Title: Therapeutic Effects of Ace-inhibitors

Presenter: Chul Shim, NSUH-LIU School of Cardiovascular Perfusion

Authors: Chul Shim, NSUH-LIU School of Cardiovascular Perfusion; Richard Chan, NSUH-LIU School of Cardiovascular Perfusion

Abstract:

Over half a million cardiac surgeries are performed every year, and while these surgeries aim to treat patients of cardiac disease, over 25% of these patients experience complications related to cardiac surgery. With the majority of surgeries utilizing cardioplegia and cardiopulmonary bypass, many of these complications involve ischemic injury to the patient’s vasculature, as well as a systemic inflammatory response (SIRS). These pathophysiologic complications can result in organ dysfunction and failure. During ischemic arrest and cardiopulmonary bypass, there is a depletion of nitric oxide which plays a role in preventing endothelial function and regulating inflammation. In addition to their antihypertensive effects, angiotensin-converting-enzyme inhibitors (ACE inhibitors) attenuates the depletion of nitric oxide by impeding the breakdown of a substrate involved in its upregulation. The aim of this study is to observe post-operational differences of endothelial vasculature and SIRS of patients who have received pre-operative ACE-inhibitors to those who have not. The hypothesis is that pre-operative administration of ACE-inhibitors will have a post-operative therapeutic effect. The goal of this study is to find a means to further protect the patient from the insults of ischemic cardiac arrest and cardiopulmonary bypass.