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Losartan prevents the imbalance between renal dopaminergic and renin angiotensin systems induced by fructose overload. L-dopa/dopamine index as new potential biomarker of renal dysfunction

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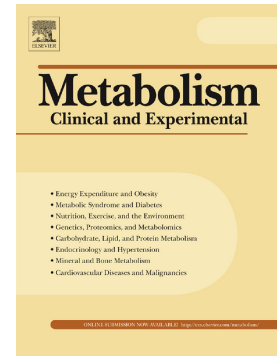
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LOSARTAN PREVENTS THE IMBALANCE BETWEEN RENAL DOPAMINERGIC AND RENIN ANGIOTENSIN SYSTEMS INDUCED BY FRUCTOSE OVERLOAD. L-DOPA/DOPAMINE INDEX AS NEW POTENTIAL BIOMARKER OF RENAL DYSFUNCTION

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Abstract

Background: The renin angiotensin system (RAS) and the renal dopaminergic system (RDS) act as autocrine and paracrine systems to regulate renal sodium management and inflammation and their alterations have been associated to hypertension and renal damage. Nearly 30-50% of hypertensive patients have insulin resistance (IR), with a strong correlation between hyperinsulinemia and microalbuminuria.

Objective: The aim of this study was to demonstrate the existence of an imbalance between RAS and RDS associated to IR, hypertension and kidney damage induced by fructose overload (FO), as well as to establish their prevention, by pharmacological inhibition of RAS with losartan.

Materials/Methods: Ninety-six male Sprague-Dawley rats were randomly divided into four groups and studied at 4, 8 and 12 weeks: control group (C4, C8 and C12; tap water to drink); fructose-overloaded group (F4, F8 and F12; 10% w/v fructose solution to drink); losartan-treated control (L) group (L4, L8 and L12; losartan 30 mg/kg/day, in drinking water); and fructose-overloaded plus losartan group (F+L4, F+L8 and F+L12, in fructose solution).

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