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Poster Presentation

Effect of Umbelliprenin on Behavioral Responses of Neuropathic Pain and the Expression of Inflammatory Factors in Chronic Constriction Injury Model of Neuropathic Pain in Male Rats

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Abstract

Despite extensive investigations, the main mechanisms underlying neuropathic pain development are still not fully understood and there is no effective treatment for that. So intensive research is being done for finding new, efficient analgesic drugs. 56 male Wistar rats (230±30) were divided into 7 groups (n=8); control, sham, CCI and 3 Umbelliprenin groups (25, 50 and 100 microgram/rat). CCI model was used to induce chronic neuropathic pain. Umbelliprenin was intrathecally injected from day before to 2 days after the surgery. Mechanical and thermal allodynia and thermal hyperalgesia were evaluated by von-Frey, acetone drop and hot-plate tests respectively. Lumbar enlargement of spinal cord was collected for protein content and gene expression analysis. Statistical analysis indicated that allodynia increased in CCI group from POD 4 and hyperalgesia from POD 2 significantly in compare to the control group ($P<0.05$). Furthermore, 50 ($P<0.01$) and 100 ($P<0.001$) doses significantly attenuated the induction of allodynia and hyperalgesia in compare to CCI group, and this effect was significant from POD 7-14. One-way ANOVA indicated that Umbelliprenin was able to reduce TNFα protein content and IL-1β gene expression. The results show that adminis tration of Umbelliprenin before injury can prevent or delay the onset of neuropathic pain symptoms. Furthermore, it can reduce cytokine expression and protein content in lumbar spine of CCI rats. Our view is that these results could be useful in finding new drugs to treat or alleviate the symptoms of neuropathic pain.

Keywords: Umbelliprenin, Neuropathic Pain, Inflammatory Factors, Rats

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