Novel Use of an Ultra-Short-Acting Intravenous Beta Blocker, Landiolol for Supraventricular Tachyarrhythmias in Patients with Severe Congestive Heart Failure

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Background: Supraventricular tachyarrhythmias (SVTs) with left ventricular dysfunction often make the hemodynamics worsen and induce congestive heart failure. We investigated clinical efficacy of ultra-short acting intravenous beta-blocker (landiolol) for SVTs in patients with severe left ventricular dysfunction.

Methods: We evaluated 48 patients with SVTs (AF/32, AFL/12, AT/4) and symptom of heart failure (NYHA III/IV, 8/40) on admission. Left ventricular ejection fraction on admission was 28.6 ± 8.6%. Underlying heart disease included ischemic heart disease (n=18), non-ischemic cardiomyopathy (n=24) and valvular disease (n=6). Landiolol was administered with an infusion rate of 1 μg/kg/min and, if no adverse effects developed, this was increased to 5 μg/kg/min. Results: The heart rate was 128.1 ± 22.5 beats/min at baseline and significantly decreased to 86.2 ± 18.6 beats/min (p<0.01), while systolic blood pressure did not differ from baseline at effective dose level (97.5 ± 20 to 96.3 ± 18.8, p=ns). Two patients withdrew administering landiolol because of low output syndrome. Other 46 patients improved from NYHA Class IV to III (n=38) and II to II (n=5) by controlling heart rate. After stabilization of patient’s condition, these patients could be discharged with additional treatments, involved catheter ablation and cardiac resynchronized therapy.

Conclusions: Intra venous low doses of landiolol may be useful as a bridge to additional treatment in patients with congestive heart failure.

Keywords: beta-blocker, supraventricular tachycardia, landiolol