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BEHAVIORAL CHANGES INDUCED BY ANGIOTENSIN AT1 RECEPTORS BLOCKADE IN THE RAT BRAIN

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Aims: The brain renin-angiotensin system is involved in learning and memory, but the actual role of angiotensin II and its metabolites in this process has been difficult to comprehend. In the present study we assessed the role of the angiotensin AT1 receptors in certain behavioral effects of angiotensin II using their selective antagonist losartan and PD123319, intracerebroventricularly (icv) administrated.

Methods: Male Wistar rats were divided into three groups: 1. sham-operated; 2. Losartan; 3. PD123319. All drugs were stereotaxically icv injected. Learning and memory tests began 2 weeks after the operation, and the ability of the rats to acquire the operant task was studied by means of Y-maze task and passive avoidance task, respectively. The anxiety state was measured in elevated plus maze.

Results: Losartan and PD123319 significantly impaired spatial memory in Y-maze task, suggesting significant effects on short-term memory. In passive avoidance task, both angiotensin II antagonist, significantly decreased step-through-latency, suggesting significant effects on long-term memory. In elevated plus maze measuring anxiety, both drugs diminished anxiety state.

Conclusions: Our results suggest the considerable involvement of the brain ATi angiotensin receptors in the cognition improving effects of angiotensin.

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