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Losartan Induced LPL-Activity Modifications in Rats with Renal Artery Stenosis

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AIM

This experiment examines the effect of losartan on serum lipids, insulin and angiotensin II concentration in plasma as well as angiotensin II content and lipoprotein lipase activity in hypertensive rats.

METHODS

For this reason fifty male rats were used and divided in five groups. Group A served as control. Group B underwent renal artery stenosis (two kidney-one clip). Group C received losartan (10 mg/kg), while group D rats were submitted to renal artery stenosis and were treated with losartan as above. Group E was used as sham operated control. The animals were sacrificed by decapitation at day 21, blood samples were collected and perirenal adipose tissue was isolated.

RESULTS

According to our results, renovascular hypertension induced a significant decrease in insulin ($p < 0.05$) and a significant increase in angiotensin

II concentrations ($p < 0.05$) in plasma. Additionally, in adipose tissue, LPL (lipoprotein lipase) activity demonstrated a significant decrease ($p < 0.001$) while angiotensin II content did not exhibit any significant difference. On the other hand, losartan administration seemed to improve the insulin concentrations in plasma, thus indirectly resulting in the LPL activity up regulation in the adipose tissue.

CONCLUSIONS

In summary, the present study demonstrates that angiotensin II may exhibit a marked vasoconstrictive effect on the vasculature of endocrine pancreas, thus decreasing in insulin release. Likewise, low concentrations of insulin in plasma may be responsible for the down-regulation of the LPL activity in adipose tissue. Conversely, in renovascular hypertension, losartan administration increased insulin release by improving islet blood perfusion, thereby indirectly promoting LPL activity regulation in adipose tissue.