Selective CRP apheresis as a new treatment option in AMI: first results of the CAMI1 study


THEME: Coronary Interventions
TOPIC(S): STEMI

AIMS
Background: High serum levels of C-reactive protein (CRP) are associated with a poor prognosis in STEMI. CRP may contribute to myocardial damage in STEMI by activating the complement system. In animal experiments, CRP removal after STEMI reduces infarct size and results in a significantly better left ventricular ejection fraction (LVEF). The CRP adsorber (PentraSorb® CRP) allows selective lowering of CRP serum levels in humans. Here, we present preliminary data of the ongoing human multi-center matched-control pilot study CRP-apheresis in Acute Myocardial Infarction (CAMI1).

METHODS AND RESULTS
Methods: After complete coronary revascularization, 23 Patients with STEMI received CRP apheresis, whereas 23 patients treated by standard protocols served as controls. CRP apheresis was performed 24(±12) hrs and 48(±12) hrs after onset of symptoms. In case of a rapid increase in CRP serum levels following the second session, a third treatment was carried out 24(±12) hrs later. In each apheresis session, 6000 ml plasma were treated via peripheral venous access. Primary study endpoint was myocardial infarction size as determined by Cardiac Magnetic Resonance Imaging (MRI) 5±3 days and 12±2 weeks after STEMI. Results: Apheresis sessions were well tolerated with no relevant side effects. CRP baseline levels were 25 mg/l (median) (range 12-279 mg/l). CRP apheresis resulted in an average 64% reduction in CRP plasma levels. Myocardial infarct size in the CRP apheresis-treated STEMI patients was 51% smaller (p=0.0035) compared to controls, and circumferential strain was 12% (p=5x10-10) better while the longitudinal strain was 17% (p=9x10-11) better already 5±3 days after STEMI. In the follow-up period (? 12 months), 3 major adverse cardiac events (MACE) occurred in the control group and none in the CRP apheresis group.

CONCLUSIONS
Conclusion: CRP apheresis following STEMI seems feasible and safe. First results show a significant beneficial effect on myocardial infarction size and wall motion. Selective CRP apheresis may emerge as a new therapeutic approach in the treatment of acute myocardial infarction.