HOT TOPICS 3

GIOVEDI' 16 SETTEMBRE 2021

SALA BIANCA

12.30-13.00

ELETTROFISIOLOGIA INTERVENTISTICA

HT.3.01
SECOND-GENERATION LASER BALLOON ABLATION FOR THE TREATMENT OF ATRIAL FIBRILLATION ASSESSED BY CONTINUOUS RHYTHM MONITORING: THE LIGHT-AF STUDY

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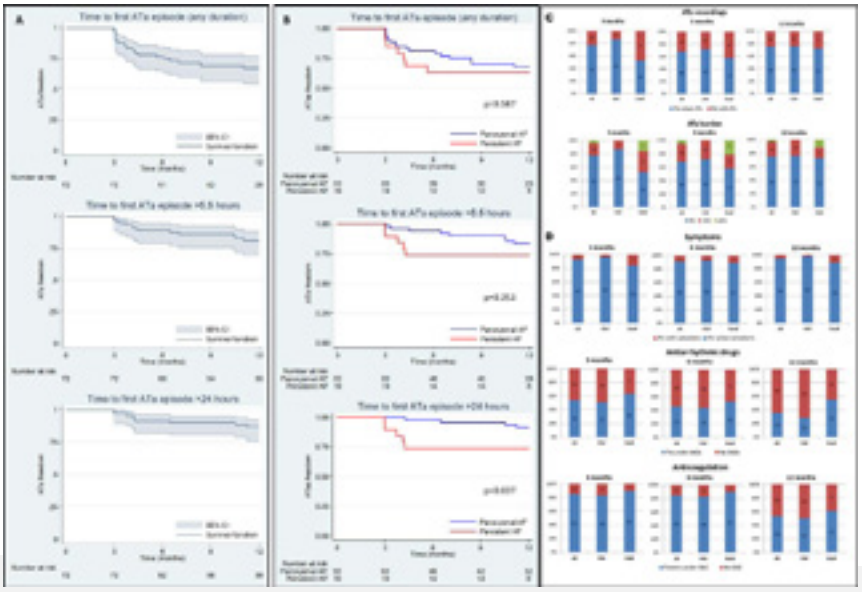
Background: Balloon-based technologies have been developed to simplify catheter ablation for atrial fibrillation (AF), to improve the clinical outcome of the procedure and to achieve durable pulmonary vein isolation (PVI). However, the lack of continuous monitoring data reported by previous experiences prevents to establish the true atrial tachyarrhythmias (ATas) recurrence rate following laser balloon-based ablation.

Objective: The objective of the LIGHT-AF study was to determine the safety and the efficacy of AF ablation using the second-generation laser balloon (LB2, HeartLight Excalibur Balloon) system. Moreover, we aimed to determine the one-year clinical outcome following LB ablation evaluating arrhythmia recurrences by continuous rhythm monitoring using implantable cardiac monitors (ICM) or devices.

Methods: This study was an observational multicenter open-label registry including patients undergoing PVI at three electrophysiology (EP) laboratories in Italy. All patients underwent LB2 ablation procedure. The primary endpoint was the first recurrence of any, >5.5 hours and >24 hours duration ATas assessed with ICM or devices, after the blanking period (90 days), as elsewhere evaluated. In-hospital visits were performed at 3-, 6- and 12-month. Secondary endpoints included: 1) arrhythmia burden defined as percentage of time spent in AF, 2) symptomatic ATa recurrences, 3) need for repeat ablations, 4) any procedure-related complication.

Results: Seventy-three patients (68% male, mean age 59.8±11.3) were included in the study. The average procedure, fluoroscopy and laser ablation times were 81.5±30.1, 21.5±12.4 and 33.8±9.7, respectively. All PVs were isolated using the LB2 with no need of touch-up using focal catheters. No major complications occurred during or after the procedures. The overall one-year freedom from ATas recurrences was 66.9% (95% CI: 57.0%-76.7%), 81.0% (69.5%-88.5%) and 86.8% (76.1%-92.9%) considering any, 5.5-hour and 24-hour cut-off duration, respectively (panel A). After the procedure, persistent AF patients more frequently experienced >24-hour ATa episodes compared to paroxysmal AF patients (73.7% [47.9%- 88.1%] vs 91.4% [78.6%-96.7%], p=0.037 - panel B). After a single PVI procedure, persistent AF and ATa recordings during the blanking period had significant univariate association with arrhythmic recurrence survival. At 3-, 6- and 12-month, any ATas was recorded in 22%, 32% and 25% of patients, with a > 5% arrhythmic burden documented in 4%, 5% and 3%, respectively (panel C). Few patients reported AF-related symptoms (7%, 8% and 5%) and the rates of patients who continued anti-arrhythmic drugs during follow- up were 54% (39/72) at 3-, 46% (33/72) at 6-, and 36% (23/64) at 12-month follow-up (panel D).



Conclusion: This is the first multicenter study reporting the 1-year clinical outcome following second-generation LB ablation assessed by continuous rhythm monitoring. LB2 ablation in the treatment of AF is safe and very effective in achieving acute isolation and affords high rates of freedom from arrhythmic recurrences and low ATa-burden as assessed by continuous rhythm monitoring, with a 0% ATa-burden documented in the 75% of patients. Further studies with longer follow-up are desirable to finally confirm these promising results.