

ABSTRACT

THE EFFECT OF VITAMIN C IN MOTORIC COORDINATION ON MALE ALBINO RAT (*Rattus novergicus*) STRAIN Sprague dawley INDUCED BY MONOSODIUM GLUTAMATE

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Background: Monosodium glutamate (MSG) can causes excessive stimulation of glutamate receptors so that an increase in Ca^{2+} concentration is thought to be the initial cause of cell necrosis and triggers the production of Reactive Oxygen Species (ROS). Excessive consumption of MSG is associated with impaired motor coordination. Vitamin C has been shown to play an important role in maintaining motor skills. The purpose of this study was to determine the effect of vitamin C on motor coordination of white rats (*Rattus novergicus*) *Sprague dawley* strain induced by MSG.

Method: This research is an experimental study with a post test only control group design. The samples used were 30 animals which were divided into 5 groups with each group consisting of 6 rats. After being treated for 21 days, motor coordination was assessed with balance beam test device that the rats passed. Data were analyzed by one way ANOVA test and continued with post hoc LSD test.

Results: The mean balance beam test results in sequence for each group K (-), K (+), P1, P2, P3 were $12,08 \pm 9,6$ seconds; $41,75 \pm 18,35$ seconds; $18,5 \pm 12,27$ seconds; $17,7 \pm 11,12$ seconds; $38,33 \pm 19,10$ seconds. seconds. The results of the analysis on the balance beam device are normally distributed and homogeneous data with $p = 0.005$ ($p < 0.05$).

Conclusion: There is effect on the administration of vitamin C to the motor coordination of male white rats (*Rattus novergicus*) *Sprague dawley* strain induced by MSG ($p=0,005$).

Keywords: balance beam test, motor coordination, MSG, *Rattus novergicus*, vitamin C

ABSTRAK

PENGARUH PEMBERIAN VITAMIN C TERHADAP KOORDINASI MOTORIK TIKUS PUTIH (*Rattus norvegicus*) JANTAN GALUR *Sprague dawley* YANG DI INDUKSI MONOSODIUM GLUTAMAT

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Latar Belakang: Monosodium glutamat (MSG) dapat menyebabkan stimulasi yang berlebihan terhadap reseptor glutamat sehingga dapat terjadi peningkatan konsentrasi Ca^{2+} yang diduga menjadi awal penyebab nekrosis sel dan memicu produksi *Reactive Oxygen Species* (ROS). Konsumsi MSG yang berlebihan berkaitan dengan gangguan koordinasi motorik. Vitamin C telah terbukti memainkan peran penting dalam mempertahankan kemampuan motorik. Tujuan penelitian ini yaitu mengetahui pengaruh pemberian vitamin C terhadap koordinasi motorik tikus putih (*Rattus norvegicus*) jantan galur *Sprague dawley* yang di induksi MSG.

Metode: Penelitian ini adalah studi eksperimental dengan rancangan *post test only control group design*. Sampel yang digunakan sebanyak 30 ekor dan dibagi ke dalam 5 kelompok dengan tiap kelompok terdiri dari 6 ekor tikus. Setelah diberikan perlakuan selama 21 hari, koordinasi motorik dinilai dengan perangkat *balance beam test* yang dilewati tikus. Data dianalisis dengan uji *one way ANOVA* dan dilanjutkan dengan uji *post hoc LSD*.

Hasil: Hasil rerata *balance beam test* secara berurutan setiap kelompok K(-), K(+), P1, P2, P3 adalah $12,08 \pm 9,6$ detik; $41,75 \pm 18,35$ detik; $18,5 \pm 12,27$ detik; $17,7 \pm 11,12$ detik; $38,33 \pm 19,10$ detik. Hasil analisis pada perangkat *balance beam* yaitu data tersebar normal dan homogen dengan $p=0,005$ ($p < 0,05$).

Simpulan: Terdapat pengaruh pada pemberian vitamin c terhadap koordinasi motorik tikus putih jantan (*Rattus norvegicus*) galur *Sprague dawley* yang diinduksi MSG ($p=0,005$).

Kata Kunci: *balance beam test*, koordinasi motorik, MSG, *Rattus norvegicus*, vitamin C