Introduction: Alzheimer’s disease is the most common type of neurodegenerative disorders. It has been offered that oxidative stress can be one of the pathological mechanisms of this disease. Carnosic acid is an effective antioxidant substance and in recent studies has been shown that its electrophilic compounds have role in opponent to oxidative stress.

Aims: The purpose of this research was to find out whether carnosic acid administration protects hippocampal neurons in opposition to neurodegeneration in rats.

Methods: Animals were divided into four groups: Sham-operated (sham), CA-pretreated sham-operated (sham+CA), untreated lesion (lesion) and CA-pretreated lesion (lesion+CA). Animals in all groups received PBS+DMSO or PBS+DMSO plus CA (CA: 10mg/kg) intra-peritoneally one hour before surgery, again same solution injected 3-4 hours after surgery (CA: 3mg/kg) and also continued each afternoon for 12 days later. Lesion was made by bilateral intra-hippocampal injection of 4 µl of beta amyloid protein (1.5nmol/µl) or vehicle in each side. 14 days after surgery, the brains were extracted for histochemical studies. Data was expressed as mean ± SEM and analyzed by using the SPSS statistical software.

Results: Results showed that pretreatment with carnosic acid can decrease the cellular death in the CA1 region of hippocampus in the lesion+CA group in comparison with lesion group.

Conclusion: Carnosic acid may be useful in protection against beta amyloid-induced neurodegeneration in hippocampus.