BERBERINE PREVENTS THE INCREASE REACTIVE SPECIES IN HIPPOCAMPUS OF RATS SUBMITTED TO SPORADIC DEMENTIA OF ALZHEIMER’S TYPE

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The Alzheimer is a neurodegenerative disease that causes progressive cognitive decline and impairment of memory. The intracerebroventricular injection of streptozotocin in rats is used as a model of sporadic dementia of the Alzheimer’s type by mimicking pathological processes in this disease, as losses in the energy metabolism of glucose, oxidative stress, aggregation and formation of neurofibrillary tangles. It is believed that a compound with potential therapeutic for this disease could be berberine (BBR), an isoquinoline alkaloid isolated from Coptis chinensis, considered potent antioxidant. Our objective was test if BBR is able to reduce reactive oxygen species (ROS) produced in streptomycin model. Animals procedures were approved by the Animal Ethics Committee from the Federal University of Santa Maria (protocol under number: 109/2013). It was used wistar male rats (three months old) weighing between 300-350g, divided into 3 different groups (n = 7): Control (TC), streptozotocin (STZ) and streptozotocin + berberine 100 mg/kg (STZ + BBR100). The STZ groups received an intracerebroventricular (icv) injection of streptozotocin 3 µL/kg dissolved in saline, CT group received only saline. Three days later, the animals were treated with BBR 100mg/kg or saline orally for 21 days, followed by euthanasia and separation of the hippocampus. We measured ROS as previously described by Andersen et al. (2003). The results showed that the levels of ROS in the hippocampus of STZ group (0.192 ± 0.024) were significantly higher than CT group (0.099 ± 0.005) or STZ + BBR 100 mg/Kg group (0.0917 ± 0.006). In conclusion, BBR demonstrated action in reverse the increase of ROS in the model of sporadic dementia of the Alzheimer’s type. It is suggested that BBR could be, after further study, considered a potent herbal therapeutic agent in the treatment of this disease.

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