

PubMed

[Abstract](#)

*Arch Med Res.* 1995;26 Spec No:S127-32.

## Chronobiological variations in the convulsive effect of monosodium L-glutamate when administered to adult rats.

[Feria-Velasco A<sup>1</sup>](#), [Feria-Cuevas Y](#), [Gutiérrez-Padilla R](#).

### Author information

### Abstract

Monosodium L-**glutamate** (**MSG**) when administered intraperitoneally (i.p.) to rodents induces convulsions and has been used as a model to study various aspects of status epilepticus of multifocal origin. There are circadian variations of susceptibility to convulsions induced by various factors in some animal species. The aim of this work was to learn whether the convulsive effect of **MSG** in rats would vary when the drug is given at different times of the day. Three subgroups of Wistar rats were given i.p. 5 mg/g **MSG** at 07:00, 15:00 and 23:00 h, whereas two groups of rats divided into three subgroups of five animals each were used as controls, also being injected at 07:00, 15:00 and 23:00 h. One group was injected with NaCl solution, equimolar to that of **MSG** (eqNaCl); the other was injected with physiological saline solution (PSS) in proportional volumes to those of the experimental group. Motor behavior was recorded for 4 h following injections in the three groups of animals. Neither signs of brain hyperexcitability, nor convulsions appeared in animals injected with PSS or eqNaCl. With **MSG**, no variations were seen in the latency period when data from the three subgroups studied were compared among them. Duration of convulsive period when rats were injected at 07:00 h was shorter than that seen at 15:00 and 23:00 h. No significant variations were seen in total number of convulsive episodes in the three subgroups, while the number of seizures per hour and their intensity were significantly greater when animals were injected at 07:00 h than those seen when rats were studied at 15:00 and 23:00 h. Nearly 70% of animals injected at 07:00 h died in status epilepticus, whereas no deaths were recorded in animals injected at 15:00 and 23:00 h. Results could be explained in terms of variations of physiological processes at both the brain and extracerebral tissues involved in **MSG** metabolism and cerebral excitability, related to circadian rhythms.

PMID: 8845636 [PubMed - indexed for MEDLINE]



---

**MeSH Terms, Substances**



---

**LinkOut - more resources**



---

## PubMed Commons

[PubMed Commons home](#)

0 comments

[How to join PubMed Commons](#)