

# Pregabalin Attenuates Carrageenan-Induced Acute Inflammation in Rats by Inhibiting Proinflammatory Cytokine Levels

By: **Kilic, FS** (Kilic, Fatma Sultan)<sup>[1]</sup>; **Kaygisiz, B** (Kaygisiz, Bilgin)<sup>[1]</sup>; **Aydin, S** (Aydin, Sule)<sup>[1]</sup>; **Yildirim, C** (Yildirim, Cafer)<sup>[1]</sup>; **Karimkhani, H** (Karimkhani, Hadi)<sup>[2]</sup>; **Oner, S** (Oner, Setenay)<sup>[3]</sup>

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## Abstract

**Objective:** Pregabalin (PGB) is a compound used in the treatment of epilepsy, anxiety, and neuropathic pain. Experimental data also indicate that PGB can reduce inflammatory pain. We aimed to investigate the anti-inflammatory effects of PGB on carrageenan (CAR)-induced paw edema and its effects on tumor necrosis factor-alpha (TNF-alpha) and interleukine-1 beta (IL-1 beta) acting as acute phase cytokines in inflammation, and antiinflammatory cytokine IL-10, in rats.

**Materials and Methods:** Single doses of PGB 30, 50, and 100 mg/kg and indomethacin (INDO) 5 mg/kg in the treatment groups and saline in the control group were injected once intraperitoneally prior to administration of 100 µl of 1% CAR into the right hind paw of the rats. The paw thickness was measured using gauge calipers (Vernier calipers) before (0 hour) and every hour afterwards for 6 hours following the inflammation induction. The cytokine levels in the blood serum obtained intracardiacally were determined after 6 hours using the enzyme-linked immunosorbent assay method.  $p < 0.05$  was considered statistically significant.

**Results:** There was no significant difference between the 0 and 6th hour considering the paw thickness in all groups, except in the CAR group. CAR significantly increased the paw thickness at 6 hours compared to the 0 hour. All doses of PGB and INDO significantly reduced the paw thickness after 6 hours compared to the CAR group. The TNF-alpha and IL-1 beta levels in the PGB and INDO groups were comparable to the control group, whereas in the CAR group, these levels were increased. The IL-10 level was enhanced in the PGB 50 mg/kg and INDO groups.

**Conclusion:** It was observed that all doses of PGB exerted anti-inflammatory-like effects comparable to INDO, supported by their effects on the levels of cytokines.

## Keywords

**Author Keywords:**Pregabalin; inflammation; anti-inflammatory effect; cytokines; rat

**KeyWords**

**Plus:**HYPERSENSITIVITY; GABAPENTIN; MECHANISMS; EXTRACT; MODELS; ACID; MICE

**Author Information**

**Reprint Address:**

*Eskisehir Osmangazi University Eskisehir Osmangazi Univ, Dept Pharmacol, Sch Med, Eskisehir, Turkey.*

**Corresponding Address:** Kilic, FS (corresponding author)

+ Eskisehir Osmangazi Univ, Dept Pharmacol, Sch Med, Eskisehir, Turkey.

**Addresses:**

+ [ 1 ] Eskisehir Osmangazi Univ, Dept Pharmacol, Sch Med, Eskisehir, Turkey

+ [ 2 ] Istanbul Medipol Univ, Dept Biochem, Sch Med, Istanbul, Turkey

+ [ 3 ] Eskisehir Osmangazi Univ, Dept Biostat, Sch Med, Eskisehir, Turkey

**E-mail Addresses:**[fskilic@ogu.edu.tr](mailto:fskilic@ogu.edu.tr)

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