PAIN AND INFLAMMATION

Chemotherapy-induced peripheral neuropathy

Chemotherapy-induced peripheral neuropathy (CIPN) is a common side-effect of several anti cancer drugs and may appear few hours or days after chemotherapy administration and persists for weeks or moths after treatment termination[1]. Paclitaxel-induced peripheral neuropathy (PIPN) is well established in both human and rodents. In humans it is characterized by numbness, tingling and allodynia and in rodents it is characterized by a reduction in paw withdrawal threshold to mechanical stimulus [2] [3]. The development of drugs that inhibit or reduce CIPN and PIPN stand out, especially considering that CIPN and PIPN are dose-limiting for the chemotherapy treatment.

Test System: *Mus musculus* (Swiss).

Number of animal per group: 5 - 8 animals.

Route of administration: upon request.

Treatment mode: upon request.

Reference Item: Gabapentin (70 mg/Kg p.o.)

Main read-outs: Mechanical hyperalgesia using electronic von Frey.

Validation Data

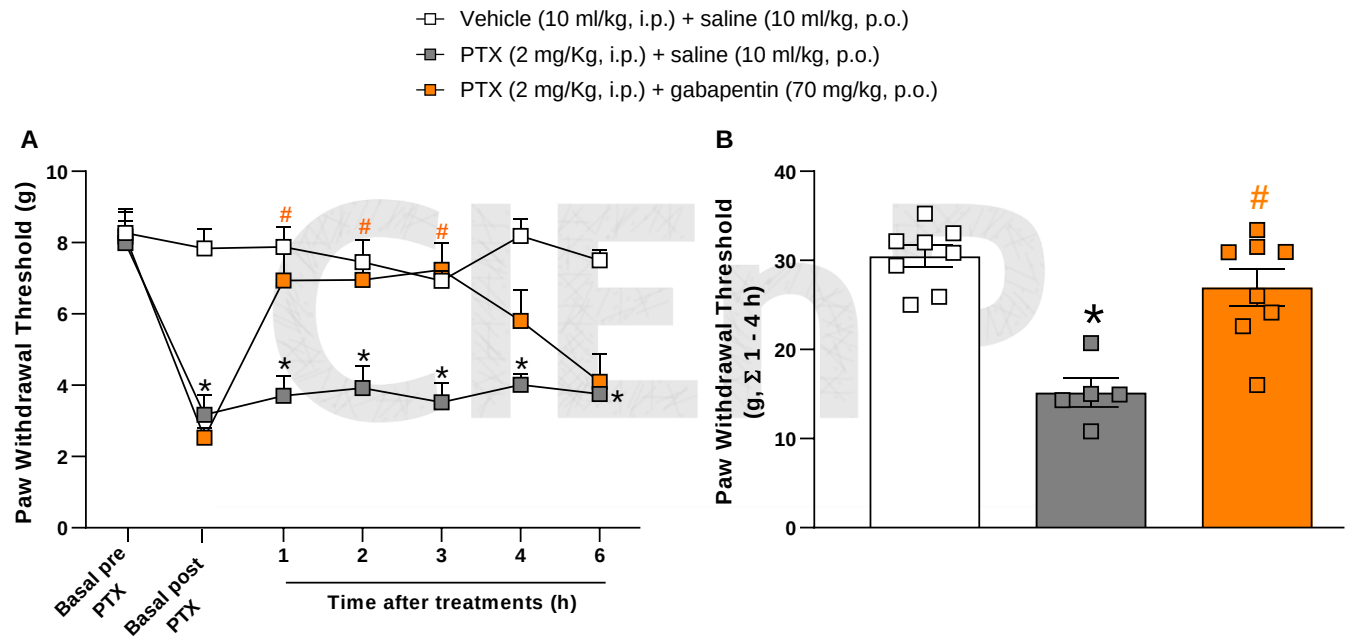

Figure 1. Paclitaxel-induced neuropathic pain in male Swiss mice. (A) Time-course and (B) sum of response from 1 to 4 hours after treatments. Basal pre PTX was obtained and then animals were treated with vehicle (saline, 10 ml/kg, i.p.) or paclitaxel (2 mg/kg, i.p.) every 2 days during 6 days. Each animal received 4 injections of saline or paclitaxel. 14 days after the first saline or paclitaxel injection, the basal post PTX was obtained in order to confirm the development of neuropathic pain. After, animals were treated with vehicle (saline, 10 ml/kg, p.o.) or gabapentin (70 mg/Kg, p.o.) and the paw withdrawal threshold were evaluated from 1 to 6 hours after treatments. Results are expressed as mean ± S.E.M. (A) Two-way ANOVA with repeated measures followed by Bonferroni post hoc test and (B) One-way ANOVA followed by Dunnett post hoc test. * indicates significantly statistic difference compared with Vehicle + Saline group. # indicates significantly difference compared with PTX + saline group.

To avoid bias and to allow reproducibility all *in vivo* experiments follow the ARRIVE guidances[4] . Mouse colony from Charles River Laboratories are breed and maintained in SPF conditions. The project includes study plan and final report. Raw data are inspected by quality assurance unity. The experimental procedures was previously approved by the CIEnP Committee on the Ethical Use of Animals.

References:
1 Wickham, R., 2007. Chemotherapy-Induced Peripheral Neuropathy: A review and Implications for Oncology Nursing Practice. Clin. J. Oncol. Nurs. 11, 361–376.
2 Dougherty, P.M., Cata, J.P., Cordella, J. V, Burton, A., Weng, H.-R., 2004. Taxol-induced sensory disturbance is characterized by preferential impairment of myelinated fiber function in cancer patients. Pain 109, 132–42. doi:10.1016/j.pain.2004.01.021.
3 Polomano, R.C., Mannes, A.J., Clark, U.S., Bennett, G.J., 2001. A painful peripheral neuropathy in the rat produced by the chemotherapeutic drug, paclitaxel. Pain 94, 293– 29 304.
4 Kilkenny C, Browne WJ, Cuthill IC, Emerson M, Altman DG. Animal research: reporting in vivo experiments: The ARRIVE guidelines. PLoS Biol. 8 (6): e1000412, 2010.

Contact us: +55 (48) 3332-8400 / contato@cienp.org.br