

## INTISARI

**Latar belakang:** Monosodium glutamat (MSG) merupakan penguat rasa yang penggunaannya cukup luas di masyarakat. Kadar glutamat berlebih pada jaringan saraf menyebabkan eksitotoksitas yaitu kerusakan sel-sel penyusun sistem saraf yang mengakibatkan perubahan respon nyeri pada regio orofasial.

**Tujuan:** Penelitian ini bertujuan untuk mengkaji perubahan respon nyeri regio orofasial dan perubahan jumlah neuron sensoris ganglion trigeminal tikus Wistar (*Rattus norvegicus*) jantan akibat pemberian MSG.

**Metode:** Dua puluh delapan tikus Wistar jantan usia 6-8 minggu (100-150 gram) terbagi dalam 4 kelompok yaitu: kelompok kontrol (2 mL NaCl 0,9%); kelompok perlakuan 1 (1 mg/gBB MSG) kelompok perlakuan 2: (2 mg/gBB MSG); kelompok perlakuan 3 (4 mg/gBB MSG). Monosodium glutamat dilarutkan dalam 2 ml NaCl 0,9% dan diberikan melalui sonde selama 30 hari. Uji tusukan jarum dan uji hembusan udara dilakukan sebelum perlakuan, hari 41-42 dan hari 55-56. Penghitungan jumlah neuron sensoris ganglion trigeminal menggunakan metode stereologi non bias

**Hasil:** Tidak terdapat perbedaan respon hiperalgesia dan nilai ambang alodinia yang bermakna antar kelompok C, T1, T2 dan T4 ( $p > 0,05$ ). Jumlah neuron sensoris ganglion trigeminal tidak menunjukkan perbedaan yang bermakna antar kelompok perlakuan ( $p > 0,05$ ).

**Kesimpulan:** Pemberian MSG selama 30 hari tidak mempengaruhi respon nyeri regio orofasial dan estimasi jumlah neuron sensoris ganglion trigeminal.

### Kata kunci :

Monosodium glutamat, neuron sensoris ganglion trigeminal, hiperalgesia, alodinia

## ABSTRACT

**Background:** Monosodium glutamate (MSG) is a worldwide flavor enhancer. The excessive glutamate concentration in nerve tissue induces the death of nerve cells, known as excitotoxicity. In the orofacial region, the nerve cells' death affects pain perception such as mechanical hyperalgesia and allodynia.

**Objective:** The aim of the present study was to examine the pain response modification and the estimated number of trigeminal ganglion sensory neuron after sub chronic oral administration of MSG.

**Method:** Twenty eight male Wistar rats, aged 6-8 weeks (100-150 grams) were divided into 4 groups: Control (2 mL NaCl 0.9%); 1 mg/gBB MSG; 2 mg/gBB MSG; 4 mg/gBB MSG groups. Daily oral administration of MSG was given for 30 days. The control group received NaCl per oral for the same period. The pin prick and air puff test were performed on days 1-2, days 41-42 and days 55-56. The number of trigeminal ganglion sensory neurons were estimated by the unbiased stereology method, using the equation:  $N_v \times V_{ref}$ .

**Results:** The results of this present study showed no significant difference on hyperalgesia response and allodynia threshold between groups. No significant decrease of estimated number of sensory neuron of trigeminal ganglion were found between groups.

**Conclusion:** The sub chronic oral administration of MSG does not modify either the orofacial pain response or the estimated number of trigeminal ganglion sensory neuron.

### Keywords:

Monosodium glutamate, trigeminal ganglion sensory neuron, hyperalgesia, allodynia