Abstract: P1653

Effects of ivabradine on patients with depressed left ventricular ejection fraction after cardiac resynchronization therapy

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Introduction:
Cardiac resynchronization therapy (CRT) and ivabradine therapy should be considered for appropriately selected heart failure (HF) patients with reduced ejection fraction after optimized medical therapy. However, ivabradine might increase atrial fibrillation (AF) burden and decrease the percentage of biventricular pacing in CRT recipients. We aimed to evaluate clinical effects of ivabradine on patients with left ventricular ejection fraction (LVEF) less than 40% after CRT implantation.

Methods:
We consecutively examined 115 CRT recipients between 2014 and 2016. After exclusion of those with improvement of LVEF more than 40%; permanent AF; or concomitant sick sinus syndrome, 65 patients with LVEF less than 40% 6 months after CRT implantation and resting sinus rates greater than 70 beats per minute were studied. Eighteen patients received ivabradine treatment in addition to other guideline-recommended medical therapy, and 47 patients continued to receive standard treatment. Clinical endpoints and relevant CRT parameters were collected till December 2018.

Results:
Baseline characteristics were not significantly different in the Ivabradine versus Control groups. During a mean follow-up period of 587 days, patients in Ivabradine group had significantly lower resting heart rate (71.7±11.2 vs. 78.7±10.5 bpm, p=0.021) and numerically higher LVEF improvement (+9.6±13.7% vs. +4.4±8.2%, p=0.064) than those in Control group. Two patients (11.1%) in Ivabradine group developed new-onset AF, requiring electrical and/or pharmacological cardioversion, whereas new-onset AF occurred in 5 patients (10.6%) in Control group (p=0.956). Biventricular pacing were 99.3±0.7% and 98.6±1.2% before and after the prescription of ivabradine (p=0.111). Mortality rates were numerically higher in the Control group than the Ivabradine group (22.2% vs. 5.6%, p=0.155).

Conclusion:
In patients with prior CRT implantation and depressed LVEF, ivabradine therapy effectively reduced resting heart rate, and showed trends in improving LVEF and reducing mortality. Moreover, usage of ivabradine did not significantly affect biventricular pacing percentage in CRT recipients.