

THE EFFECT OF VITAMIN C TO TESTIS WEIGHT, NUMBERS OF LEYDIG CELLS, AND DIAMETER OF SEMINIFERUS TUBULES OF ADULT MALE MICE(*Mus Musculus L*) INDUCED BY MONOSODIUM GLUTAMATE

By

Kania Anindita Bustam

Monosodium glutamate is commonly used as a food seasoning that has free radical effect in the body when the usage doses exceed normal range. The generated oxidative stress may effect male fertility by influencing spermatogenesis process. Vitamin C is one of antioxidants which is effective against free radical effects in the body.

This study aims to prove the effect of vitamin C to testis weight, numbers of Leydig cells, and diameter of seminiferus tubules of adult male mice induced by monosodium glutamate. This study uses a randomized controlled design.

This study used 25 adult male mices DD Webster strain as subject of this study, which were randomly divided into 5 groups : K(-) (given MSG 4mg/grBW), K(+) (given vitamin C 0,2 mg/grBW), P1 (given MSG 4 mg/grBW and vitamin C 0,07 mg/grBW), P2 (given MSG 4 mg/grBW and vitamin C 0,2 mg/grBW), P3 (given MSG 4 mg/grBW and vitamin C 0,6 mg/grBW) after 15 days of treatment, measurement on testis weight and histological measurement on numbers of Leydig cells and diameter of seminiferus tubules were taken. Data were analyzed by using one-way ANOVA test followed by post hoc analysis test with LSD method and Kruskal-Wallis test followed by post hoc analysis test with Mann-Whitney method.

The result showed the average testis weight in group K(+), K(-), P1, P2, and P3 respectively were 0.123 ± 0.008 ; 0.092 ± 0.008 ; 0.098 ± 0.007 ; 0.110 ± 0.007 ; 0.118 ± 0.008 with p value = 0.000 in one way ANOVA test. Post hoc LSD analysis showed significant value in group K(+) with K(-), P1, P2; group K(-) with P2, P3, K(+); group P1 with P2, P3, K(+); group P2 with K(+), K(-), P1; and group P3 with K(-) dan P1.

The result showed the average numbers of Leydig cells in group K(+), K(-), P1, P2, and P3 respectively were 434 ± 54.92 ; 248 ± 81.42 ; 251 ± 90.27 ; 299 ± 47.70 ; 469 ± 79.01 with p value = 0.000 in one way ANOVA test. Post hoc LSD analysis showed significant value in group K(+) with K(-), P1, P2; group K(-) with K(+) and P3; group P1 with P3 and K(+); group P2 with K(+), P3; and group P3 with K(-), P1, P3.

The result showed the average diameter of seminiferus tubules in group K(+), K(-), P1, P2, and P3 respectively were 64.06 ± 0.66 ; 55.54 ± 0.44 ; 59.33 ± 6.93 ; 66.61 ± 4.60 ; 64.80 ± 3.87 with p value = 0.037 in Kruskal-Wallis test. Post hoc Mann-Whitney analysis showed significant value in group K(-) with P2, P3, K(+).

Based on this study, it can be concluded that vitamin C has effect to o testis weight, numbers of Leydig cells, and diameter of seminiferus tubules of adult male mice induced by monosodium glutamate.

Key words : Monosodium glutamate, vitamin C, testis, testis weight, Leydig cell, diameter of seminiferus tubule, mice.