The effects of single and multiple curcumin doses on oro-facial pain in mice

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Introduction: Curcumin protects from mitochondrial dysfunction and modulates endogenous antioxidant enzymes, by scavenging the ROS and NO-based radicals. The aim of our study was to assess if on the formalin-induced orofacial pain (OFP) in mice a single dose has the same efficiency as sub chronic administration.

Materials and methods: 32 mice were divided into four groups group Cac received one dose curcumin, group C2w received curcumin daily for 2 weeks and two groups served as control and received an equal volume of olive oil (Group Oac and O2w). The curcumin (120 mg/kg b.w, dissolved in oil) and the oil were administrated by gastric gavage. After 2h in acute groups respectively 24h in subchronic groups 20μL formalin were injected into the whisker pad and the time mice spent rubbing/liking the injected area was recorded. The results for each phase was expressed as percentage of pain inhibition (PI).

Results: For both OFP phases a single dose of curcumin had a strong analgesic effect when compared with control group (p=0.01). PI was 79% (phase I) respectively 51% (phase II). Subchronic treatment maintained curcumin analgesic effect for both phases (p=0.01 respectively p=0.01) with a PI of 34% respectively 45%.

Conclusions: Our data demonstrates that curcumin has a strong analgesic effect on OFP induced by formalin but the long term treatment does not improve its analgesic propriety.