Abstract 2497: Does Magnitude of Heart Reduction Influence Clinical Outcomes in Patients with Systolic Chronic Heart Failure Receiving Beta-Blockers? A Regression Analysis of Randomised Controlled Trials

Genevieve Flannery, Rosie Gehrig-Mills, Baki Billah, and Henry Krum
Alfred Hosp, Melbourne, Australia
Monash Univ, Melbourne, Australia

Abstract

Background: Beta-blockers (BBs) improve cardiac function and prolong survival in patients with systolic chronic heart failure (CHF). However, the exact mechanisms underlying these benefits are uncertain. Specifically, it is unclear whether a close relationship exists between heart rate (HR) reduction and clinical outcomes with these agents. We therefore tested this hypothesis within randomised controlled trials (RCTs) of BBs in systolic CHF.

Methods: Left ventricular ejection fraction (LVEF) and HR values at baseline and end-study were obtained from available BB RCTs. The relationship between change in HR and all-cause mortality as well as LVEF was determined using regression analysis (SPSS).

Results: Thirty-six trials, which included 23,122 patients with mean follow-up of 10.5 months, were analysed for all-cause mortality, LVEF and HR. There was a close relationship between all-cause annualised mortality rate and change in HR (adjusted R²=0.51, p=0.004). A strong correlation between change in HR and change in LVEF (adjusted R²=0.47, p=0.000, Figure) was also observed. When only trials with >100 patients were included, an even tighter relationship was seen (adjusted R²=0.60, p=0.0004).

Conclusions: These analyses indicate that a major contributor to the clinical benefits of BB therapy in systolic CHF is the HR-lowering effect of these agents. Therefore, magnitude of HR reduction may be more important than achievement of target dose in BB treatment of systolic CHF.
Abstract 2497: Does Magnitude of Heart Reduction Influence Clinical Outcomes in Patients with Systolic Chronic Heart Failure Rec...
Abstract 2497: Does Magnitude of Heart Reduction Influence Clinical Outcomes in Patients with Systolic Chronic Heart Failure Rec