Hesperetin Ameliorates Isoproterenol Induced Cardiac Hypertrophy: Role of Nfκb Pathway

Prema Velusamy[1], Shruthi Arun[1], Sapna Biswas[1], Lezy Flora M[1], Kalaiselvi Periandavan[1]*

[1]Department of Medical Biochemistry, Dr.ALMPGIBMS, University of Madras, Taramani Campus, Chennai.

*Corresponding author e.mail: pkalaiselvi2011@gmail.com

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ABSTRACT

The present study was aimed to study the role of hesperetin in modulating inflammation during isoproterenol induced cardiac hypertrophy. Latest epidemiological data has revealed that cardiac hypertrophy is a major predictor of heart failure, with a mortality as high as 80% for men and 70% for women within 8 years. Therefore, it is inevitable to develop therapeutic strategies that aim at modulating the hypertrophic remodeling of the heart by modulating inflammatory pathways. Cardiac hypertrophy was induced by subcutaneous injections of isoproterenol (5 mg/kg body weight) for seven days. Rats were pre-treated with hesperetin 30mg/kg body weight suspended in 0.5% methyl cellulose orally for 30 days. The HW/BW ratio, fetal gene expression and macromolecular damage were found to be increased in the isoproterenol administered rats, whereas, hesperetin treated rats showed a decline in the HW/BW ratio and fetal gene expression. The protein expression of inflammatory marker NF-κB was found to be decreased in the hesperetin treated rats when compared to the isoproterenol administered rats. This study suggests NF-κB as a potential target for anti-inflammatory therapy for cardiac hypertrophy and hesperetin modulated NF-κB expression, it therefore could be useful as an anti-inflammatory agent against cardiac hypertrophy.

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