

Micra™ Leadless Intracardiac Pacemaker Implantation: Safer Option During the COVID-19 Pandemic

Sana Rashid DO¹, Maryam Kazmi DO¹, Nebojsa Markovic MD¹, Emad Aziz DO²

¹Department of Medicine, Rutgers NJMS, Newark, NJ

²Division of Cardiology, Department of Medicine, Rutgers NJMS, Newark, NJ

Introduction: The Micra™ Transcatheter Pacing System (“Micra”) is a leadless intracardiac pacemaker that is associated with fewer complications, hospitalizations, and revisions, when compared to transvenous pacemakers.¹ Certain arrhythmias and conduction abnormalities necessitate urgent pacemaker insertion, and hence enhanced precautions during the current COVID-19 pandemic. We present seven patients with various conduction abnormalities necessitating single-chamber pacemaker between March to May 2020.

Method: The Micra was inserted via standardized approach in all patients. Patient’s face was covered to reduce spread of respiratory particles. Operator and staff remained at the femoral site in proper personal protective equipment and sterile gown.

Results: The majority of the patients were male (5 out of 7) with an average age of 71 +/- 12.9. Indications for Micra included high degree AV block, sinus node dysfunction and symptomatic bradycardia. Of the seven patients, all had hypertension, five had hyperlipidemia, three had atrial fibrillation, and one had heart failure. Two of the patients were diagnosed with COVID-19 with hypoxic respiratory failure. The average total procedure time was 35.2 +/- 10.77 minutes and the average fluoroscopy time was 2.7 +/- 0.879 minutes. This is significantly less compared to traditional single chamber transvenous pacers, which have an average fluoroscopy times of 5.5 minutes.² Post-procedure, one patient developed a femoral artery pseudoaneurysm which was resolved with thrombin injection. One patient died post-procedure day 3 secondary to hypoxic respiratory failure from COVID-19.

Conclusion: Use of Micra allows for shorter procedure time and less radiation and viral exposure for both the patient and operator alike. Allowing insertion from the femoral vein allows for the operator to be farther from the patient’s face and x-ray machine. Given the ongoing COVID-19 pandemic, Micra should be considered in patients with indication for single chamber pacemaker.

Resources:

1. Reynolds DW, Ritter P. A Leadless Intracardiac Transcatheter Pacing System. *N Engl J Med.* 2016;374(26):2604-2605. doi:10.1056/NEJMc1604852
2. Larsen TR, Saini A, Moore J, et al. Fluoroscopy reduction during device implantation by using three-dimensional navigation. A single-center experience. *J Cardiovasc Electrophysiol.* 2019;30(10):2027-2033. doi:10.1111/jce.14102