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23217 | Evaluation of behavioral and neuroprotective effects of losartan in diabetic rats

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Background & Aim: Diabetes is known to negatively impact the brain, leading to memory loss and attention issues [1], as well as an increased incidence of depression, cognitive impairment, and behavioral changes. Recent studies indicate that angiotensin II AT₁ receptor antagonists (ARAs) may reduce depressive symptoms, however, the mechanism of action is not yet fully understood [2]. The aim of the present study was to verify whether losartan, an ARA, has antidepressant and neuroprotective properties, with an emphasis on its effect on anxious behavior and cognition in type 1 diabetic rats. **Methods:** The study included 32 adult male Wistar rats divided into 3 groups: the Control group (non-diabetic rats), the STZ group (type 1 diabetic rats, induced by streptozotocin, 55mg/kg IP, under analgesia with tramadol 20mg/kg PO) and the STZ + LOS group (diabetic rats voluntarily orally treated with Losartan, 20mg/kg/day mixed in peanut butter, for 2 weeks). The effects on the animals' anxiety were evaluated using the Marble test and the Open field test, performed 10-13 days after diabetes induction. **Results:** Statistical analysis revealed no significant changes in behavior among the control and treated groups. **Conclusions:** While no behavioral differences have been observed between control and diabetic animals, it is imperative to conduct histological studies by addressing regional brain networks to further understand and complement the observed functional analysis.

Keywords: Diabetes, Angiotensin II AT₁ receptor antagonists, Losartan, Neuroprotective properties, Anxious behaviour.

References:

[1] Moheet A, Mangia S, Seaquist ER. Impact of diabetes on cognitive function and brain structure. *Ann N Y Acad Sci.* 2015 Sep;1353:60-71. doi: 10.1111/nyas.12807. Epub 2015 Jul 1. PMID: 26132277; PMCID: PMC4837888

[2] Lenart L, Balogh DB, Lenart N, Barczy A, Hosszu A, Farkas T, Hodrea J, Szabo AJ, Szigeti K, Denes A, Fekete A. Novel therapeutic potential of angiotensin receptor 1 blockade in a rat model of diabetes-associated depression parallels altered BDNF signalling. *Diabetologia.* 2019 Aug;62(8):1501-1513. doi: 10.1007/s00125-019-4888-z. Epub 2019 May 3. PMID: 31053872; PMCID: PMC6647092.