ PACING IMPROVE AN ECHO-OPTIMIZED PATIENT?

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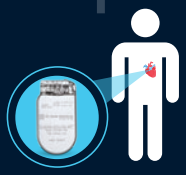
54-YEAR-OLD MALE WITH
BIFASCICULAR BLOCK

EF: 27%



PRODUCT IMPLANTED
QUADRA ASSURA MP™ CRT-D
AV DELAY WAS OPTIMIZED
VTI = 28.21 CM

MULTIPOINT™ PACING
WAS TURNED ON
VTI = 30.10 CM

EF: 32%

CLINICAL HISTORY

- 54-year-old male
- February 2014: Complaints of dyspnea
- March 2014: ECG showed bifascicular block
- April 2014: Echocardiogram showed a dilated left ventricular ejection fraction (LVEF) 46%
- June 2014: MRI showed LVEF 27%
- July 2014: Coronary angiogram (CAG) with normal coronary arteries

PROCEDURE

November 2014: Implant of an Abbott Quadra Assura™ CRT-D with MultiPoint™ Pacing technology. The implant procedure was uncomplicated. A nice posterolateral vein was found and a Quartet™ lead was placed.

Measurements and Device Parameters

- Optimal VV timing with echo achieved best results when pacing LV 20 msec before RV.
- Initial velocity time integral (VTI) was 26.6 cm (Figure 1); after the echo optimization, VTI increased to 28.2 cm (Figure 2).
- Device was further optimized with MultiPoint™ Pacing based on the site of latest LV activation (RV pace to LV sense).
  - Electrode 1:201 msec delay
  - Electrode 2:209 msec delay
  - Electrode 3:217 msec, which has the latest activation point
  - Electrode 4:201 msec delay but with high threshold
- VTI was measured at different MultiPoint™ Pacing settings, with the largest measurement (30.1 cm) corresponding to MPP using electrodes 3 and 2 (LV1-LV2) with LV1-LV2 and LV2-RV delays of 10 msec (Figure 3).
- Output settings were right atrium 2.0 V and both RV and LV 1.5 V by 0.5 msec.

Figure 1. VTI initial 26.63 cm

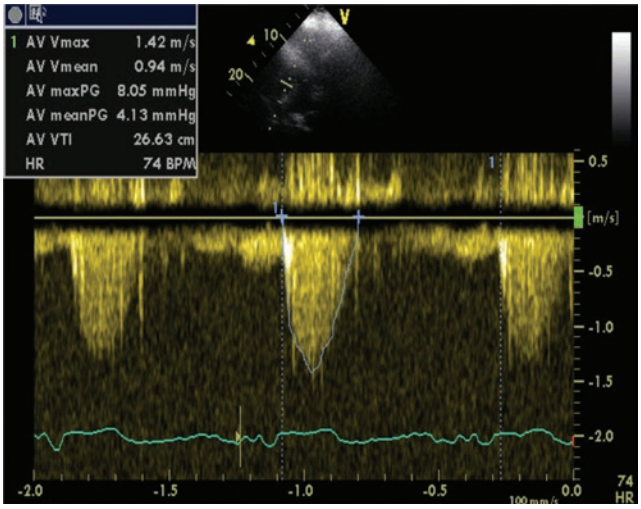


Figure 2. VTI optimal 28.21 cm

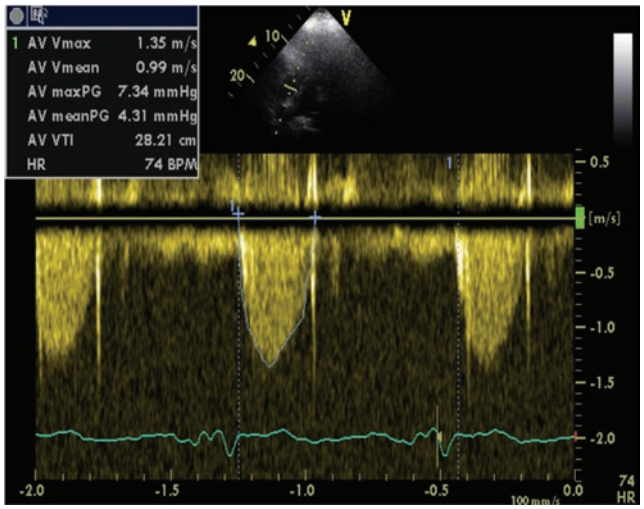
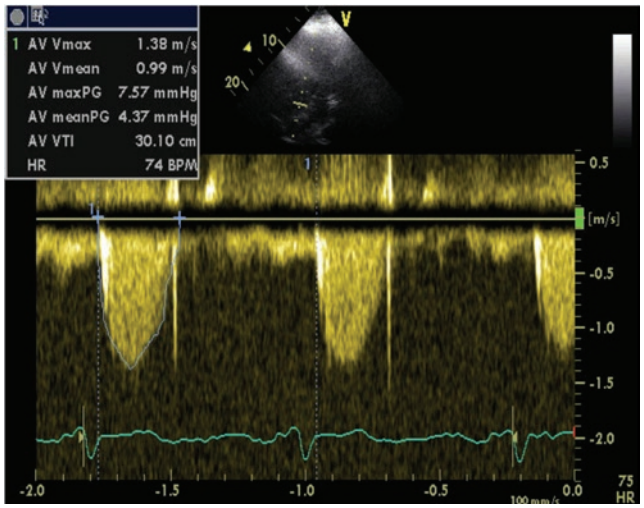


