

Effect of Adrenomedullin on Insulin Resistance in Type 2 Diabetic Rats

Thesis

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ABSTRACT

Non-insulin-dependent diabetes mellitus is one of the common metabolic disorders that ultimately afflict the majority of individuals. Adrenomedullin (AM) is a potent vasodilating peptide originally isolated from human pheochromocytoma and it was found later to be produced by many tissues. Previous studies reported development of insulin resistance in aged Am deficient mice. In this study, a single tail vein gene delivery approach was employed to explore its potential role in insulin resistance. Upregulating AM gene in type 2 diabetic rats (high fat diet+ streptozotocin injection) significantly improved skeletal muscle glucose uptake, serum glucose, insulin, cholesterol and triglycerides as well as the insulin resistance index (HOMA-IR) compared with diabetic rats not receiving AM gene. The beneficial effects of AM gene delivery were accompanied by increased muscle GLUT-4 gene expression, indicating that AM is closely related to skeletal muscle insulin responsiveness. These findings provide new insights into the role of AM in insulin resistance and may have significance in therapeutic applications in type 2 diabetes.

KEY WORDS:

Adrenomedullin -Insulin resistance -Type 2 diabetes.