Efficient Approach for Atrioventricular Junction Ablation with Pacemaker Implantation

Mohamed Djelmami-Hani1,2, MD, Danielle Martin3, RN, Emily Queen, CVT1, Julie Soile, RN3 and Jasbir Sra, MD1,2.
Aurora Cardiovascular Services1, University of Wisconsin School of Medicine and Public Health, Milwaukee, WI 2, Grafton Medical Center3

PROBLEM
Concomitant atrioventricular junction ablation (AVJA) and ventricular pacing device implantation are used for rate control when appropriate for rate control in atrial fibrillation. Traditionally, AVJA during pacemaker implantation is performed, like all ablation procedures, from femoral access requiring a separate access and procedure tool set. Healthcare cost and safety are very important. Can a different approach help improve both cost and patient safety/experience?

BACKGROUND
Atrial fibrillation is the most common arrhythmia treated in office. When rate control is preferred, AV node blocking medications such as beta-blockers, calcium channel blockers and digoxin can be used. However, if these medications fail, are not tolerated, or contraindicated, then ablation of the AV node with placement of right ventricular permanent pacemaker is typically the choice allowing for complete ventricular rate and rhythm control.
Both procedures are performed in the same setting. Traditionally, the pacemaker is implanted via the subclavian or axillary veins and the AV node ablation is performed from the femoral vein with a separate central venous access and different procedure setup.

OBJECTIVE
We describe our single-center, single-operator experience with using same device lead access for AVJA.

METHODS
We report 20 consecutive cases performed in a single center by a single operator. Patients who underwent concomitant pacemaker and AVJA procedures between 2013 and 2016 were included. Incision was made to the pectoral fascia but the device pocket was not made until all leads were in place. Axillary venous access was obtained. The RV lead was implanted first. Second axillary access was obtained and used to advance the ablation catheter to the map and ablate the AV node. With backup RV pacing, AVJA was performed. After achieving complete AV block, the rest of the leads were implanted if indicated.

RESULTS
The mean age was 76±7, with 13 (65%) female. Mean LVEF was 54±10.5. Diabetes, COPD, and chronic kidney disease were present in 15%, 30%, and 20%, respectively. Total of 18 (90%) were on anticoagulation, with 30% warfarin, 55% apixaban, and 25% rivaroxaban. INR day of procedure was 2.0±0.8. Devices implanted were 75% dual chamber, 20% biventricular, and 5% single chamber. The time from start of ablation to achieving complete AV block was 7±7.5 min. Total of lesions delivered was 7.2±4.7. Total time for AVJA part was 9.3±7.9 min. There was no pneumothorax, hematoma requiring drainage, infection, or lead dislodgement. Cost savings per case is estimated at $1000.

CONCLUSIONS
Performing AVJA using the same venous access as used for the leads during concomitant device implantation is safe and efficient. Avoiding separate femoral access for AVJA helps avoid potential groin complications and prolonged bed rest for the patient. It is more cost efficient by eliminating the need for a separate procedure table, and reducing procedure time by eliminating the need to wait for groin hemostasis. It also is more comfortable for the patient.