

3D GUIDANCE OF PERCUTANEOUS PULMONARY VALVE IMPLANTATION (PPVI) WITH THE USE OF VESSELNAVIGATOR

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BACKGROUND

Recent advances in fusion software have enabled application of pre-intervention imaging, including computed tomography (CT) or magnetic resonance imaging (MRI) scans, to create a reliable roadmap for swift manipulation through complex cardiac anatomy.

OBJECTIVE & METHODS

The aim of this study was to define the additional benefit of mapping for complex cardiac interventions.

RESULTS

Vessel Navigator (Phillips Healthcare) was applied in 32 patients for planning (n=5), suitability PA testing (n=9) and PPVI (n=18) between 11/2015 -03/2017. The median age was 19 years (4.9 – 69 years); median weight was 49 kg (16.5 – 122 kg). Indications for PPVI were status post ROSS-procedure (n=10), tetralogy of Fallot (n=8), common arterial trunk (n=5), pulmonary atresia (n=5), double outlet right ventricle (n=2) and Ebstein anomaly (n=2). Indications for PPVI were significant PS/PI. 3D roadmap was created from CT (n=15) or MRI (n=17) in all patients. Fusion with fluoroscopy images were acquired in 2 projections by angiography (n=22), spine/vertebrae (n=8), calcifications (n=10) or artificial valves (n=2) and was accurate in 30/32 patients. The median radiation dose was 5124 $\mu\text{Gy}\cdot\text{m}^2$ (4773.3 – 26754 $\mu\text{Gy}\cdot\text{m}^2$) and the median fluoroscopy time was 21.4 min (5.3 – 67 .3min)

CONCLUSION

3D roadmap is a useful tool for guidance of PA-evaluation, PA-stenting and PPVI. During intervention 3D overlay might improve 3D visualization in complex and overlapping anatomy. A reduction of radiation dose might be possible especially with use of MRI implementation.