

S-Allyl-mercapto-captopril, A Novel Compound, in the Treatment of the Cohen-Rosenthal Diabetic Hypertension Rats

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Background:

S-allylmercaptocaptopril (CPSSA) is a conjugate of captopril with allicin, an active principle in garlic with multiple beneficial actions on metabolic-syndrome abnormalities including weight preservation, observed by us in fructose induced hypertensive hyperinsulinemic rats and in Koletsky rats. Aim of study was to examine blood pressure and glucose levels in Cohen-Rosenthal Diabetic Hypertensive model as well as to follow their weight preservation.

Material and Methods:

CRDH rats (n=14) were fed the sugar-rich copper-free diet essential for the development of diabetes mellitus. Two months later blood pressure was measured using a non-invasive tail-cuff instrument and blood glucose levels were measured by a glucometer device. CPSSA was diluted in drinking water and administered at a final dose of 53.5 mg/kg/day (n=8). Control rats (n=6) received no drug (vehicle).

Results:

In contrast to control group, CPSSA prevented progressive weight gain, without a detectable effect on food and water intake. CPSSA was effective in attenuating systolic and diastolic blood pressure ($P<0.01$) as well as it significantly reduced glucose levels ($P<0.01$). Control rats continued to gain weight, whereas the groups fed CPSSA did not.

Conclusion:

Allylmercaptocaptopril was shown to have additional effects on improving blood pressure and glucose level, as well as preserving weight gain. We conclude that the

combined molecule CPSSA integrates the anti-hypertensive feature of both allicin and captopril, making it a potential antidiabetic and cardiovascular protective agent.

Key words: S-Allicin-Captopril, Diabetes, Hypertension, CRDH rats