

Results All 176 PVs in 44 patients could be mapped by the HDMM and CARTO. About 43.2% of the PV ostial anatomies were matched very well between the two different map images. The point-to-point straight distance between the HDMM-guided map and CARTO-guided map is 6.20 ± 1.44 mm. The distance in some PV segments between the two images is nearly 5 mm. The area of circumferential right PV (CRPV) in the two views is 8.41 ± 2.88 mm² in CARTO map, 9.37 ± 1.84 mm² in HDMM map respectively ($p=0.013$). The area of circumferential left PV (CLPV) is 8.12 ± 2.48 mm² in CARTO, 8.98 ± 2.33 mm² in HDMM respectively ($p=0.071$). The CRPV perimeter in CARTO and HDMM is 11.63 ± 1.95 mm vs 11.87 ± 1.72 mm ($p=0.471$), the CLPV 11.29 ± 1.59 mm vs 11.12 ± 1.71 mm ($p=0.573$).

Conclusions Compared to the CARTO-guided CPV anatomy image, the HDMM-guided one still has some discrepancies, which maybe explain a part of reasons why the high-density mesh ablator (HDMA) has a high acute PVI rate but low long-term efficiency.

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COMPARISON OF CIRCUMFERENTIAL PULMONARY VEIN ANATOMY MAPPING IN PATIENTS WITH ATRIAL FIBRILLATION GUIDED BY CARTO MAPPING SYSTEM AND HIGH-DENSITY MESH MAPPING CATHETER

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Objectives Catheter-based pulmonary vein isolation (PVI) is an established therapy to treat patients with paroxysmal atrial fibrillation. The high-density mesh mapper (HDMM), a novel multi-electrode circumferential mapping catheter, guides the circumferential atrium isolation without help of 3D electro-anatomic mapping. We compared the difference of the circumferential pulmonary vein anatomy mapping guided between by CARTO system (one 3D electro-anatomic mapping system) and by HDMM.

Methods From August 2010 to February 2012, 44 consecutive patients with paroxysmal atrial fibrillation were scheduled for a first procedure of PVI. A circumferential PV ostial anatomy map was set up in CARTO system around the HDMM (HDMM, Bard Electrophysiology) firstly, while the operator was blinded to the CARTO screen. CARTO-guided PVI was performed in every patient by irrigated radiofrequency application, which established another circumferential PV (CPV) ostial anatomy map. The study compared the difference between the two images, including the point-to-point straight distance, the area, the perimeter and so on.