Highlights from:
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Initial Experience Using the Radiofrequency Needle Visualization on the Electroanatomical Mapping System for Transseptal Puncture

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 or cardiac magnetic resonance were used to create 3D reconstructions of cardiac chambers and vessels.
- Electroanatomical Mapping (EAM) was performed using CARTO®3 (Biosense Webster) or Rhythmia™ (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 (CHD) cases.
- 3D map of the right atrium (RA) and coronary sinus were acquired using fast anatomical mapping using NaviStar® ThermoCool® Catheter (Bioscience Webster).
- **NRG™** Transseptal Needle (Baylis Medical*) was visualized on the EAM map using the **DuoMode™** Extension Cable† (Baylis Medical*) using the following configuration:
  - A jumper cable (stackable, 2 mm pin) is plugged into ports 1 and 2 on the pin block
  - **DuoMode™** Cable is plugged into the jumper cable in port 1
  - The RF needle was defined as a 2F bipolar catheter, with 2 mm spacing centre-to-centre and 1 mm electrode width/length on the EAM

Transseptal puncture (TSP)

- Single or double TSP was performed and 1 or 2 sheaths (**TorFlex™** Transseptal Guiding Sheath, Baylis Medical* or SL1™ sheath, Abbott) were placed in the left atrium.
  - n=37 cases; first attempt to TSP was made with the **NRG™** Needle
  - n=5 cases; **NRG™** 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).

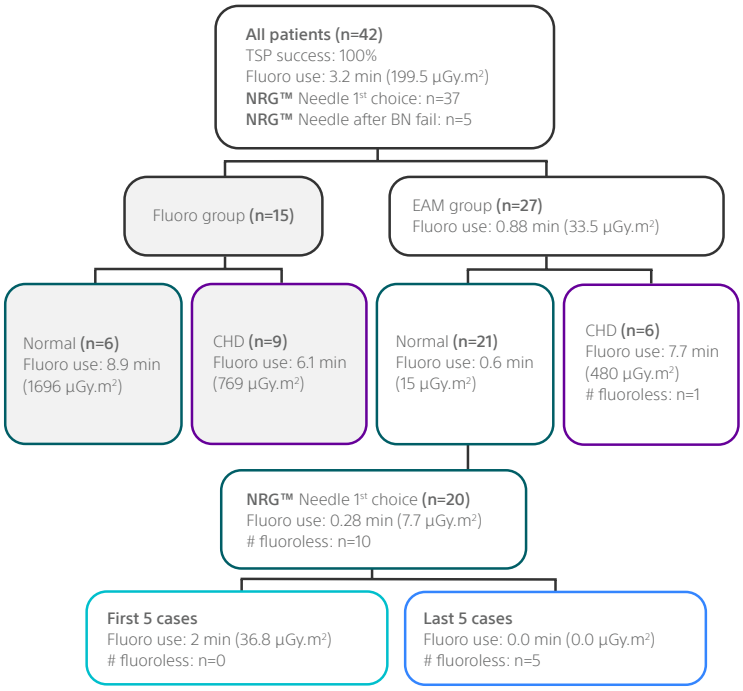

Figure 1. The **NRG™** Needle enabled successful TSP with low or no fluoroscopy use in both normal and complex cases with CHD. Number of fluoroless cases increased with physician experience in **NRG™** Needle visualization on EAM. (Adapted from Guarguagli et al.).

DISCUSSION AND CONCLUSIONS

- The prevalence of redo ablations (i.e. fibrotic septa) and adult patients with CHD presents an increasing challenge in TSP.
- This study demonstrates successful TSP using the **NRG™** Needle in patients with complex and normal interatrial septum anatomies.
- **NRG™** 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.

* A wholly-owned subsidiary of Boston Scientific Corporation.
† Consult your mapping system's user manual for connectivity and configuration instructions prior to **DuoMode™** Cable use.

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