

## **Quercetin alleviates generalized hyperalgesia in mice with induced adenomyosis.**

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### **Abstract**

Adenomyosis is a common gynecologic disorder characterized by the presence of endometrial glands and stroma within the myometrium. The present study investigated the effect of quercetin in neonatal Imprinting Control Region mice with tamoxifen-induced adenomyosis. The body weight and hotplate response latency of all mice was examined at 4, 8, 12 and 16 weeks after birth. The mice dosed with tamoxifen were divided into four groups: high or low quercetin group, valproic acid (VPA) group and untreated group. The group of mice that were neonatally administered with the solvent only (no tamoxifen), received no treatment and served as a blank control group. After 3 weeks of drug treatment, the potential ability of quercetin to improve the generalized hyperalgesia in mice with induced adenomyosis was evaluated by determining the body weight, pain modulation, examining the myometrial infiltration by histology examination of the uterus and detecting the expression of transient receptor potential cation channel subfamily V member 1 (Trpv1), phospho (p)p38 mitogen activated protein kinase pextracellular signalregulated kinase (pERK) in DRG neurons via immunohistochemistry. The results demonstrated that treatment with quercetin improved the generalized hyperalgesia by extending the hotplate response latency, reduced myometrial infiltration and decreased the expression levels Trpv1, pp38 and pERK in dorsal root ganglion neurons. The results indicated that quercetin decreases the incidence of hyperalgesia in mice with tamoxifen-induced adenomyosis, and the potential mechanism is through reduced central sensitization, which may be a promising treatment for adenomyosis.