

# Initial Experience Using the Radiofrequency Needle Visualization on the Electroanatomical Mapping System for Transseptal Puncture

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## INTRODUCTION

- ▶ This series of 42 retrospective consecutive cases evaluates the safety and effectiveness of transseptal puncture (TSP) using a radiofrequency (RF) needle in left-sided ablations with low or no fluoroscopy.

## METHODS

### Visualization setup

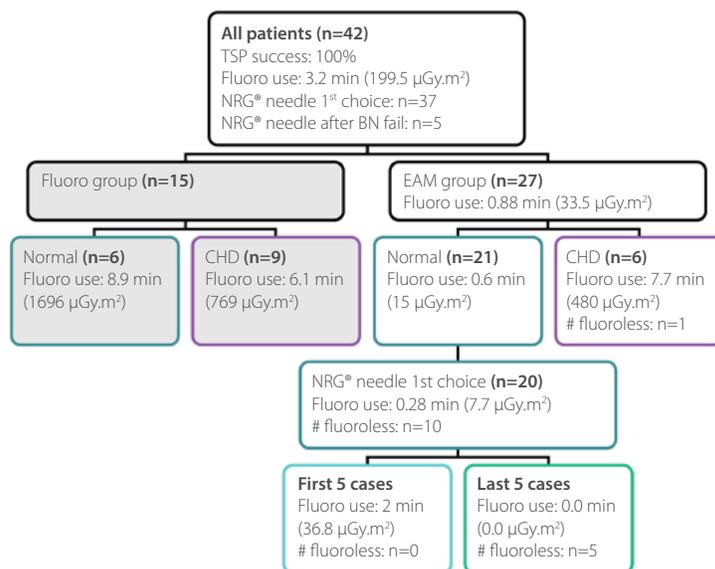
- ▶ Pre-procedural contrast enhanced computed tomography (CT) or cardiac magnetic resonance (CMR) were used to create 3D reconstructions of cardiac chambers and vessels.
- ▶ Electroanatomical Mapping (EAM) was performed using CARTO<sup>®</sup>3 (Biosense Webster) or Rhythmia<sup>™</sup> (Boston Scientific) systems and merged with 3D reconstructions using the POLARIS software (Biosense Webster).
- ▶ Transesophageal echocardiography and/or remote magnetic navigation (Stereotaxis Inc) were used in challenging and congenital heart disease cases.
- ▶ 3D map of the right atrium (RA) and coronary sinus (CS) were acquired using fast anatomical mapping (FAM) using NaviStar<sup>®</sup> ThermoCool<sup>®</sup> catheter (Bioscience Webster).
- ▶ NRG<sup>®</sup> Transseptal Needle (Baylis Medical) was visualized on the EAM map using the DuoMode<sup>™</sup> extension cable<sup>†</sup> (Baylis Medical) using the following configuration:
  - A jumper cable (stackable, 2mm pin) is plugged into ports 1 and 2 on the pin block.
  - DuoMode<sup>™</sup> Cable is plugged into the jumper cable in port 1.
  - The RF needle was defined as a 2F bipolar catheter, with 2mm spacing centre to centre and 1mm electrode width/length on the EAM.

### Transseptal puncture (TSP)

- ▶ Single or double TSP was performed and 1 or 2 sheaths (TorFlex<sup>™</sup> Transseptal Guiding Sheath, Baylis Medical or SL1<sup>™</sup> sheath, Abbott) were placed in the left atrium (LA).
  - n=37 cases; first attempt to TSP was made with the NRG<sup>®</sup> needle.
  - n=5 cases; NRG<sup>®</sup> needle was used after initial attempt with Brockenbrough needle (BN) failed.

## RESULTS

- ▶ TSP was achieved 100% successfully with no immediate procedural complications (See Figure 1).



**Figure 1** The NRG<sup>®</sup> needle enabled successful TSP with low or no fluoroscopy use in both normal and complex cases with congenital heart disease (CHD). Number of fluorosless cases increased with physician experience in NRG<sup>®</sup> needle visualization on EAM. BN indicates Brockenbrough. (Adapted from Guarguagli et al.).

## DISCUSSION & CONCLUSIONS

- ▶ The prevalence of redo ablations (i.e. fibrotic septa) and adult patients with congenital heart disease (CHD) presents an increasing challenge in TSP.
- ▶ This study demonstrates successful TSP using the NRG<sup>®</sup> RF needle in patients with complex and normal interatrial septum anatomies.
- ▶ NRG<sup>®</sup> needle can be visualized in real time using 3D EAM to reduce/eliminate the need for fluoroscopy.
- ▶ Time saving from more effective TSP using the RF needle offsets the additional time required to map the RA.

<sup>†</sup> Consult your mapping system's user manual for connectivity and configuration instructions prior to DuoMode<sup>™</sup> Cable use.