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**FEATURES OF THE CARDIOPROTECTIVE EFFICACY OF REMOTE ISCHEMIC  
POSTCONDITIONING UNDER THE CONDITIONS OF RISK FACTORS  
FOR CARDIOVASCULAR DISEASES**

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Remote postconditioning is a phenomenon that is seen in organisms as method of protection of major vital organs like the brain or the heart from ischemic injuries. Experimental studies gave us evidences and has revealed that cardiac ‘conditioning’ strategies including ischemic preconditioning, preconditioning, postconditioning, remote conditioning are effectively protective and significantly lower the risk of myocardial ischemia-reperfusion injury. Remote ischemic conditioning (RIC) provides cardioprotection in patients with ST-segment elevation myocardial infarction (STEMI). However, most studies investigating this phenomenon – induced cardioprotection have utilized healthy adult animals devoid of the risk factors associated with cardiovascular disease and acute myocardial infarction.

To summarize the growing accord of established risk factors, aging and diabetes mellitus which may reduce the heart refractory to the favorable effects of myocardial conditioning, and discuss the clinical applications of a loss in efficacy of cardiac conditioning patterns in these patient populations.

Reperfusion is the absolute treatment for acute coronary syndromes, especially acute myocardial infarction though, reperfusion has the potential to induce or lead to lethal tissue injury, a process termed «reperfusion injury». Ischemia/reperfusion injury may lead to severe complications such as myocardial infarction, cardiac arrhythmias, and contractile dysfunction. Ischemic preconditioning of the heart muscle is very well described adaptive process in which there is a brief reperfusion period seen before a sustained ischemia however the concept of consecutive episodes of reperfusion at the time of onset or also termed as postconditioning is seen to reduce the process of ischemic/reperfusion injuries. Both the processes share similarities in their method of action via activation of several protein kinase pathways. However, this process of ischemic reperfusion was observed somewhat different in humans with ischemic heart diseases as they are either caused or sometimes even associated with risk factors like hypertension, diabetes, insulin resistance, or vessel diseases like atherosclerosis. Aging also seem to play a role in such heart conditions. In such patients the pathological processes are associated with essential molecular changes that can affect the ischemic/reperfusion process and lower the cardioprotective efficacy. In cases of hyperlipidemia & diabetes the pathological increase in O<sub>2</sub> and nitrogen species or use of drugs which are ATP sensitive potassium channel inhibitor or insulin secretagogue antidiabetic drugs, all such factors are known to reduce the cardioprotective efficiency or interfere in their processes. In aging the reduced expression of connexin-43 or activation of transcription 3 was also seen to show similar co-morbidities.

The process of reperfusion or ischemic postconditioning showed possible benefits in experimental lab animals during chemical trials, but failed to provide a similar success rate on human trials which are still an experimental procedure. The unknown risk factors or associated diseases makes human trials much variable and difficult to get a definite prognosis.