

Analgesic Effect of Intrathecal *Melissa officinalis* in the Rat Model of Hot-Water and Formalin-Induced Pain

Abstract

Melissa officinalis (MO) is one of the oldest herbal medicines commonly used in traditional medicine, which some studies have investigated for its analgesic effect. This study is an attempt to investigate the effects of intrathecal administration of *Melissa officinalis* on the pain induced by heat and formalin.

In this experimental study, 70 male Wistar rats with an average weight of 270-320 g were randomly divided into five groups: control; sham that received 25 μ l of saline through the spinal catheter; and three experimental groups that received 5, 10 or 20 mg/kg *M. officinalis* via the spinal catheter respectively. Five days after catheterization of the spinal cord from the lumbar region under anesthesia, the effects of Intrathecal administration of *M. officinalis* on heat- and formalin-induced pain were evaluated. Data were analyzed by using one-way ANOVA. Intrathecal injection of *M. officinalis* blocked heat-induced pain compared to sham group ($p = 0.001$). Maximum analgesia was observed 30 min after the injection. Furthermore, intrathecal administration of MO alleviated both acute ($p = 0.007$) and chronic ($p = 0.001$) phases of formalin-induced pain. Motor block was not observed in any of the above mentioned groups. The results showed that intrathecal administration of MO could significantly improve hot-water and formalin-induced pain in male Wistar rats