

ABSTRACT

Introduction: Orthodontic pain has to be solved. Some analgesics impede orthodontic tooth movement (OTM). **Aim:** The effect of PGV-0, one of curcumin analogs, was investigated on OTM, periodontal changes, osteoclast, osteoblast and COX-2 markers **Methods:** The study was conducted on 50 male Wistar rats (350-450 g), which were randomly divided into 5 groups (each n=10): 1) no treatment group (NT), 2) orthodontic only (ORT), 3) ORT plus analgesics' carrier 0.4% sodium-carboxymethyl cellulose (Na-CMC), 4) ORT plus 200 mg / kg BW Paracetamol (PCT) as negative and positive control groups, and 5) ORT plus PGV-0 (50 mg / kgBW). All medicaments were given orally one hour before installing an orthodontic appliance and every 12 hours in 10 days. The distance of movement of the teeth were measured every day at the same hour. **Results:** Periodontal changes were described. ANOVAs, post hoc and Spearman correlation were performed. PGV-0 did not inhibit orthodontic tooth movement ($p=0.278$). The number of TRAP(+) multinuclear cells in PGV-0 were higher not significantly with in both sides with in NT group but lower not significantly with in ORT on the same pressure side. PGV-0 did not influence the expression of osteocalcin and MMP-9 on both sides ($p>0.05$). However PGV-0 induced TRAP expression on the pressure side ($p=0.048$), but not in the tension side ($p=0.075$). TRAP expression on the tension side was positively correlated with OTM regardless the drugs involvement. **Conclusion:** PGV-0 can be developed as the orthodontic drug of choice for pain relief because they do not interfere with orthodontic tooth movement

Keywords: Analgesic, Orthodontic, PGV-0, OTM