INTERLEUKIN-1β NEUTRALIZATION AMELIORATES POST-INFARCTION CARDIAC REMODELING IN THE MOUSE

ACC Poster Contributions
Georgia World Congress Center, Hall B5
Sunday, March 14, 2010, 9:30 a.m.-10:30 a.m.

Session Title: Myocardial Function/Heart Failure—Basic/Molecular—Diverse Signaling Pathways
Abstract Category: Myocardial Function/Heart Failure—Basic/Molecular
Presentation Number: 1015-70

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Background: In acute myocardial infarction (AMI), interleukin-1 (IL-1), a pro-inflammatory cytokine and mediator of innate inflammatory responses, promotes adverse cardiac remodeling and heart failure. The aim of this study was to evaluate the effects of a high affinity anti-murine IL-1β monoclonal antibody (XMA052 MG1K) on cardiac remodeling after experimental AMI in the mouse.

Methods: ICR mice (n=24) were randomly assigned to treatment with XMA052 MG1K (0.05, 0.5 or 5 mg/kg given immediately after surgery and again 7 days later), a control murine IgG (0.5 mg/kg) or normal saline solution following experimental acute AMI induced by coronary artery ligation. Transthoracic echocardiography was performed at baseline and 14 days after surgery to assess LV end-diastolic (LVEDD) and systolic (LVESD) diameters, and LV fractional shortening (LVFS).

Results: Treatment with XMA052 MG1K 0.5 mg/kg or 5 mg/kg, but not the 0.05 mg/kg, resulted in significantly >40% smaller increases in LVEDD, >30% smaller increase in LVESD, and >20% greater preservation in LVFS up to day 28, compared to the IgG control or saline, without signs of cardiac toxicity. The Figure shows changes in LVESD over time.

Conclusions: These data show that a novel high affinity anti-IL-1β antibody ameliorates cardiac remodeling after experimental AMI in the mouse and are consistent with the role of the IL-1β isoform in post-AMI remodeling. This study opens the way to use an anti-IL-1β antibody to reduce heart failure after AMI.

![Graph showing changes in LVESD over time](attachment:graph.png)