Novel Combination of Digoxin and Ivabradine as Acute Rate Control Treatment for Rapid-Ventricular-Response Atrial Fibrillation: A Single Center Randomized Control Trial

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Introduction: Rate control is an integral part in management of AF (atrial fibrillation) favoured by most recent guidelines. Digoxin has been commonly used as rate controlling agent for treating AF. Recent studies have stimulated interest in ivabradine, a newly emerging If channels inhibitor, to have potential benefit for ventricular rate control in AF.

Methods: Single centered prospective randomized control trial study was conducted to compare patients treated by combined therapy of digoxin and Ivabradine and digoxin only who were admitted from emergency department with rapid ventricular response AF. Acute rate control, length of stay, and notable safety issues comprise hypotension, severe bradycardia, and use of inotropic agents, were obtained from medical record. Statistical analysis using T-test and chi-square test was employed to assess comparison between both treatment.

Result: We analyzed data from 23 patients who were treated by both digoxin-ivabradine comparing with 14 patients receiving digoxin. Heart rate was reduced significantly within four hours after administration in group treated by both drugs compared to controls (35.23 % vs 18.46%, p =0.007). In terms of length of stay, mean duration was lower in patients with combined therapy than digoxin only, which were 3.26 days and 5.93 days, respectively (p=0.052). In other hand, bradycardia or hypotension occurred in 26.1% of patients treated with ivabradine, whilst the other group demonstrated nearly twice higher incidence of 50%.

Conclusion: This study has demonstrated the efficacy and safety of treatment using ivabradine in concurrent with digoxin for rapid AF. Combination treatment benefited to significantly reduce heart rate as well as shorten admission duration, without remarkable incidence in safety issues. However, further investigation using larger sample size should be conducte.