Figure 3. VTI optimal with MultiPoint™ pacing 30.10 cm



CONCLUSION

- AV timing of 200 msec was optimal; this was the first series of measurements before starting the VV timing.
- LV 20 msec before RV was the optimal echo optimization.
- MultiPoint™ Pacing was optimized when using LV1-LV2 (Electrode 3 - Electrode 2) and LV2-RV both with 10 msec delays.
- Ejection fraction improvement was from 26% to 32%.
- When the optimization was done, lead measurements and sensing were stabilized.
- Echo optimizations performed by experienced physicians and technicians is standard protocol in this hospital, but MultiPoint Pacing provided a better patient outcome in this specific case study.

EMPOWERING THE TRANSFORMATION OF HEART FAILURE

From treatment to ongoing patient management, Abbott is committed to working with you to transform heart failure and improve more patient lives.

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Rx Only
Brief Summary: Please review the Instructions for Use prior to using these devices for a complete listing of indications, contraindications, warnings, precautions, potential adverse events and directions for use.

Quartet™ LV lead
Indications and Usage: The Quartet lead has application as part of an Abbott Biventricular system.
Contraindications: The use of the Quartet lead is contraindicated in patients who:
• Are expected to be hypersensitive to a single dose of 1.0 mg of dexamethasone sodium phosphate.
• Are unable to undergo an emergency thoracotomy procedure.
• Have coronary venous vasculature that is inadequate for lead placement, as indicated by venogram.

MultiPoint™ Pacing and SyncAV™ CRT Technology
Indications: Abbott ICDs and CRT-Ds are intended to provide ventricular antitachycardia pacing and ventricular defibrillation for automated treatment of life-threatening ventricular arrhythmias. AF Suppression™ pacing is indicated for suppression of paroxysmal or persistent atrial fibrillation in patients with the above ICD indication and sinus node dysfunction. In patients indicated for an ICD, CRT-Ds are also intended: to provide a reduction of the symptoms of moderate to severe heart failure (NYHA Functional Class III or IV) in those patients who remain symptomatic despite stable, optimal medical therapy (as defined in the clinical trials section included in the Merlin™ PCS on-screen help) and have a left ventricular ejection fraction less than or equal to 35% and a prolonged QRS duration to maintain synchrony of the left and right ventricles in patients who have undergone an AV nodal ablation for chronic (permanent) atrial fibrillation and have NYHA Class II or III heart failure.
Contraindications: Contraindications for use of the pulse generator system include ventricular tachyarrhythmias resulting from transient or correctable factors such as drug toxicity, electrolyte imbalance, or acute myocardial infarction.
Adverse Events: Implantation of the pulse generator system, like that of any other device, involves risks, some possibly life-threatening. These include but are not limited to the following: acute hemorrhage/bleeding, air emboli, arrhythmia acceleration, cardiac or venous perforation, cardiogenic shock, cyst formation, erosion, exacerbation of heart failure, extrusion, fibrotic tissue growth, fluid accumulation, hematoma formation, histotoxic reactions, infection, keloid formation, myocardial irritability, nerve damage, pneumothorax, thromboemboli, venous occlusion. Other possible adverse effects include mortality due to: component failure, device programmer communication failure, lead abrasion, lead dislodgment or poor lead placement, lead fracture, inability to defibrillate, inhibited therapy for a ventricular tachycardia, interruption of function due to electrical or magnetic interference, shunting of energy from defibrillation paddles, system failure due to ionising radiation. Other possible adverse effects include mortality due to inappropriate delivery of therapy caused by: multiple counting of cardiac events including T waves, P waves, or supplemental pacemaker stimuli. Among the psychological effects of device implantation are imagined pulsing, dependency, fear of inappropriate pulsing, and fear of losing pulse capability.

Refer to the User's Manual for detailed indications, contraindications, warnings, precautions and potential adverse events.

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