Adenosine triphosphate does not improve efficacy of pulmonary vein isolation

August 30 2015

Late recurrence of atrial fibrillation (AF) is not reduced in patients whose pulmonary vein isolation (PVI) treatment incorporates the addition of adenosine triphosphate (ATP), according to results of the UNDER-ATP trial.

Results of the trial, presented at ESC Congress 2015, add to the ongoing debate about ATP use in this setting.

The major cause of AF recurrence after PVI has been reported to be electrical reconnection between the left atrium and pulmonary veins, which re-establishes abnormal rhythm, said study investigator Atsushi Kobori, MD, from Kobe City Medical Center General Hospital in Kobe, Japan..

"Radiofrequency ablation around the pulmonary veins can electrically block the connection but sometimes there are hidden gaps," he explained. "ATP is a chemical that can unmask dormant electrical conduction, therefore we used it after PVI to try to identify these gaps."

UNDER-ATP (which stands for UNmasking Dormant Electrical Reconduction by Adenosine TriPhosphate) included 2,113 patients (59-68 years) undergoing their first PVI for AF at 19 cardiovascular centres in Japan.

Patients were randomly assigned to conventional PVI alone (n=1,001), or with the addition of ATP (n=1,112) after PVI to identify any

additional problem areas.

In the ATP group (recommended dose 0.4mg/kg), additional ablation was performed if ATP identified extra trouble spots, whereas in the control group neither ATP or additional ablation was used.

After ablation, ambulatory electrocardiograms (ECG) were recorded twice daily for 2 weeks, with 24-hour ECG monitoring at hospital discharge, 6 months, and 1 year.

The primary endpoint of the study was arrhythmias lasting for more than 30 seconds or requiring repeat ablation, hospital admission, cardioversion or antiarrhythmic drugs between 3 months and 1 year post-PVI.

At 1 year there was no significant difference in outcomes between the groups, with 68.7% of the ATP patients and 67.1% of control patients free from AF.

"We found no significant impact of ATP on reducing late recurrences of AF," concluded Dr. Kobori.

Provided by European Society of Cardiology