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Effects of Chronic Intraperitoneal Administration of Aerial Parts Aqueous Alcoholic Extract of *Cichorium Intybus* L. on Neuropathic Pain Caused by Chronic Constriction Injury (CCI) in Male Wistar

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Background and Aim: Oxidative stress and inflammation are of particular importance in the development of neuropathic pain due to injury or disease in the nervous system. Chicory is rich in the sesquiterpene lactones, coumarin and chicoric acid, which have antioxidant and anti-inflammatory effects and can be neuroprotective. The hypothesis is that the chemical components of chicory aerial parts can interfere with the mechanisms of neuropathic pain and reduce its occurrence.

Methods: This project was performed using 28 male Wistar rats weighing 200-250g. CCI surgery was used to induce neuropathic pain. Four groups (n=7) including control groups, neuropathic pain (CCI) and CCI groups that received chronically intraperitoneal (i.p.) extract at the doses of 100 and 200 mg/kg in the first to fourteenth days after surgery were used. Experiments related to thermal hyperalgesia (hot plate), cold allodynia (acetone), mechanical hyperalgesia (pin-prick) and mechanical allodynia (von Frey) were performed and the results were evaluated.

Results: Compared with the control group, the extract at a dose of 200 mg/kg significantly reduced neuropathic pain in the hot plate test from the seventh day after surgery and in the acetone test in all days after surgery ($p < 0.001$). The results of pin-prick test showed that all doses of the extract were significantly diminished the pain in contrast to the control group ($p < 0.001$). In von Frey test, all doses of extract significantly reduced neuropathic pain compared to the control group ($p < 0.0001$).

Conclusion: After CCI surgery, inflammatory factors increase. According to studies, chicory aerial parts containing compounds such as sesquiterpene lactones that may be by their antioxidant and anti-inflammatory effects showed a reducing effect on neuropathic pain and also probably by its coumarins and chicory flavonoid compounds which are effective in increasing the function of GABA receptors, especially GABAA.

Keywords: Chronic constriction injury (CCI), Chicory (*Cichorium intybus* L.), Neuropathic pain, Hyperalgesia, Allodynia