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EFFECTS OF YOHIMBINE ON PLASMA LEVELS OF LEPTIN IN NORMAL AND STREPTOZOTOCIN INDUCED DIABETIC RATS

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Abstract:

Leptin affects paraventricular nucleus of hypothalamus and reduces appetite while activation of α2-adrenoceptors at this site has opposite action. The reducing effect of α2-adrenoceptors inhibition on body weight and appetite and also enhancing effects on lipolysis, sympathetic activation and plasma insulin levels in animals have been reported. We studied the effect of yohimbine treatment (2 mg/kg/day orally) as α2-adrenoceptor antagonist on plasma levels of leptin, insulin and glucose and also body weight in rats. Five normal yohimbine treated, five diabetic insulin treated (10 u/kg/day) and five diabetic insulin (l0 u/kg/day) and yohimbine (2 mg/kg/day) treated male Sprague Dawley rats were used and treatment continued for six days. One blood sample before treatment and three blood samples after treatment (with one day interval) were collected from all rats. Our results showed statistically significant increase in leptin ($P < 0.037$) and insulin ($P < 0.042$) and decrease in body weight ($P < 0.004$) in normal yohimbine treated rats. In diabetic rats insulin levels before and after treatment were similar in two groups but leptin, glucose and body weight were significantly reduced in yohimbine and insulin treated compared with just insulin treated rats. The present results indicate that yohimbine treatment can reduce body weight by increasing stimulation of lipolysis and increasing plasma levels of leptin. This plasma leptin enhancement in normal rats may be contributed to the weight reducing effect of α2-receptor antagonist drugs. Our study introduces the α2-receptor antagonists as body weight reducing, glucose restoring and insulin and leptin increasing drugs.

Keywords:

yohimbine ، α2-adrenoceptor

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