Methods and Compositions for Treatment of Reperfusion Injury and other Cardiac Conditions

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Description:
The present invention discloses methods to prevent and treat cardiovascular disorders, the methods are drawn to releasing endogenous calcitonin-gene related peptide from intrinsic cardiac adrenergic cells within the heart. In further aspects, a combination of a \( \beta_2 \)-adrenergic receptor agonist (\( \beta_2 \)-AR agonist) and a vasodilator can be used in treating reperfusion injury.

Reperfusion injury is an unresolved clinical problem associated with acute MI and other sources of ischemia. Unfortunately, there is no drug clinically available that can be given after the onset of acute MI for reducing reperfusion injury. Mobilization and/or administration of endogenous cardioprotective neurohormones or compounds may provide a novel therapeutic strategy for treating and/or limiting reperfusion injury. Intrinsic cardiac adrenergic cell (ICA cell)-based research has provided insights into mobilizing endogenous heart protective neurohormonal mechanisms from ICA cells or administering pharmaceuticals to provide similar effects of protecting tissue (e.g., myocardium) and facilitating functional recovery after ischemic events. The positive inotropism and peripheral vasodilation (afterload reduction) effects of calcitonin-gene related peptide and \( \beta_2 \)-adrenergic receptor agonist make it an attractive new drug for clinical heart failure treatment.

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