Abstract: P1427

A long atrial electromechanical interval is associated with arrhythmia recurrence after catheter ablation of paroxysmal atrial fibrillation

Authors:
V Barletta\textsuperscript{1}, G Zucchelli\textsuperscript{1}, M Parollo\textsuperscript{1}, A Canu\textsuperscript{1}, V Della Tommasina\textsuperscript{1}, D Andreini\textsuperscript{1}, M Carluccio\textsuperscript{1}, T Cellanaro\textsuperscript{1}, A Di Cori\textsuperscript{1}, R De Lucia\textsuperscript{1}, S Viani\textsuperscript{1}, MG Bongiorni\textsuperscript{1}, \textsuperscript{1}Azienda Ospedaliero-Universitaria Pisana, Dipartimento di Patologia Medica, Chirurgica, Molecolare e dell’Area Critica - Pisa - Italy,

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Background
Atrial fibrillation (AF) results in electrical and mechanical changes in left atrium (LA) and lead to atrial remodelling, which is associated with higher AF recurrence, even after catheter ablation. Recently, a novel echocardiographic parameter, called PA-TDI and derived from tissue Doppler imaging (TDI), has been introduced to assess the total atrial conduction time, which reflects the extent of both electrical and structural remodelling of the atria.

The aim of the study is to investigate the role of PA-TDI interval as predictor of AF ablation efficacy.

Methods
We retrospectively included patients with paroxysmal symptomatic drug-refractory AF referred to our Institution for catheter ablation procedure with radiofrequency and presented sinus rhythm at admission. A complete transthoracic echocardiogram was performed and the PA-TDI interval was defined as the time-interval from the initiation of the P-wave from the ECG signal provided by the echo machine to the peak A’-wave on the TDI.

Results
From January 2015 to September 2017, a total of 100 patients (mean age 62.26 ± 8.97 years, 65% male, BSA 1.97 ± 0.22 mq, BMI 26.72 ± 4.04 kg/mq, EF 59.1 ± 5.92%) with symptomatic drug refractory AF who received radiofrequency catheter ablation was enrolled. During the follow-up of 15.04 ± 7.5 months, 20 patients (20%) developed AF recurrence out of the blanking period. Compared with those without recurrence (group 1), patients with recurrence (group 2) had a larger LA size (group 1 vs group 2: mean LA area 21.55 ± 4.85 cmq vs 26.4 ± 7.34 cmq, p=0.03; LAD 39.89 ± 6.03 mm vs 43.07 ± 7.17 mm, p=0.03) and longer PA-TDI interval (group 1 vs group 2: 139.27 ± 32.66 ms vs 156.88 ± 42.85 mm, p=0.021). PA-TDI interval values directly correlated with LA area at linear regression analysis (r=0.32, p=0.01). A cut-off of PA-TDI > 150 ms identified patients with recurrence after ablation with a sensitivity of 62% and specificity of 66% (AUC 0.69).

Conclusion
The PA-TDI interval can reflect the process of LA remodelling, such as a LA enlargement. It can be easily achieved and could be a convenient parameter for predicting a recurrence after catheter ablation of AF.