

IGF-I survival signaling activation compensatively inhibits the cardiac apoptotic pathway on the hearts of carotid arteries balloon-injured rat model

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Abstract:

We applied the rat carotid balloon injury animal model to elucidate the temporal relation of hypertrophy towards to heart failure, and further to investigate the changes of IGF-I survival and apoptotic signaling pathway. Rat were subjected into the carotid balloon-injured and sacrificed after 2 hrs, 2 days and 14 days. We further studied by heart weight/tibia ratio, histology, Trichrome stain, and western blotting assay, the protein levels of IGF-I survival signaling pathway, apoptosis, inflammation, and fibrosis pathways were determined after PTCA(percutaneous transluminal coronary angioplasty). Following the carotid balloon-injured rat carotid arteries, protein expression them decreased levels of IGF-I signaling pathway and MAPK signaling pathway were increased at 2hrs and 2days back to the basal after PTCA. On the other hand, apoptosis signaling pathway were then obviously enhanced at 2days after PTCA. Moreover, the inflammation signaling pathway was continuously increased from 2hrs to 14days. According to the results, we found that the rat carotid balloon injury induced IGF-I survival signaling and compensated hypertrophy at 2 days, but at 14 days the apoptotic pathway and decompensated hypertrophy were enhanced after PTCA.

Key word: PTCA、IGF-I survival pathway、apoptotic pathway、compensated hypertrophy、decompensated hypertrophy

Introduction

According to investigate previously we had known that artery were injured after PTCA(percutaneous transluminal coronary angioplasty). We want to study that the rat coronary balloon injured whether effect of left ventricular(LV). Therefore, we use the rat carotid artery balloon injury model to study changes transition from myocyte hypertrophy of left ventricular (compensated stage) to dilation hypertrophy of left ventricular (decompensated stage) at 2hrs, 2days and 14days. Percutaneous transluminal coronary angioplasty(PTCA) is an independently movable, morbidity