Mapping of intraatrial reentrant tachycardias by remote magnetic navigation in patients with d-transposition of the great arteries after mustard or senning procedure.

Abstract:
Remote Magnetic Mapping After Mustard/Senning Procedure.

INTRODUCTION: Mapping of intraatrial reentrant tachycardia (IART) still presents a challenge in complex congenital heart disease. The goal of this work was to present our initial experience with remote magnetic navigation (RMN) for mapping of IART in four patients after the atrial switch procedure (Mustard n = 1, Senning n = 3) for d-transposition of the great arteries.

METHODS: Three-dimensional (3D) mapping of the systemic venous atrium and the pulmonary venous atrium (PVA) was performed using RMN (Niobe) in conjunction with 3D mapping (CartoRMT). The maps were fused with a CT-based 3D anatomy.

RESULTS: All patients had cavotricuspid isthmus-dependent IART with a mean atrial cycle length of 305 ms. Mapping of both atria (PVA retrogradely by passing the aortic and tricuspid valve) was feasible and safe. The procedure time for IART mapping ranged from 210 to 320 minutes with a mean of 251 minutes. The fluoroscopy time for IART mapping ranged from 15.8 to 45.0 minutes (mean 31.6 minutes) for patients, and ranged from 12.3 to 24.3 minutes with a mean of 19.5 minutes for physicians. No procedural complications occurred.

CONCLUSION: Precise mapping of IART in the complex anatomical structures after an atrial switch
procedure was feasible and safe using RMN. The maneuverability of the catheter was possible even with a retrograde access crossing two valves. Further reduction of procedural and fluoroscopy times for both patients and physicians seems possible.