

## ABSTRACT

### COMPARATIVE STUDY OF NEUROPATHIC PAIN CHARACTERISTICS INDUCED BY CHEMOTHERAPY DRUGS IN MICE

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**Aim:** The aim of this study was to compare the characteristics of neuropathic pain occurring in CIPN mice induced by cisplatin, oxaliplatin and paclitaxel.

**Method:** Multiple administrations of cisplatin (2.3 mg/kg, i.p) and oxaliplatin (3.0 mg/kg, i.p) given for 2 cycles (5 days of injection followed by 9 days rest) while paclitaxel (6.0 mg/kg, i.p) was administered once a week for 4 weeks to induce CIPN in mice. Hot and cold plate test then was used to measure nociceptive responses using different stimulus (hot and cold) while paw and tail immersion test was used to measure nociceptive responses in different anatomy parts (tail and paw).

**Result:** Administration of oxaliplatin and paclitaxel induced cold acute hyperalgesia in mice by significantly increase standing response in cold plate test. Meanwhile, cisplatin and oxaliplatin tend to increase standing response in hot plate test. Significant decrease of paw withdrawal threshold showed by paclitaxel group in paw immersion test. Both hot plate test and paw immersion test showed that administration of cisplatin, oxaliplatin and paclitaxel induced hot hyperalgesia in mice. In contrast, cisplatin and oxaliplatin induced hypoalgesia in tail immersion test while paclitaxel did not induce any neuropathic pain in mice tail.

**Conclusion:** Different administration of chemotherapy drugs caused diverse characteristics of neuropathic pain on mice. taken together, these results suggest that administration of oxaliplatin and paclitaxel enhanced the acute cold hyperalgesia in mice. Increase heat sensitivity in paw occurred to cisplatin, oxaliplatin and paclitaxel group in hot plate and paw immersion test. in contrast, cisplatin and oxaliplatin caused hypoalgesia in tail but injection of paclitaxel did not change tail sensitivity in mice.

**Keywords:** Neuropathic pain, Cisplatin, Oxaliplatin, Paclitaxel, Hyperalgesia