Benefit of sinus rhythm restoration in acute decompensated heart failure patients with atrial tachyarrhythmia treated with landiolol

Authors:
M Sakai1, A Suzuki1, T Shiga1, Y Tanaka1, E Kouno1, A Osada1, J Matsuura1, N Hayashi1, Y Matsui1, N Hagiwara1, 1Tokyo Women's Medical University - Tokyo - Japan,

Topic(s):
Acute Heart Failure: Pharmacotherapy

Citation:
Background: Atrial tachyarrhythmias (ATA), such as atrial fibrillation / atrial tachycardia are frequently observed in patients with acute decompensated heart failure (ADHF). Because ATA leads to clinical deterioration and worsen HF, the conversion and prevention of ATA is important of ADHF with ATA. Landiolol, an ultrashort-acting intravenous beta-1 blocker, was developed and has been used for the treatment of ATA.

Purpose: We evaluated the acute effect of landiolol treatment on heart rate or blood pressure (BP), also the rates and benefits of sinus rhythm (SR) restoration among AHF patients with ATA treated with landiolol.

Methods: We studied 67 consecutive HF patients with ATA (age: 67 +/- 12 years, 36 male) treated with landiolol from 2015 to December 2017 at our University Hospital. They were compared with 50 paired subjects, matched for gender, age and baseline BP who developed HF with ATA from HIJ-HF 2 study (consisted of HF patients hospitalized between 2013 and 2014).

Results: At the start of landiolol treatment, mean left ventricular ejection fraction (LVEF) was 41±14%. The median maintenance dose of landiolol was 3.0 (1.0-12.0) µg/kg/min and the median treatment duration of landiolol was 5 (1-24) days. After 6 hours from administration of landiolol, mean HR decreased significantly from 140±18 to 100±21 bpm (p<0.05), whereas BP was not different during landiolol treatment. Sinus rhythm was restored spontaneously in 15 (22%), and by electrical or pharmacological cardioversion in 5 (7%) during a treatment with intravenous landiolol. Furthermore, sinus rhythm was restored in 22 patients using additional rhythm control treatment, such as amiodarone or catheter ablation after intravenous landiolol treatment. Eight patients experienced in-hospital death. Forty-one (69%) of 59 patients discharged alive were in SR. During the follow-up period of 16±12 months, 4 patients died and 12 patients experienced rehospitalization due to worsening HF after hospital discharge. There was a significant higher rate of death or HF rehospitalization in patients without SR restoration than patients with SR restoration (44% vs. 20%, p<0.05) (Figure A). Compared with 50 paired subjects from HIJ-HF 2 study, those who treated with landiolol developed a significant higher rate of SR restoration (68% vs. 20%, p<0.05) (Figure B).

Conclusion: This study demonstrated that landiolol treatment was effective for both rate control and conversion to sinus rhythm in ADHF patient with ATA. We should consider that the benefits of rhythm control in ADHF patients with ATA during and after landiolol treatment.
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