[gw22-e0416]

BLOCK PULMONARY VEIN TO LEFT ATRIUM CONDUCTION IN ADDITION TO THE ENTRANCE BLOCK ENHANCES CLINICAL EFFICACY IN ATRIAL FIBRILLATION ABLATION

Chen Songwen,[1] Chen Gang,[1] Meng Weidong,[1] Yan Yiwen,[1] Zhang Feng,[1] Liu Shaowen[1] [1]*Shanghai First People's Hospital Medical College Shanghai Jiaotong University*

10.1136/heartjnl-2011-300867.527

Background The recurrence of arrhythmias after pulmonary vein (PV) isolation in patients undergoing atrial fibrillation ablation is often due to PV reconnection, but it can also be attributed to an incomplete PV isolation mistaken by spontaneous activities of the PV during the procedure. However, this phenomenon and its clinical impact have not been assessed systematically. In this study, the clinical implication of unidirectional PV to LA conduction after achieving PV entrance block were identified and evaluated on the basis of spontaneous activities from the PVs that conducted to the LA.

Methods and results Circumferential PV isolation as a first ablation procedure was performed successfully in 573 consecutive atrial fibrillation patients (383 male, mean age 58.6±10.6 years). During the ablation procedure, a total of 341 ipsilateral PVs (29.7%, 341/1146) with spontaneous activities were documented in 231 patients (40.3%, 231/573). While spontaneous activities were propagated to the LA to induce arrhythmias, the unidirectional PV to LA conduction was suspected and then confirmed by stimulation both in the LA and PV in 11 ipsilateral PVs (3.2%, 11/341, 7 left side PVs and 4 right side PVs) of 11 patients (4.8%, 11/231, 8 males, mean age 54.7±8.0 years). The PVs that had unidirectional PV to LA conduction with spontaneous activities were classified as Group A; the PVs that had spontaneous activities but without PV to LA conduction were classified as Group B and PVs that did not have any spontaneous activities were classified as Group C. During a 30 min observation period after PV isolation, the incidence

of PV reconnection was higher in Group A (45.4%, 5/11) than in Group B (13.9%, 46/330, p=0.042) and in Group C (11.5%, 90/805, p=0.018). The time of PV reconnection was shorter in Group A (7.2±11.7 min) than that in Group B (20.7±8.0 min, p=0.037) and in Group C (21.2±8.2 min, p=0.022). All 11 targeted PVs were isolated completely after a single radiofrequency (RF) application in the breakthrough regions from the PV to the LA and bidirectional block was achieved. After the first procedure, 10 (10/11, 90.9%) of the Group A patients, 169 (169/220, 76.8%) of the Group B patients and 241 (241/342, 70.5%) of the Group C patients were free of AF recurrence.

Conclusion Unidirectional entrance block with spontaneous activities in the PVs may not be a good indication of complete PV isolation. Bidirectional block of the LA and PV conduction will reduce the acute and chronic AF recurrence in patients undergoing circumferential PV isolation and enhance the efficacy of AF ablation.