



Effect of total peony glucoside pretreatment on NF- κ B and ICAM-1 expression in myocardial tissue of rat with myocardial ischemia-reperfusion injury

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ABSTRACT. Early recovery of myocardial perfusion is beneficial for myocardial ischemia. However, ischemia-reperfusion (I/R) may exacerbate myocardial injury. Research shows that total peony glucoside (TPG) can inhibit ischemic myocardial cell apoptosis. However, whether it can ameliorate I/R injury remains poorly understood. This study explored the effect of TPG pretreatment on I/R, through nuclear factor-kappa B (NF- κ B) and intercellular adhesion molecule-1 (ICAM-1) expressions in I/R-affected myocardium. Healthy 7-week-old male Sprague Dawley rats were randomly categorized into sham operation (A), modeling (B), and 100, 200, and 400 mg/kg TPG pretreatment

groups (C, D, and E, respectively), with 20 rats in each group. I/R rat models were designed by ligating left anterior descending coronary artery for 30 min to induce ischemia and for 120 min to induce reperfusion. Serum interleukin 6 (IL-6) and interleukin 8 (IL-8) levels were measured using enzyme linked immunosorbent assay. NF- κ B and ICAM-1 mRNA and protein expressions were detected through RT-PCR and western blot analysis, respectively. Compared to group A, serum IL-6 and IL-8 levels of group B elevated significantly ($P < 0.05$), whereas NF- κ B and ICAM-1 mRNA and protein expressions increased in the myocardium ($P < 0.05$). Serum IL-6 and IL-8 levels, and NF- κ B and ICAM-1 mRNA and protein expressions, in myocardium of TPG groups reduced in a dose-dependent manner. Therefore, TPG pretreatment could alleviate myocardium reperfusion injury in I/R rat models by reducing NF- κ B and ICAM-1 mRNA and protein expressions and cytokine secretions. This mechanism could be associated with the inhibition of NF- κ B activation and downregulation of ICAM-1 expression.

Key words: Total peony glycoside; Myocardial ischemia-reperfusion; NF- κ B; ICAM-1; IL-6; IL-8