INTERLEUKIN-1 BLOCKADE WITH ANAKINRA TO PREVENT ADVERSE CARDIAC REMODELING FOLLOWING ACUTE MYOCARDIAL INFARCTION: RESULTS OF THE VCU-ART2 PILOT STUDY

Poster Contributions
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Background: A first pilot study of Interleukin-1 (IL-1) blockade in ST-segment elevation acute myocardial infarction (STEMI) showed improved remodeling.

Methods and Results: In this second pilot study, we enrolled 30 patients with clinically stable STEMI randomized to anakinra, recombinant IL-1 receptor antagonist, 100 mg daily for 14 days or placebo in a double-blinded fashion. The primary endpoint was the difference in the interval change in LV end-systolic volume index (LVESVi) between the two groups over 10-14 weeks. Secondary endpoints included changes in LV end-diastolic volume index (LVEDVi), LV ejection fraction (LVEF), and C reactive protein (CRP) levels. No significant changes in LVESVi, LVEDVi or LVEF were seen in the placebo group over 10-14 weeks, and, when compared with placebo, treatment with anakinra led to no measurable differences in these parameters. Anakinra significantly blunted the increase in CRP between admission and 72 hours (+0.8 mg/dl [interquartile range -6.4/+4.2] vs +21.1 mg/dl [+8.7/+36.6], P=0.002), which correlated with the changes in LVEDVi and LVESVi and at 10-14 weeks (R=+0.83, P=0.002 and R=+0.55, P=0.077, respectively). One patient in the placebo group (7%) died, one patient (7%) in the anakinra group had recurrent AMI. More patients were diagnosed with new onset heart failure in the placebo group [4, 27%] than in the anakinra group [1, 7%](P=0.13), and, when data were pooled with the first VCU-ART study (N=40), this difference reached statistical significance (5% vs 30% for anakinra and placebo, respectively, P=0.035).

Conclusions: IL-1 blockade with anakinra blunted the acute inflammatory response associated with STEMI, and while it failed to show a statistically significant effect on LVESVi, LVEDVi or LVEF in this cohort of clinically stable patients with STEMI and near normal LV dimensions and function, anakinra led to a numerically lower incidence of heart failure. Clinical trials registration: www.clinicaltrials.gov (NCT 01175018 and NCT00789724).