ABSTRACT

THE EFFECT OF CURCUMIN ON NEUROPATHIC PAIN INDUCED BY PACLITAXEL AND OXALIPLATIN

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Chemotherapy-induced Peripheral Neuropathy (CIPN) is an adverse effect of many chemotherapeutic agent and a major cause of neuropathy pain in cancer survivor. Clinically, CIPN presents as deficits in sensory function and manifest as numbness, tingling, paresthesias, and dysesthesias. Curcumin is well known as polyphenolic antioxidant agent that potentially exhibit the neuroprotective activity on several neurological diseases. Mechanism of curcumin as neuroprotective by reducing production of ROS in nerve cell by binding to ROS. The objective of this study was to investigate the effect of curcumin on behavioural alteration in paclitaxel- or oxaliplatin- induced peripheral neuropathy. Mice were divided into control group, the neuropathic pain group model induced by paclitaxel or oxaliplatin, and the neuropathic pain group model induced by paclitaxel or oxaliplatin and treated with curcumin 30, 60, or 120 mg/kg. Mice were injected intraperitoneally by oxaliplatin 3 mg/kg or paclitaxel 4 mg/kg, four times in a week to induce pain. The week after, curcumin was administered at dose 30, 60, or 120 mg/kg from day-7 to 14. Behavioural assesment was established by the hot plate test on day-0, 1, 3, 5, 7, 10, 14, 18, and 22. The result showed that oxaliplatin and paclitaxel induced thermal hypoalgesia. The elevation response in the animal model of neuropathic pain induced by paclitaxel showed a significant decrease in latency on curcumin 60 mg/kg, whereas in animal model induced by oxaliplatin, there was a decrease in latency even though it wasn't significant on curcumin 30, 60, and 120 mg/kg. Therefore, it can be conclude that administration of curcumin 60 mg/kg is able to reduce neuropathic pain response induced by paclitaxel. Whereas in oxaliplatin induced neuropathic pain, administration of curcumin 30, 60, and 120 mg/kg is less able to reduce neuropathic pain response.

Keywords: Curcumin, neuropathy, oxaliplatin, paclitaxel, CIPN