Effects of Ischemic Preconditioning in iNOS, EGF-R and ERK1/2 MAP Kinases Expression in Intestine and Heart Tissues of Rats Submitted to Intestinal Ischemia

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Ischemia followed by reperfusion (I/R) promotes great injury to the cardiac tissue. However, attenuation of lesions are achieved by ischemic preconditioning (IPC), a process in which heart can be protected from an acute lethal I/R injury by applying non-lethal episodes of I/R. In addition, it has been suggested that nitric oxide (NO) and reactive nitrogen species can mimic the action of preconditioning tolerance. Previous work of our laboratory shows that NO, EGF-R and MAP Kinases ERK1/2 have important role in the signaling pathway associate to IPC. In this present study, 3 month old male Wistar rats were divided in 5 groups: ischemia, IR, IPC, IPC followed by reperfusion, all applied to mesenteric artery and sham animals without any treatment, and the expression of iNOS, EGF-R and ERK1/2 MAP kinases were analyzed. We found that morphological structures of intestine and heart were better preserved in the IPC group when compared to the ischemia group. In addition, IPC group shows increases in AKT protein, suggesting survival. Western blot analysis revealed that EGF-R and iNOS expression was elevated in heart of animals in IPC group. In conclusion, our data suggest a differential participation of iNOS, ERK1/2 MAP kinases, and EGF-R in the signaling events occurring in heart and intestine tissues from animals submitted to IPC and ischemia compared to the other groups.

Word Keys: Ischemic preconditioning, iNOS, EGF-R and ERK1/2 MAP Kinases.
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