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ACUTE EFFECT OF CIRCUMFERENTIAL PULMONARY VEIN ISOLATION BY CATHETER RADIOFREQUENCY ABLATION ON P-WAVE DISPERSION

Li Ping, Xu Yan, Cheng Xiaoshu, Hu Jianxin, Wu Yanqin, Li Juxiang, Wu Qinghua, Yu Jianhua, Chen Qi, Hong Kui, Su Hai *Cardiovascular Department, Second Affiliated Hospital Of Nanchang University, Nanchang, China*

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Objective To observe the acute effect of successful circumferential pulmonary vein isolation per se by catheter radiofrequency ablation on P-wave dispersion.

Methods 38 patients who were underwent three- dimensional electroanatomical mapping system (Ensite 3000 or Carto) guided circumferential pulmonary vein isolation by radiofrequency catheter ablations for paroxysmal atrial fibrillation from August 2007 to April 2010 in our hospital were included in this study. There were 25 males and 13 females, aged from 34 to 74 years with a mean (59.60±8.35), in which 23 patients with hypertension, 8 with diabetes while all being NYHA class I. The maximum P-wave intervals (Pmax) and minimum P-wave intervals (Pmin) on ECG were respectively measured preoperation and the third day postoperation in all patients with sinus rhythm. P-wave dispersion (Pd) was defined as the difference between Pmax and Pmin and calculated in all cases.

Results The Pmin and Pmax were respectively 57.8±15.8 ms, 128.9±25.8 ms and 60.1±14.3 ms, 115±20.6 ms before and after operation ($p<0.001$ for Pmax). The P-wave dispersion were significantly shortened from 71.1±17.5 ms to 54.7±15.6 ms after operation ($p<0.001$). There were no correlation between left atrial volume and preoperative Pd ($r=0.122$, $p=0.437$) or ΔPd (the change of Pd between postoperation and preoperation) ($r=-0.209$, $p=0.208$).

Conclusions Even there were no observable correlation between preoperative and ΔPd, successful circumferential pulmonary vein isolation by catheter radiofrequency ablation for paroxysmal atrial fibrillation can immediately reduce maximum P-wave intervals (Pmax) and P-wave dispersion (Pd) suggest that this approach may have acute improvemental effect on heterogeneity of atrial electrical activity.