

QiShenYiQi Pills®, a compound Chinese medicine attenuates cardiac microvascular permeability induced by ischemia/reperfusion in rats

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Abstract

Coronary microvascular dysfunction is an important factor contributing to ischemia/reperfusion (I/R) injury of heart in addition to cardiomyocyte injury itself, which manifests as increased microvascular permeability and endothelial damage. Interestingly, little therapy strategy was effective on microvascular injury. Here we aim to verify microcirculation protection of QiShenYiQi Pills (QSYQ) to stabilize microvascular barrier in cardiac I/R. occlusion of left coronary anterior descending artery followed by reperfusion. In vitro, human cardiac microvascular endothelial cells (HCMEC) were cultured in hypoxia/reoxygenation (H/R) condition. QSYQ exhibited effect on attenuating microvascular damage, albumin leakage and ultrastructural injury of vascular wall after I/R injury. QSYQ maintain endothelial junctions and caveolae, and MMPs regulated collagen in basement membrane of capillary. Moreover, abnormal ATP metabolism and actin cytoskeleton which impact cell contraction after I/R was prevented by QSYQ.

In conclusion, QSYQ exerted a prominent potent to prevent I/R induced microvascular permeability and endothelial barrier damage.